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Connections Between Learning Arithmetic and Object Visual Imagery Ability in Elementary School - Learning the multiplication table

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ABSTRACT

While in higher education, grades in computer science and STEM courses negatively correlate with the vividness of object visual imagery (Sokolowski, 2024), it appears that among individuals lacking object visual imagery, there is a higher proportion who did not learn the multiplication table during early schooling compared to the majority. Based on a non-representative survey, I hypothesized that there is a relationship between the effectiveness of multiplication table memorization and the vividness of object visual imagery. However, in reviewing the literature on teaching methods for the multiplication table that employ visual memory, I have not yet found support for this hypothesis.

KEYWORDS

arithmetic, multiplication table, verbal imagery, object visual imagery, spatial imagery

INTRODUCTION

'Inner vision' is essential for mathematics (Hersh, 2006), although this term refers not to imagining as images but rather to conceptualizing in a multidimensional space. Hersh (1997, p. 27) mentions multiplication table memorization as a counterexample to learning mathematics, and, for example, the Montessori method also considers it harmful.

However, for many, learning the multiplication table still sours the experience of engaging with mathematics, as illustrated in Virginia Woolf's short story 'In the Orchard', in which, a century ago, she recalls this experience (1923): "Four feet in the air over her head the apples hung. Suddenly there was a shrill clamour as if they were gongs of cracked brass beaten violently, irregularly, and brutally. It was only the school-children saying the multiplication table in unison, stopped by the teacher, scolded, and beginning to say the multiplication table over again. But this clamour passed four feet above Miranda's head, went through the apple boughs, and, striking against the cowman's little boy who was picking blackberries in the hedge when he should have been at school, made him tear his thumb on the thorns." (2nd paragraph) "the children said the multiplication table {…} the teacher scolded the children and rapped Jimmy over the knuckles till they bled" (7th paragraph).

In The Number Sense: How the Mind Creates Mathematics (2011), Dehaene refers to the most commonly used method of learning the multiplication table, described above, as an 'unnatural practice' which he attributes to its relative lack of success (p. 112.). He argues that children struggle so much with learning the multiplication table because the language required for it only recently developed in evolutionary terms, and our brains have not yet fully adapted to the language of numbers and algorithms.

Regarding the important role of memorizing the multiplication table in science education, Adey and Csapó (2012, p. 22) reference it alongside spelling as an example of learning that differs from development. The long-lasting importance of knowledge learned in elementary school education is illustrated by the continued usefulness of having memorized the multiplication table in adulthood (Kálmán, 2022, p. 58), and a writer thinks of it as the clearest example of what cannot be taught in a project framework (Stein, 2023, p. 2.).

In various countries, such as the United States (Klein, 2003) and the United Kingdom (Boaler, 2015), there is an active debate, which can be summarized as 'drill and (s)kill', about the necessity of learning the multiplication table, leading to changes in the curricula used. In Hungary, the 'one by one debate' focused on whether 'university-level' mathematics should be taught to children who have not yet learned the multiplication table (Dancs, 2021), a topic Tamás Varga addressed in one of his final articles (1987). For centuries, learning the multiplication table was considered essential. Books demonstrating various teaching and learning methods have been published, offering numerous tasks designed to engage children's interests. These resources are helping to transform the methods of teaching and learning the multiplication table (Newton, 2024).

METHODS

The literature review was preceded by two preliminary pilot studies, both conducted in a Facebook group dedicated to individuals with aphantasia, that is, people with very weak or no visual imagery ('Aphantasia (Non-Imager / Mental Blindness) Awareness Group | Facebook'), where I posted questions with voting options. The first question asked in which subjects the lack of visual imagery caused difficulties. The majority, 17% of the 675 responses, named arithmetic/mathematics, with some specifically noting their difficulties (or lack thereof) with learning the multiplication table. The second question asked whether a lack of visual imagery caused difficulties in learning the multiplication table. Among the 367 responses, 50% reported no difficulties, while 43% said it did. Posing this question in another group ('Aphantasia! | Facebook') and modifying the response options slightly, I added an option: 'I did not learn the multiplication table, and I still calculate some multiplications.' Of the 148 responses, 40% chose this option, 53% reported learning it easily, and 4% reported

learning it with difficulty. Since the respondents in these groups vary in age, as do the methods used to teach the multiplication table during their early schooling, it would be difficult to find a comparable group for them (Olfos, 2021).

The literature review focused on studies examining multiplication table learning using brain imaging methods and on articles concerning multiplication table teaching and learning in relation to visual imagery.

AIMS, RESEARCH QUESTION AND HYPOTHESES

H1: Object visual imagery is also important in learning the multiplication table.

H2: A higher-than-average number of people with aphantasia do not learn the multiplication table in early primary school; instead, they quickly recalculate it each time it is needed.

LITERATURE REVIEW

The level of multiplication table knowledge is easy to measure, while measuring the method of response is more challenging.

The third paragraph of the introduction to Dehaene's The Number Sense: How the Mind Creates Mathematics (2011, p. xvii) begins with the question. “Why is it that after so many years of training the majority of us still do not know for sure whether 7 times 8 is 54, 64 … or is it 56?” According to him, adults respond relatively slowly and make more frequent errors when reciting multiplication table facts than would be expected based on persistent childhood learning. However, this is not due to a deficiency in their memory but rather to the interference caused by associations between different elements of the multiplication table. The numerical data he provides (p. 112), unfortunately, cannot serve as a basis for comparison with the level of visual imagery.

In the United Kingdom, a regular assessment measures the multiplication table knowledge of students nationwide. According to this assessment, students scored an average of 20.2 out of 25 on a test measuring multiplication table learning effectiveness in 2023, which is 0.4 points higher than the previous year (Explore Education Statistics Homepage, Multiplication tables check attainment, 2024). No comparable data for Hungary on the effectiveness of multiplication table learning was found. The Hungarian National Competency Measurement’s mathematics data (Oktatási Hivatal, 2024) does not include any data specific to multiplication table knowledge. The Cognitive Profile Test (Gyarmathy, 2009) includes some multiplication tasks in the category of calculation tasks, but it is unknown whether the student retrieves or calculates the answer. International surveys of adults (Keslair, 2020) do not have data specifically on multiplication table knowledge.

Computer-based multiplication tasks allow measurement of both accuracy and speed (Jármi, 2012). In a large dataset on the multiplication knowledge of students in the United States, researchers examined how many repetitions are needed for a student to respond correctly when multiplying single-digit numbers (Burns, 2015); the number of required repetitions decreased with age and mathematical proficiency.

Interviews with students individually provide the most information about their thinking strategies, allowing for comparison of the effects of teaching methods influencing development across different countries. However, due to the time required, this method is not feasible for assessing larger groups (Ford, 2011). Among children, personal interviews also seem to be the most reliable for examining the relationship between visual imagery and learning the multiplication table. Firstly, since there is no generally accepted method for measuring children’s visual imagery, it is currently unresolved how to find a comparable group to measure the multiplication table knowledge of those with extremely weak visual imagery, although the C-OSIVQ questionnaire is recommended by the authors for children from the age of 8 (Blazhenkova, 2011). Secondly, children with poor object visual imagery may have strong spatial imagery and/or abstract/mathematical thinking skills, enabling them to quickly calculate the results of multiplication tasks even without memorizing multiplication facts. Therefore, a test focused on multiplication table use would not necessarily reveal the lack of memorization. The result may not be based on memorized facts, but on real mathematical knowledge.

As illustrated by the introductory literary quotation, it appears that learning the multiplication table can be an unpleasant experience for many, and for individuals with aphantasia—characterized by a markedly weak visual imagery—this can be especially challenging, maybe because visual imagery plays a role in memorizing the multiplication table. In Kendle’s (2017) book, aphantasic respondents frequently mentioned that learning the multiplication table was one of their most significant early academic challenges, with many instead adopting creative grouping and addition-based strategies. For instance, one respondent, whose teacher likely advised memorizing the multiplication table ‘as an image’, noted that, since he "couldn’t see the table in head," he developed an alternative approach to understand numerical relationships (Kendle, 2017, p. 56). In later academic studies, however, those with weak object visual imagery no longer experience disadvantages, as mathematics requires not so much object visual as spatial imagery (Crowder, 2018; Pinto, 2018; de Hevia, 2021).

One aphantasic person (personal communication) recalled difficulties with the multiplication table in early school years but later excelling in mathematics, noting, "I was always considered exceptionally good at math. In high school, I never had to study math, and in fact, I took pride in solving problems independently… However, I could hardly learn the multiplication table during elementary school… I still remember how my grandfather struggled with me during our walks to drill it into my memory." Another aphantasic student (personal communication) found ease in math when, in 7th grade, a new teacher required written documentation of every calculation, allowing the student to visualize the problem-solving process externally rather than mentally. Similarly to her experience, researchers have also noted the helpfulness of representing mental images physically, such as on paper (MacKisack, 2020).

Some research indicates that both the verbal and spatial-visual sketchpad components of working memory contribute to multiplication accuracy, as tasks requiring both verbal and spatial-visual processing tend to impair

performance (Cavdaroglu, 2016). However, it is generally believed that the phonological loop supports the storage and recall of single-digit addition and multiplication facts (Jármi, 2013), with minimal connection to spatial-visual processing measured by mental rotation (Yu, 2023), and that verbal activity can be disruptive (Moeller, 2011), but not the keeping a picture in memory (Lee, 2002). Short-term recall aids the retention of multiplication facts, similar to the recall of verbal or visual information (Schrift, 2022).

Resources such as Multiplication Table Rhymes (Erdős, 2017) and memory games, found for example on Magicletter's website (Kazal, 2024) leverage the verbal nature of multiplication learning. The tradition of learning multiplication table as rhymes is longstanding: in 1577, the Debreceni Aritmetika (Arithmetics of Debrecen) encouraged memorizing the 'one-by-one' in rhymed form (Hárs, 1938, p. 159). Later math textbooks incorporated rhymes, like Onadi János's book (Practici Algorithmi Erotemata Methodica. The Actionable Numbers Which, by Easy Questions and Answers, Show the Short Path to that Science, Published in Kassa/Košice) in 1693 and Menyői Tolvaj Ferenc's (The art of arithmetic, or counting and its varieties, contained in short rules in verse in Hungarian, published in Brassó/ Brașov) in 1735. However, unlike these verbal-based approaches, the Guide to Teaching Mathematics (Csépe, 2020) discourages rote learning of multiplication tables without understanding their interconnections, stating, "Rote memorization of tables without understanding their external and internal relationships is not recommended!" (Csépe, 2020, p. 48). As a forerunner to this suggestion, Maróthi György's 1743 book encourages finger-counting. The Montessori method also allows students to use various counting aids, bypassing the need for memorization, instead letting them unintentionally learn multiplication through playful, hands-on practice (Donabella, 2008; Purington, 2017).

Brain imaging studies, including fMRI, reveal that different parts of the brain are involved in recalling versus calculating multiplication results (Sokolowski, 2023). However, it remains unmeasurable which aspects of imagery support these processes. Thus, it is still uncertain to what extent spatial, object visual, or verbal imagery and memory are involved in memorizing and recalling multiplication facts. The mental rotation tasks typically used to measure spatial processing (Yu, 2023) do not measure object visual imagery-based thinking (Kay, 2024).

'Verbal' learning includes not only rote memorization but also 'semantic' learning, which emphasizes understanding and recognizing relationships, such as 6 * 9 = (6 * 10) - 6 or (6 * 6) + (6 * 3). Elementary school students typically use this method less frequently on their own (Isoda, 2021), but aphantasic children often report employing it. For aphantasic students, arithmetic that involves multiplication poses fewer challenges than rote memorization of the multiplication table as text (Kendle, 2017). The cognitive processes required for multiplication fact knowledge evolve gradually with age and practice, shifting from a meaning-based understanding to a categorical interpretation (Grenier, 2020). The efficacy of verbal learning is also influenced by the language of learning, as certain linguistic structures (such as the German word order in number naming) emphasize the ones over the tens, aiding their memorization (Bahnmueller, 2020; Kraut, 2023). After learning arithmetic in the mother tongue, using a language with a different number naming convention makes multiplication more flexible (Prior, 2015). Children with dyslexia may face additional challenges with verbal learning of the multiplication table compared to their peers, irrespective of language (Gomides, 2018; Bíró, 2020).

According to Bruner (1966), children experience reality through three stages: active engagement, iconic (pictorial) representation, and symbolic (language-based) understanding. Thus, effective learning of the multiplication table might start with active methods, such as finger-counting, as suggested in Maróthi's book (1743), followed by visual approaches like 'quick looks', which visually depict multiplication factors as groups of dots (Kling, 2023). This method can be useful even for those with weak visual imagery and may also foster the development of visual memory and imagery. The presence of Brunerian representational stages is beneficial not only in early multiplication learning but also in supporting understanding in later studies (Lázár, 2023).

Harries (2007) posits that students' visual imagery can assist in learning multiplication, underscoring the importance of visualizing the multiplication operation. However, the study does not specify whether the mental image used is visual or spatial in nature. Goldin (2001) emphasizes the role of both visual and spatial imagery in elementary students' math learning. Studies suggest that understanding multiplication with visual aids improves retention compared to memorizing it as text (Holland, 2022), although it remains unclear whether this is due to comprehension or support for visual memory and imagery.

To understand mathematical concepts and operations, the much broader concept of mental representation is used, rather than visual representation (Barmby, 2009; Day, 2015). There is no question about the important role of spatial imagery in understanding, but even among relatively recent writings, there are some that refer to it as spatial visual imagery (Looi, 2016, p. 8; Clements, 2020). However, object visual and spatial imagery play different roles and are often developed to varying degrees (Bergmann, 2016; Blazhenkova, 2019; Palermo, 2022; Keogh, 2020; Liu, 2023b). When looking at the thinking required to learn mathematics or multiplication tables, the same mistake should not be made as described by the imagery researcher Faw as an example of researchers' flawed interpretations of experiments: another imagery researcher did not believe him to have an average spatial imagery with an undeveloped object visual imagery after he was able to take a set number of steps with his eyes closed in the directions the examiner had indicated and then point back in the direction he had started (Faw, 2009, 66. p. 66).

The necessity of memorizing the multiplication table is a subject of debate. Previously, learned facts such as the multiplication table constituted a significant portion of education, but now its exclusive importance is increasingly questioned (Knausz, 2017). Barbara Oakley (2014), at the beginning of her book 'A Mind for Numbers' (pp. 2-3), recalls her school years when "a

crochety math teacher made us sit for hours in the sweltering heat doing rote addition and multiplication." Later (p. 70), however, she points out to the reader that "practice can become an unrelenting instrument of torture; however, despite its occasional misuse, it's critical." According to her, in the era of ChatGPT and expanding information-gathering technology, having instantly retrievable, factual knowledge remains crucial, even for using these new tools effectively, which underscores the importance of learning the multiplication table (Oakley, 2024).

The effectiveness of learning the multiplication table and its relationship to various abilities has also been studied.

More effective methods exist than the traditional rote learning, for example, by applying Bruner's enactive, iconic, and symbolic learning strategies (Brendefur, 2015). Teachers generally consider it important for students to know the multiplication table facts automatically and view the use of various calculation strategies as essential steps in this acquisition process (Baker, 2018). The role of the hippocampus is important during initial learning and practice but becomes less so as automation develops (Delazer, 2019).

Success in learning the multiplication table is not related to intelligence or mathematical abilities, but rather to the development of the hippocampus (Supekar, 2013). Similarly, the correlation between intelligence and general learning effectiveness is, at most, moderate (Józsa, 2001). Curriculum designers and teachers who view rote learning as the foundation for future studies are mistaken, potentially causing harm to students who take these expectations seriously. In early school years, what children need is not knowledge learned verbally but rather the development of number sense and thinking skills (Boaler, 2015). An exception is made for students with specific calculation difficulties, for whom memorized multiplications can be recalled (Dehaene, 1999). Our language module, which stores the values of numbers and retrieves learned multiplication facts, "stores this information as nonsensical rhymes" (Krajcsi, 2008, p. 185), while our mental number line helps with understanding the relationships between numbers. For example, we are less sensitive to multiplication errors farther away from the starting point, the target result, than closer ones (Didino, 2015).

Using Bloom's taxonomy, learning the multiplication table represents only the level of recognition; even the level of understanding does not necessarily imply the ability to perform the operation. Since application, analysis, synthesis, and evaluation do not hierarchically depend on the level of knowledge, children with underdeveloped memory may still be capable of performing complex tasks that require thinking in the bigger picture (Vida, 2021). For children with low working memory, providing external storage, in the form of additional visual aids, for multiplication facts is recommended (Vida, 2019, pp. 51, 56).

Computer-based multiplication learning games provide quick feedback for individual practice (Leonardou, 2019), while designing drawings and illustrations may focus primarily on motivating children. Among the many methods developed for learning multiplication tables using computers, smartphones and tablets, the 'Imagine Math Facts', which is indeed effective according to the testimony of articles (Berrett, 2018), is worth mentioning because it advertises itself on its website as "Near-Instant Recall — No Need for Mental Math" (Imagine Learning LLC., 2024). In an instructional video, the metaphorical interpretation of the gestures shown can also help learning, for example, in a video explaining multiplication, the gesture of inclusion to aid understanding (Bos, 2022).

The speed and accuracy of multiplication, both in children and adults, decrease as the product increases, suggesting a mental spatial representation of number magnitude (De Brauwer, 2006; De Smedt, 2011). However, according to an older study, this effect was also strengthened by the fact that textbooks included multiplications by smaller numbers more frequently than with larger ones (Ashcraft, 1995). Memory interference due to the sequence of learning can be observed not only in children learning the multiplication table but also in adults, as it has traditionally been taught and learned as text (De Visscher, 2014; 2018), as well as interference from the relationships between numbers (Salillas, 2021). Interference due to overlapping numbers also disrupts children; for example, $3 \times 4 = 12$ and $3 \times 7 = 21$ share three identical digits (De Visscher, 2016; Dotan, 2022). An fMRI study detected the impact of product magnitude clearly but could not clearly detect the neural mechanism of interference (Polspoel, 2019).

The calculation and reading measurement results of primary school students show that they develop almost in parallel, which is unsurprising given the methods used in arithmetic teaching (Singer, 2017; Balhinez, 2019; Purpura, 2019). Multiplication in adults mainly relies on memory, with support from the central executive and phonological loop of working memory (Seitz, 2002). Children initially rely on the verbal aspect of the multiplication table, slowly progressing towards conceptual understanding (Mabbott, 2003), first using verbal memory, and later, during subsequent years of learning, relying more on visuospatial working memory. This shift likely occurs because tasks are initially learned through listening, and later are seen in written form (Soltanlou, 2015).

Discussion

Arithmetic problems can be solved using different strategies: retrieval and procedural (Sokolowski, 2023). Number facts, like multiplication tables might be verbally stored in an associative multiplication fact retrieval network. They are interference prone (De Visscher, 2016), which is due to similarities of the digits and is important in memorizing arithmetic facts (De Visscher, 2018). Adult bilinguals have greater proficiency with multiplication tables when using the language in which they originally learned arithmetic as children (Martinez-Lincoln, 2015). Verbal and visuo-spatial memory methods shift over time, maybe because of different learning needs (Soltanlou, 2015).

It seems that verbal memory alone is sufficient for initially learning the multiplication table, therefore students without object visual imagery can learn it as text.

Brain regions necessary for learning the multiplication table and for visual imagery have been measured using both EEG and fMRI methods, yet these

results cannot be compared; on one hand, the use of the multiplication table depends on teaching and learning methods, and on the other, findings from research into the brain areas and networks required for visual imagery remain inconclusive (Fulford, 2018; Winlove, 2018; Pearson, 2019; Milton, 2021; Liu, 2023; Spagna, 2023; Dawes, 2024; Dijkstra, 2024).

H1 is not supported, although pilot questionnaires suggest that learning the multiplication table is more challenging for individuals with aphantasia than for others, I found no references to this in the literature. Many teaching methods for the multiplication table rely on visual memory, including some that aid understanding even without visual imagery. A method that asks students to 'visualize' the multiplication table is clearly not suitable for students with poor visual memory or imagery.

H2 is somewhat supported by evidence that spatial imagery, rather than object visual imagery is needed for learning mathematics (Pinto, 2018; de Hevia, 2021; Sokolowski, 2024); however, neither the literature nor the questionnaire research has provided sufficient evidence for this.

Conclusion

The relationship between object visual imagery abilities and methods of learning the multiplication table were examined. Object visual imagery, especially when using the 'see the times table in your head' method might aid rote learning which is usually considered a verbal task. Not learning the multiplication table is not a disadvantage after being questioned, provided that abstract/real mathematical thinking is fast enough to calculate multiplication when it is needed. Additionally, recent research suggests that learning multiplication and rules verbally, as text, is not only unnecessary but can also hinder mathematical thinking and imagination (Newton, 2024).

Non-visual, more abstract thinking likely facilitates recalculation, when necessary, therefore, memorizing the facts of the multiplication table may seem unnecessary for an aphantasic student. Additionally, some aphantasic individuals, lacking visual imagery, memorize things verbally rather than visually, as most people do (Monzel, 2024); in other words, their verbal thinking plays a more prominent role than it does for most people. It is possible that, in their case, learning the multiplication table verbally — described by Dehaene (2011) as an 'unnatural practice' — is more challenging not because of the lack of visual imagery but due to the increased role of verbal thinking. It would be interesting to investigate how true it is for aphantasic individuals that they use the multiplication table in the language it was taught to them in during primary school. That is, is it easier for them to perform multiplication in a 'foreign' language, or to revert to the language in which they were taught the multiplication table?

The vividness of visual imagery is measurable, though currently only in laboratory settings (Kay, 2022; Keogh, 2024). However, methods have already been developed to measure pupil constriction or dilation in response to imagined brightness or darkness using mobile devices, smartphones, or VR. With commercially available HMDs, the vividness of visual imagery will soon be measurable anywhere with laboratory precision (McPhee, 2024). Smartphones are also capable of measuring pupil size, although the reliability of these methods still requires refinement (Hellier, 2024). Shortly, it will be measurable whether a student's difficulty in learning the multiplication table is due to the lack of visual imagery, the increased role of verbal thinking associated with it, or something else.

References

Adey, P., & Csapó, B. (2012). *A természettudományos gondolkodás fejlesztése és értékelése.*

Aphantasia (Non-Imager/Mental Blindness) Awareness Group|Facebook. https://www.facebook.com/groups/204603509580186/. Last accessed: 27.10.2024

Aphantasia! Group|Facebook. https://www.facebook.com/groups/395928123854293/. Last accessed: 27.10.2024/

Ashcraft, M. H., & Christy, K. S. (1995). The frequency of arithmetic facts in elementary texts: Addition and multiplication in grades 1–6. *Journal for Research in Mathematics Education, 26(5),* 396-421.

Bahnmueller, J., Göbel, S. M., Pixner, S., Dresen, V., & Moeller, K. (2020). More than simple facts: cross-linguistic differences in place-value processing in arithmetic fact retrieval. *Psychological Research, 84*, 650-659.

Baker, A. T., & Cuevas, J. (2018). The Importance of Automaticity Development in Mathematics. *Georgia Educational Researcher, 14(2),* 13-23.

Balhinez, R., & Shaul, S. (2019). The relationship between reading fluency and arithmetic fact fluency and their shared cognitive skills: A developmental perspective. *Frontiers in Psychology, 10*, 1281.

Barmby, P., Harries, T., Higgins, S., & Suggate, J. (2009). The array representation and primary children's understanding and reasoning in multiplication. *Educational studies in mathematics, 70*, 217-241.

Bergmann, J., Genç, E., Kohler, A., Singer, W., & Pearson, J. (2016). Smaller primary visual cortex is associated with stronger, but less precise mental imagery. *Cerebral cortex, 26(9),* 3838-3850.

Berrett, A. N., & Carter, N. J. (2018). Imagine math facts improves multiplication fact fluency in third grade students. *Journal of Behavioral Education, 27(2),* 223-239.

Bíró, Á.. (2020). *Diszlexiások fejlesztése alsó osztályokban*.

Blazhenkova, O., & Pechenkova, E. (2019). The two eyes of the blind mind: object vs. spatial aphantasia?. *Russian Journal of Cognitive Science, 6(4)*, 51-65.

Blazhenkova, O., Becker, M., & Kozhevnikov, M. (2011). Object–spatial imagery and verbal cognitive styles in children and adolescents: Developmental trajectories in relation to ability. *Learning and Individual Differences, 21(3)*, 281-287.

Boaler, J., Williams, C., & Confer, A. (2015). Fluency without fear: Research evidence on the best ways to learn math facts. *Reflections, 40(2)*, 7-12.

Bos, R., & Renkema, W. (2022). Metaphor-based algebra animation. In Proceedings of the 15th International Conference on Technology in Mathematics Teaching (ICTMT (p. 29-36). Aarhus University.

Brendefur, J., Strother, S., Thiede, K., & Appleton, S. (2015). Developing multiplication fact fluency. *Advances in Social Sciences Research Journal.*

Bruner, J. S. (1966). Toward a theory of instruction, Cambridge, Mass.: Belkapp Press.

Burns, M. K., Ysseldyke, J., Nelson, P. M., & Kanive, R. (2015). Number of repetitions required to retain single-digit multiplication math facts for elementary students. *School Psychology Quarterly, 30(3),* 398.

Cavdaroglu, S., & Knops, A. (2016). Mental subtraction and multiplication recruit both phonological and visuospatial resources:

Evidence from a symmetric dual-task design. *Psychological Research, 80*, 608-624.

Clements, D. H., & Sarama, J. (2020). *Learning and teaching early math: The learning trajectories approach.* Routledge.

Crowder, A. (2018). *Differences in Spatial Visualization Ability and Vividness of Spatial Imagery Between People With and Without Aphantasia.*

Csépe, V. (2020) *Útmutató a matematika tantárgy tanításához.* Tantervi és módszertani útmutató füzetek.

Dancs, G. (2021). *A matematikus abszolút pedagógusról, Varga Tamásról.*

Dawes, A. J., Keogh, R., & Pearson, J. (2024). Multisensory subtypes of aphantasia: Mental imagery as supramodal perception in reverse. *Neuroscience Research, 201*, 50-59.

Day, L., & Hurrell, D. (2015). An explanation for the use of arrays to promote the understanding of mental strategies for multiplication. *Australian Primary Mathematics Classroom, 20(1),* 20-23.

De Brauwer, J., Verguts, T., & Fias, W. (2006). The representation of multiplication facts: Developmental changes in the problem size, five, and tie effects. *Journal of Experimental Child Psychology, 94(1),* 43-56.

de Hevia, M. D. (2021). How the human mind grounds numerical quantities on space. *Child Development Perspectives, 15(1),* 44-50.

De Smedt, B., Holloway, I. D., & Ansari, D. (2011). Effects of problem size and arithmetic operation on brain activation during calculation in children with varying levels of arithmetical fluency. *Neuroimage, 57(3),* 771-781.

De Visscher, A., & Noël, M. P. (2014). The detrimental effect of interference in multiplication facts storing: typical development and individual differences. *Journal of Experimental Psychology: General, 143(6),* 2380.

De Visscher, A., Noël, M. P., & De Smedt, B. (2016). The role of physical digit representation and numerical magnitude representation in children's multiplication fact retrieval. *Journal of Experimental Child Psychology, 152,* 41-53.

De Visscher, A., Vogel, S. E., Reishofer, G., Hassler, E., Koschutnig, K., De Smedt, B., & Grabner, R. H. (2018). Interference and problem size effect in multiplication fact solving: Individual differences in brain activations and arithmetic performance. *NeuroImage, 172*, 718-727.

Dehaene, S. (2011). The number sense: How the mind creates mathematics. Oxford University Press.

Dehaene, S., Spelke, E., Pinel, P., Stanescu, R., & Tsivkin, S. (1999). Sources of mathematical thinking: Behavioral and brain-imaging evidence. *Science, 284(5416),* 970-974.

Delazer, M., Zamarian, L., Benke, T., Wagner, M., Gizewski, E. R., & Scherfler, C. (2019). Is an intact hippocampus necessary for answering 3× 3?–Evidence from Alzheimer's disease. *Brain and Cognition, 134*, 1-8.

Didino, D., Knops, A., Vespignani, F., & Kornpetpanee, S. (2015). Asymmetric activation spreading in the multiplication associative network due to asymmetric overlap between numerosities semantic representations?. *Cognition, 141*, 1-8.

Dijkstra, N. (2024). Nuancing the heterarchical theory of visual mental imagery. *Physics of Life Reviews, 49*, 10-11.

Donabella, M. A., & Rule, A. C. (2008). Four Seventh Grade Students Who Qualify for Academic Intervention Services in Mathematics Learning Multi-Digit Multiplication with the Montessori Checkerboard. *Teaching Exceptional Children Plus, 4(3),* n3.

Dotan, D., & Zviran-Ginat, S. (2022). Elementary math in elementary school: the effect of interference on learning the multiplication table. *Cognitive Research: Principles and Implications, 7(1),* 101.

Erdős, V. (2017) *Szorzótábla-versikék*. Manó könyvek

Explore Education Statistics homepage. (2024). Multiplication tables check attainment, Academic year 2022/23 - Explore education statistics - GOV.UK ; https://explore-education-statistics.service.gov.uk/find-statistics/multiplication-tables-check-attainment Last accessed: 27.10.2024

Faw, B. (2009). Conflicting intuitions may be based on differing abilities: Evidence from mental imaging research. *Journal of Consciousness Studies, 16(4),* 45-68.

Ford, M. S., & Usnick, V. (2011). Assessment of multiplication fact fluency. *Investigations in Mathematics Learning, 3(2),* 52-63.

Fulford, J., Milton, F., Salas, D., Smith, A., Simler, A., Winlove, C., & Zeman, A. (2018). The neural correlates of visual imagery vividness–An fMRI study and literature review. *Cortex, 105*, 26-40.

Goldin, G., & Shteingold, N. (2001). *Systems of representations and the development of mathematical concepts. The roles of representation in school mathematics.* 2001, 1-23.

Gomides, M. R. D. A., Martins, G. A., Alves, I. S., Júlio-Costa, A., Jaeger, A., & Haase, V. G. (2018). Heterogeneity of math difficulties and its implications for interventions in multiplication skills. *Dementia & Neuropsychologia, 12(3)*, 256-263.

Grenier, A. E., Dickson, D. S., Sparks, C. S., & Wicha, N. Y. (2020). Meaning to multiply: Electrophysiological evidence that children and adults treat multiplication facts differently. *Developmental Cognitive Neuroscience, 46,* 100873.

Gyarmathy, É. (2009). Kognitív Profil Teszt. *Iskolakultúra, 19(3-4),* 60-73.

Harries, T., & Barmby, P. (2007). Representing and understanding multiplication. *Research in Mathematics Education, 9(1)*, 33-45.

Hárs, J. (1938). *Az első magyar nyelvű matematikakönyvünk (1577), a debreceni aritmetika*. Sárospatak.

Hellier, R., & Clinch, S. (2024) *Smartphone Pupilometry for Identifying Aphantasia and Hyperphantasia.*

Hersh, R. (1997). *What is mathematics, really?.* Oxford University Press.

Hersh, R. (2006). Inner vision, outer truth. In *18 Unconventional Essays on the Nature of Mathematics* (pp. 320-326). New York, NY: Springer New York.

Holland, W. R. (2022). *Using Manipulatives and Visual Models to Support Students' Multiplication Fluency, Attitudes, and Retention.* Trevecca Nazarene University.

Imagine Learning LLC. Homepage (2024). Imagine Math Facts. https://www.imaginelearning.com/products/math/math-facts/ Last accessed: 27.10.2024.

Isoda, M., & Olfos, R. (2021). *Teaching multiplication with lesson study: Japanese and Ibero-American theories for international mathematics education* (p. 296). Springer Nature.

Jármi Éva (2013). Alapvető számolási képességek tipikus és atipikus fejlődése, a számolási zavar diagnosztikája (Doctoral dissertation).

Jármi, É., Soltész F., Szűcs D. 2012. Alapvetõ számolási képességek fejlõdésének vizsgálata 3. és 5. osztályos gyermekeknél. *Gyógypedagógiai Szemle*, 305.

Józsa, K. (2001). Az elsajátítási motiváció és a kognitív kompetencia fejlesztése. Csapó Benő és Vidákovich Tibor (szerk.*): Neveléstudomány az ezredfordulón.* Tankönyvkiadó, Budapest, 162-174.

Kálmán, A., & Kálmán, B. G. (2022). Az ipar 4.0 kompetencia-igényeinek hatása az iskolarendszerű oktatásra. *Iskolakultúra: Pedagógusok Szakmai-Tudományos Folyóirata, 32(12),* 57-73.

Kay, L., Keogh, R., & Pearson, J. (2024). Slower but more accurate mental rotation performance in aphantasia linked to differences in cognitive strategies. *Consciousness And Cognition, 121*, 103694.

Kay, L., Keogh, R., Andrillon, T., & Pearson, J. (2022). The pupillary light response as a physiological index of aphantasia, sensory and phenomenological imagery strength. *Elife, 11*, e72484.

Kazal, K. (2024). Varázsbetű Programcsalád homepage. https://www.varazsbetu.hu/letolt/szorzotablas_memoria.pdf Last accessed: 27.10.2024.

Kendle, Alan (2017). *Aphantasia: Experiences, Perceptions, and Insights.* Oakamoor, UK. Bennion Kearny.

Keogh, R., & Pearson, J. (2024). Revisiting the blind mind: still no evidence for sensory visual imagery in individuals with aphantasia. *Neuroscience Research, 201.* 27-30.

Keogh, R., Bergmann, J., & Pearson, J. (2020). Cortical excitability controls the strength of mental imagery. *Elife, 9*, e50232.

Keslair, F., & Paccagnella, M. (2020). Assessing adults' skills on a global scale: A joint analysis of results from PIAAC and STEP.

Klein, D. (2003). A brief history of American K-12 mathematics education in the 20th century. *Mathematical cognition*, 175-225.

Kling, G. (2023). *Using Visual Imagery to Develop Multiplication Fact Strategies.* Western Michigan University.

Knausz, I. (2017). Műveltségkép az ezredforduló után1 idea of literacy after the turn of the millennium. *Magyar Tudomány, 178(11),* 1376-1386.

Krajcsi, J., Igács, A. Pontos és közelítõ számolás–verbális rendszer… és mentális számegyenes. *A láthatatlan nyelv,* 170.

Kraut, C., & Pixner, S. (2023). Language does arithmetic: linguistic differences in children's place-value processing. *Psychological Research, 87(1),* 152-160.

Lázár, E. (2023). *Informatikai alapoktatás a ChatGPT korában*.

Lee, K. M., & Kang, S. Y. (2002). Arithmetic operation and working memory: Differential suppression in dual tasks. *Cognition, 83(3),* B63-B68.

Leonardou, A., Rigou, M., & Garofalakis, J. D. (2019). Opening User Model Data for Motivation and Learning: The Case of an Adaptive Multiplication Game. In *CSEDU (1)* (pp. 383-390).

Liu, J., & Bartolomeo, P. (2023b). Probing the unimaginable: The impact of aphantasia on distinct domains of visual mental imagery and visual perception. *Cortex, 166.* 338-347.

Liu, J., Zhan, M., Hajhajate, D., Spagna, A., Dehaene, S., Cohen, L., & Bartolomeo, P. (2023). Visual mental imagery in typical imagers and in aphantasia: A millimeter-scale 7-T fMRI study. bioRxiv, 2023 06.

Looi, C. Y., Thompson, J., Krause, B., & Kadosh, R. C. (2016). *The neuroscience of mathematical cognition and learning.*

Mabbott, D. J., & Bisanz, J. (2003). Developmental change and individual differences in children's multiplication. *Child Development, 74(4).* 1091-1107.

MacKisack, M., Zeman, A., Winlove, C., Onians, J., Macpherson, F., & Aldworth, S. (2020). *Extended Imagining: the case of the aphantasic artist.*

Maróthi, Gy. (1743). *Arithmetica vagy számvetésnek mestersége Mellyet írtt és Közönséges Haszonra, föképpen a' Magyar országon elö fordúlható Dolgokra, alkalmaztatván ki-adott 1743-ik Esztendöben*, Debretzen

Martinez-Lincoln, A., Cortinas, C., & Wicha, N. Y. (2015). Arithmetic memory networks established in childhood are changed by experience in adulthood. *Neuroscience Letters, 584.* 325-330.

McPhee, M., McCarty, M., Young, M., & Morales, J. (2024). The pupil and the mind's eye: Portable pupillometry captures robust responses to imaginary light. *Journal of Vision, 24(10),* 1499-1499.

Menyői Tolvaj, F. (1735). *Az arithmetikanak, avagy az számlálásnak oet speciesinek rövid magyar regulakban foglaltatott mestersege*. Brassó.

Milton, F., Fulford, J., Dance, C., Gaddum, J., Heuerman-Williamson, B., Jones, K., ... & Zeman, A. (2021). Behavioral and neural signatures of visual imagery vividness extremes: Aphantasia versus hyperphantasia. *Cerebral Cortex Communications, 2(2),* tgab035.

Moeller, K., Klein, E., Fischer, M. H., Nuerk, H. C., & Willmes, K. (2011). Representation of Multiplication Facts-Evidence for partial verbal coding. *Behavioral and Brain Functions, 7,* 1-9.

Monzel, M., Handlogten, J., & Reuter, M. (2024). No verbal overshadowing in aphantasia: The role of visual imagery for the verbal overshadowing effect. *Cognition, 245*, 105732.

Newton, N., Record, A. E., & Mello, A. J. (2024). *Fluency Doesn't Just Happen in Multiplication and Division: Strategies and Models for Teaching the Basic Facts.* Taylor & Francis.

Oakley, B. (2014). *A mind for numbers: How to excel at math and science (even if you flunked algebra).* Penguin.

Oakley, B., White, J. (2024). Accelerate Your Learning with ChatGPT. https://www.coursera.org/learn/learning-chatgpt Last accessed: 27.10.2024.

Oktatási Hivatal homepage. (2024). oktatas.hu/kozneveles/meresek/orszagos_meresek_eredmenyei_2023 https://www.oktatas.hu/kozneveles/meresek/orszagos_meresek_eredmenyei_2023 Last accessed: 27.10.2024.

Olfos, R., Isoda, M., & Estrella, S. (2021). Multiplication of Whole Numbers in the Curriculum: Singapore, Japan, Portugal, the USA, Mexico, Brazil, and Chile. *Teaching Multiplication with Lesson Study, 25.*

Onadi, J. (1693). Practici Algorithmi Erotemata Methodica. *Az Olly Cselekvő számok, Mellyek Koennyue Kérdések és Feleletek által roevid utat mutatnak ama a' tudományra.* Kassa

Palermo, L., Boccia, M., Piccardi, L., & Nori, R. (2022). Congenital lack and extraordinary ability in object and spatial imagery: An investigation on sub-types of aphantasia and hyperphantasia. *Consciousness and Cognition, 103.* 103360.

Pearson, J. (2019). The human imagination: the cognitive neuroscience of visual mental imagery. *Nature Reviews Neuroscience, 20(10),* 624-634.

Pinto, M., Fattorini, E., Lasaponara, S., D'Onofrio, M., Fortunato, G., & Doricchi, F. (2018). Visualising numerals: An ERPs study with the attentional SNARC task. *Cortex, 101*, 1-15.

Polspoel, B., De Visscher, A., Vandermosten, M., Vogel, S. E., Grabner, R. H., & De Smedt, B. (2019). The neural substrates of the problem size and interference effect in children's multiplication: *An fMRI study. Brain Research, 1714,* 147-157.

Purington, K. (2017). The Effectiveness of Montessori Materials in Multiplication Understanding as Evidenced by Teacher Made Assessments (Doctoral dissertation).

Purpura, D. J., & Schmitt, S. A. (2019). Cross-domain development of early academic and cognitive skills. *Early Childhood Research Quarterly, 46.* 1-4.

Salillas, E., Piccione, F., di Tomasso, S., Zago, S., Arcara, G., & Semenza, C. (2021). Neurofunctional components of simple calculation: A magnetoencephalography study. *Cerebral Cortex, 31(2),* 1149-1162.

Schrift, G., Dotan, D., & Censor, N. (2022). Brief memory reactivations induce learning in the numeric domain. npj *Science of Learning, 7(1),* 18.

Seitz, K., & Schumann-Hengsteler, R. (2002). Phonological loop and central executive processes in mental addition and multiplication. *Psychological Test and Assessment Modeling, 44(2),* 275.

Singer, V., & Strasser, K. (2017). The association between arithmetic and reading performance in school: A meta-analytic study. *School Psychology Quarterly, 32(4),* 435.

Sleeman, M., Friesen, M., Tyler-Merrick, G., & Walker, L. (2021). The effects of precision teaching and self-regulated learning on early multiplication fluency. *Journal of Behavioral Education, 30*, 149-177.

Sokolowski, H. M., Fan, C., Yu, J. C., Daker, R. J., Lyons, I., Zeman, A., ... & Levine, B. (2024). *Visual imagery and STEM occupational attainment: Gender matters.*

Sokolowski, H. M., Hawes, Z., & Ansari, D. (2023). The neural correlates of retrieval and procedural strategies in mental arithmetic: A functional neuroimaging meta-analysis. *Human Brain Mapping, 44(1),* 229-244.

Soltanlou, M., Pixner, S., & Nuerk, H. C. (2015). Contribution of working memory in multiplication fact network in children may shift from verbal to visuo-spatial: a longitudinal investigation. *Frontiers in Psychology, 6*, 1062.

Spagna, A., Heidenry, Z., Miselevich, M., Lambert, C., Eisenstadt, B. E., Tremblay, L., ... & Bartolomeo, P. (2023). Visual mental imagery: Evidence for a heterarchical neural architecture. *Physics of Life Reviews*.

Stein, V. (2023). A mérnök hallgatók projektszemléletéről készült bemeneti felmérés. *GRADUS, 10(1).*

Supekar, K., Swigart, A. G., Tenison, C., Jolles, D. D., Rosenberg-Lee, M., Fuchs, L., & Menon, V. (2013). Neural predictors of individual differences in response to math tutoring in primary-grade school children. *Proceedings of the National Academy of Sciences, 110(20),* 8230-8235.

Varga, T. (1987). *Az egyszeregy körül*, Kritika 1987/12

Vida, G. (2019). A diagnózistól a fejlesztésig:–tanulási hatékonyság és intelligencia. *Autonomy and Responsibility Journal of Educational Sciences, 4(1-4),* 49-64.

Vida, G. (2021). *A tanulási zavar diagnosztikájának méréssel kapcsolatos kérdései.*

Winlove, C. I., Milton, F., Ranson, J., Fulford, J., MacKisack, M., Macpherson, F., & Zeman, A. (2018). The neural correlates of visual imagery: a co-ordinate-based meta-analysis. *Cortex, 105*, 4-25.

Woolf, V. (1923). In the Orchard. Criterion, vol. 1, no. 3, R. Cobden Sanderson, April 1923, London, pp. 243-245.

Yu, X., Liu, K., Wang, Y., Yang, X., & Yang, J. (2023). Differential contributions of phonological processing and visual-spatial abilities to four basic arithmetic operations in primary school children. *Current Psychology, 42(30)*, 26138-26150.

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Kindergarten-School Transition in the Early Childhood

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ABSTRACT

Nowadays, more and more children can learn a new language in kindergarten, and one of the key factors contributing to this trend is the influence of parents. Kindergartens, responding to this demand, are opening new groups where children can learn a new language, thereby broadening their cultural horizons. Another significant factor is globalization, which ensures that children who move here will learn the local language and traditions. (Szarka, 2021) Hungary, in particular, offers numerous opportunities for children to learn a language in early childhood. (Endrődy 2016) A thousand research studies deal with monolingual, bilingual, and multilingual curricula. These days, more and more families use not just one language.

KEYWORDS

Kindergarten-school transition, early childhood, bilingual children, kindergarten

INTRODUCTION

The concept of bilingual presentation, which refers to the process of introducing and teaching a new language in early childhood education, is complex. (Bialystok, 2020) If we observe the bilingual programs in the early ages of public education, it started in the 1990s. (Altbacker, 2004) The new language has mixed, and that has had an inspiring impact. These impacts are arrestive for professionals and parents. (Bartha, 1999). In an adopted situation, the children are born with the capacity to learn new languages, but the surrounding environment is determinative. (Zimbardo, Johnson és McCann, 2017) For children, language acquisition depends on cognition and the milieu. (Nauwerck, 2005) For a childhood bilingual revealing bilingual environment. (Nauwerck, 2005)

In Europe, there is a tradition of learning new languages in the curriculum of schools, and teachers teach foreign languages. (Eurydice, 2006) In Denmark, the researchers, besides the children's development level before school, observe the first meeting with the school. (Broström, 2000a). The aim was the most seamless transition. The children must adapt to new situations. (Broström, 2000b)

LITERATURE REVIEW

Research results in Hungary indicate that the parents' educational level is connected with the level of their child's fundamental skills. (Józsa, 2004)

Some longitudinal research shows that children's sociocultural background does not directly affect their later development. He has a significant effect on his development state in certain areas. (Duncan et al.,2007)

We have observed bilingual children in a kindergarten previously. The curriculum has a personal aspect because we had worked with a bilingual kindergarten group like kindergarten teachers. We made our inquiry in Budapest at a kindergarten that works for more English-Hungarian bilingual groups. The groups are homogeneous.

In Hungary, many programs work where the children can learn a new language in kindergarten. (Csereklye, 2012)

The transition from kindergarten to school is a complex problem in which several actors meet simultaneously. Today, most parents track their child's development closely.

Several developmental activities affect the average child's daily life. In this transition, the teachers and parents must work together for the best result and smooth transition. There is a big step in the lives of children when they go to school. The transition may be accompanied by children being more vulnerable both emotionally and pedagogically (Dunlop & Fabian, 2007).

KINDERGARTEN- SCHOOL TRANSITION

The transit from one environment to another can be interpreted as a process in which the individual is transferred from one environment to another. (Fabian, 2007) We can separate a gentle transition, in which we can identify that this is a challenging period for the child. That can make students more emotionally and pedagogically sensitive. Some schools are trying to help with this transition. They had the first meeting party in school, communicated with the parents, and answered all the questions. (Dunlop & Fabian, 2007) Without it, emotional well-being can be weakened, causing more difficulties and challenging times for the children, teachers, and parents. (Featherstone, 2004, in Dunlop és Fabian, 2007).

The harmonic transition in early childhood comes to fruition with five main points:

- The kindergarten teachers compete with each other.
- Make a complex program in the kindergarten and integrate it into the school.
- We need to develop the kindergarten teachers' competence persistently.
- Use various methodology
- Implement a holistic expansion (Nagy, 2018)

"Kindergarten teachers' beliefs about school readiness in general, and the increasing demands of early learning standards more specifically, shaped how teachers reached out to parents to encourage home-based parent involvement." (Puccioni 2018, p.257)

The slow transition said we need to think of a more extended period. It depends on the children's development skills, how they work in a new place, and so on (ONOAP, 2012). The transition can be 8-12 weeks. (Kósáné, 2017, 11.T) As a result, some schools try to make schooling as gentle as possible by helping and paying attention to prospective students and parents. (Dunlop és Fabian, 2007) Resilience to challenging conditions is helpful in school and life, too. (Oláh, 2005) The central parts are flexibility, stability, and problem-solving. (Oláh, 2005) In the 17th century, the kindergarten-school transition was not the same as today. It was not based on the children's spiritual development, emotional attitudes, or difficulties integrating into a new community. (Fizel, 2022)

That is the establishment and coordination of the tasks of the two institutions and the tasks of the actors of these systems. That is the same: the kindergarten needs to support children, teachers and parents to make a smooth transition. (Fizel, 2022) The kindergarten's role in supporting the transition is crucial and can provide parents with confidence in their choice of institution.

The transition positively affects his process for the children if he deals with them individually as the educator. The primary goal is for the educator to have an opportunity to get to know the child and his environment. In a holistic interpretation, no one from an educational level reports him entering the other one, then from kindergarten into a school step. With much time spent in the new environment, getting used to it incorporates his time interval. (Szabó, 2005). This individual attention from educators is crucial in ensuring a smooth transition for the child.

The kindergarten-school transition is a very complex process, especially if we need to fit in with different traditions, developmental levels, distinct social backgrounds, etc.

The kindergarten-school transition has a strong marketing side. Observing how the parents choose the perfect kindergarten for the children is so interesting. Most of the time, their main line is what suggests the other parents. On the other hand, the kindergarten website and the advertisement are very important, especially with the private kindergarten—this progress is similar in the school, too. Parents need help because they want the best for their children, but they have easier jobs if they have older children who can show the way to the little ones. In Hungary, every street has its territory. Where the children live, they need to choose that institution. However, they can choose the private sector if they have an opportunity with money. In that case, the marketing has a strong connection with it. As far as I can't find a paper in technical literature. In my point of view, it's an important part of education and it can help in a lot of ways for the future family to make the best choice.

BILINGUALISM

Bilingualism as a concept is difficult to define because, for many years, there has been no agreement on the methodology or definition of bilingualism in education and research (Bartha, 1999).

Bilingualism contains many concepts, and its complexity is well-marked. (Skutnabb-Kangas, 1997) The authors mention that we can break down bilingualism into several parts: one who is bilingual based on their origin, including those who speak two languages in their family from birth or are involved in bilingual education. It is also worth examining from the identification point of view, which allows us to distinguish between internal identification, which is the individual's own perception of their bilingualism, and external identification, which is how others perceive the individual's bilingualism.

We can think about language skills too. It is about someone speaking a language; it will be a bilingual person. It includes people who can use two languages the same way or speak both at the mother tongue level. By the function, those speaking both languages every day will be bilingual. Furthermore, it can be concluded that an individual may not only have one mother tongue or that his mother tongue may change during his or her lifetime. (Skutnabb-Kangas, 1997) As bilingualism is challenging to define, they have a solid right to exist. With the help of these concepts, they give a chance to define the objectives and tasks of bilingual education. (Lesznyák, 1996)

For many years, there have been institutions throughout Europe, including kindergartens and schools, where subjects or pedagogical programmes are provided to children in a foreign language. (Eurydice, 2006) Children are not born with a language system essential to learning one or more languages. It develops in the child's early years due to the inputs of the language environment. These impressions are processed, and then the languages are separated by assimilation or accommodation. This process is influenced by cognitive maturation and the social environment. (Nauwerck, 2005) Childhood bilingualism is made in the bilingual environment. During bilingualism, the brain undergoes neurological changes. (Pléh, 2008)

The general speech development in bilingual children can be without visible delay in relation to monolingual children. Both languages can improve in bilingual children because of the effects the children get. It is about social and environmental impacts. The words used and the reasons for them come from the external impressions in which the children are raised (Bartha, 1999). These social and environmental influences play a significant role in forming bilingual children's language skills, highlighting the importance of a supportive and diverse linguistic environment.

MULTICULTURALISM

In the 21st century, we are integrated into a multicultural society. We are culturally diverse thanks to globalization and our background and so-called roots. The information society and our communication are so fast now that we are always connected. (Torgyik, 2009) Education Policy Specialists have agreed that multicultural education is unenviable by more sight. (Ludányi,2007) Multiculturalism came from the USA after it appeared in Canada and Australia. After that, it became widespread throughout Europe. (Gordon-Győri 2014) This attitude is indispensable for children because, with it, they can be open to the news and conform (Banks, 1993). *Multicultural education* is a reform process that is

crucial for every child. (Gordon Győri, 2014) As Gordon Győri mentions, multicultural education is a part of the nurture. The aim is to secure the most diverse group with an equal chance in education. (Torgyik, 2009). In Hungary, education is somewhat improving. This ongoing development is a significant step forward, similar to the development stages observed in the USA, we might want to add that multicultural education is not widely known among teachers in Hungary for a long time. (Torgyik, 2009)

AIMS, RESEARCH QUESTIONS AND HYPOTHESES

Our research aim is to observe the bilingual aspect, specifically the use and integration of multiple languages and how it impacts children's transition to kindergarten. We will also explore the experiences of children from multicultural backgrounds in adapting to kindergarten groups. Our experience suggests that many children arriving in kindergarten have a good understanding of English due to their exposure to multiple countries where English is spoken. We want to get a bigger picture of the parents thinking about how they can choose an institution for their children. What is the central aspect, and what influences them with the choice? We want to observe how we can help the teachers so the children start school with good feelings and without doubts and fears.

Q1: What emotions characterize the kindergarten educators in the kindergarten school when promoting a transition? For instance, do they feel a sense of responsibility, excitement, or anxiety? How do these emotions influence their approach to the transition process?

Q2: How does a multicultural parent living in a family and his child relate to the transition to kindergarten school?

Q3: What level of language knowledge do the kindergarten teachers have?

H1: Multicultural parents elect them rather than institutions where their child is new and may acquire foreign languages besides their mother tongue.

H2: The kindergarten teachers turn empathically to the children's kindergarten school to help a smooth transition.

H3: For multicultural children arriving from families, the insurance of individual treatment is essential for kindergarten teachers.

H4: The teachers' multicultural upbringing criteria come true during their daily work.

H5: For multicultural families, language learning is one of the most critical factors for their children.

H6: Communication with the parents is difficult for the teachers because they can't speak foreign languages.

METHODS

The characters of the planned research are the ISD, Debreceni Nemzetközi Iskola (International School Of Debrecen), and the Budapest Orchidea School (Hungarian-English Bilingual School). These schools cater to 6-7 year old children and are known for their diverse student population. We plan to compare the experiences of children in Debrecen with those in the capital city, Budapest. Our research will begin with a comprehensive literature review, followed by the preparatory work for a qualitative study.

It is necessary to interview in our case, raising questions we will draw up. Our research focus group research, we would like to make it with the educators. We plan an individual interview though with parents to prepare. Before sampling is prepared with children, we ask for parent's contribution. We will claim the solicitation of the research ethics permit. Then, from the parents, we will request contributor declarations from institution leaders.

DISCUSSION

In our research, the transition is a complex, multi-stakeholder process, so the child, kindergarten teachers, and parents are involved in the sampling. Our methodology will be focus group probing, together with quantitative and qualitative methods. We have chosen a sample size of 150-200 for the questionnaire and 30 for the interview to ensure a comprehensive understanding of the multicultural transition process.

Thanks to globalization, many families are choosing to work in Hungary, leading to an increasingly multicultural society. Our research aims to provide a comprehensive understanding of the daily lives of multicultural families. We believe that our findings will not only offer a new perspective to kindergarten teachers but also help them develop their work and make the kindergarten-school transition a more gentle and positive experience for all involved.

Our goal is to research the process of transition and attitude examination of children, kindergarten teachers and parents living in multicultural environments. In addition to the existing ones, several of these new kindergartens and schools have been launched recently. Our chosen topic can be helpful within the discipline because we have not found any relevant literature, research or publication that would approach the problem of the transition from a multicultural point of view. Through the research, we wait for a broader insight into the attitudes of a transition that may be gained in the multicultural environment, living people, active children, parents, and kindergarten educators in kindergarten school.

CONCLUSION

Our research focuses on the possible linguistic and education issues for children from multicultural backgrounds during the transition from home to kindergarten, focusing on the role of language, cultural diversity, and emotional dynamics. By examining the perspectives of children, parents, and kindergarten educators, we hope to understand better how bilingual and multicultural environments influence children's adaptation to kindergarten and how educators can best support this transition.

The findings will be helpful in educational practice and policy, guiding and supporting multicultural families, improving teacher training and improving communication between parents and teachers.

We also aim to fill a gap by focusing on multicultural children's experiences in the transition to kindergarten. As

migration to Hungary is increasing and more parents are becoming interested in bilingual education, the research could be helpful for teachers and parents. Last but not least, the study aims to make the transition to kindergarten positive for any child, regardless of background. We hope to contribute to more inclusive, sensitive and effective educational practices in multicultural settings.

REFERENCES

Altbacker ZS. (2004). *Interkulturális nevelés az óvodában*. Óvónők kincsestára, 2004/10, 1-25.

Banks, J. A. (1993). *Multicultural Education*, Historical develpoment, dimensions and practice. American Educational Research Association, San Francisco

Bartha CS. (1999). *A társadalmi kétnyelvűség típusai és főbb vizsgálati kérdései, Magyar Nyelvőr, 120. pp. 263-282. ISSN 0025-0236*

Bialystok, E. (2020). *Bilingual effects on cognition in children.* Oxford Research Encyclopedias. Bilingual Effects on Cognition in Children | Oxford Research Encyclopedia of Education, https://doi.org/10.1093/acrefore/9780190264093.013.962

Broström, S. (2000b). *Transition to School.* http://www.eric.ed.gov/PDFS/ED445814.pdf

Csereklye E. (2012). *A tanulói sokféleség és a tanárok multikulturális nézetei*. In Gordon Győri János, A multikulturális és interkulturális szemlélet elméleti alapjai és történeti vonatkozásai az oktatásban, ELTE, Eötvös Kiadó, Budapest

Duncan, G. J., Dowsett, C. J., Claessens, A., Magnuson, K., Huston, A. C., Klebanov, P., Pagani, L. S., Feinstein, L., Engel, M., Brooks-Gunn, J., Sexton, H., Duckworth, K., & Japel, C. (2007). *School readiness and later achievement*. Developmental Psychology, 43(6), 1428–1446. https://doi.org/10.1037/0012-1649.43.6.1428

Endrődy-Nagy O. (2016). *Korai nyelvoktatási módszerek Japánban és Magyarországon*, Gyermeknevelés, 4/1

Eurydice. (2006). *Content and Language Integrated Learning* (CLIL) at School in Europe.

Fabian, H. (2007). *Informing Transitions*. In Dunlop, A. & Fabian, H. (Eds.), Informing transitions in the early years (pp. 3–17). Open University Press, Córdoba

Fizel, N. (2022). *Az óvoda-iskola átmenet problematikájának megjelenése a magyar pedagógiai szaksajtóban*. Módszertani Közlemények 62(4), 21-32.

Gordon Győri J. (2017). *Tanárok interkulturális nézetei és azok hatása az osztálytermi munkára, a multikulturális és interkulturális szemlélet elméleti alapjai és történeti vonatkozásai az oktatásban*, ELTE, Eötvös Kiadó, Budapest

Józsa, K. (2004*). Az első osztályos tanulók elemi alapkészségeinek fejlettsége − Egy longitudinális kutatás első mérési pontja*. Iskolakultúra, 14(11), 3–16.

Kormányrendelet az óvodai nevelés országos alapprogramjáról. (2012) https://net.jogtar.hu/jogszabaly?docid=a1200363.kor

Kósáné O. Vera (2017). Tanító Módszertani Folyóirat, 2017/09, 7-11., ADOC-SEMIC Kiadói Kft., Budapest

Lesznyák M. (1996). *Bilingualism and bilingual education*. Magyar Pedagógia, 217-230.

Ludányi Á. (2007). *Inter- és multikulturális nevelés a pedagógusképzésben*, Eszterházy Károly Főiskola, in: Kompetencia-alapú programok elterjesztése a tanárképzésben című sorozat 1. sz. Módszertani Kiadvány, Eger

Nagy A. (2018) *Harmonikus óvoda- iskola átmenet határon innen és túl* = Kindergarten – school harmonious transition in Hungary and in the neighbouring countries. Paideia, 6 (1). pp. 179-194. ISSN 2631-1666

Nauwerck, P. (2005). *Zweisprachigkeit im Kindergarten,* Fillibach, Freiburg

Oláh, A .(2005) *Pozitív pedagógia és nevelés* konferenciakötet, Mental Focus Kft., Budapest

Pléh CS. (2008). *Kritikus periódusok a nyelv elsajátításában.* Magyar Pszichológiai Szemle, 63. 1.pp. 181–211. https://doi.org/10.1556/MPSzle.63.2008.1.11

Puccioni J. (2018) Understanding How Kindergarten Teachers' Beliefs Shape Their Transition Practices,2018(1) p.257

Skutnabb-Kangas, T. (1997). *Nyelvoktatás és kisebbségek*. Teleki László Alapítvány Könyvtára.

Szabó, M. (2005). *Az iskola kezdő szakasz helyzetének feltárása*. Új Pedagógiai Szemle, (3), 80–97.

Szarka, L. (2021*) Az Ég hajlatán: Barcza Szabolcs (1944–2021) munkásságának éghajlatkutató fejezete*, MAGYAR GEOFIZIKA 62 : 4 pp. 234-242. , 9 p. (2021)

Torgyik J. (2009*). Jó gyakorlatok a multikulturális nevelés köréből*. In: Kállai E., Nyitott könyvműhely Kiadó, Budapest

Vámos Á. (2008). *Kétnyelvű oktatás Magyarországon*. In: Kétnyelvű oktatás Magyarországon tannyelvpolitika, tannyelvpedagógia

Zimbardo, P., Johnson, R., McCann, V. (2017). *Pszichológia mindenkinek*, Libri Kiadó, Budapest

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Teacher Influence and The Relationship Between Difficulties in Further Learning. a Questionnaire Results of a Questionnaire Survey

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ABSTRACT

In our research we investigate secondary school teachers' perceptions of their profession and its impact on students' career choices. In this study, we therefore investigate what types of teachers have the greatest impact on secondary school students, in what areas different types of teachers have an impact on students' academic lives, and what difficulties secondary school students face when they have to make decisions about their further education (R. Fedor A. - Pálosi R., 2018,). We aim to answer these questions based on the results of our study conducted in 2024.

KEYWORDS

higher education, career choice, secondary school, types of teachers

INTRODUCTION

The Hungarian public education system offers two options for school choice. First, when a student is 14 years old and chooses a secondary school, and second, when he or she plans to continue higher education (university) at the age of 18-19 (Lengyel - Török, 2012). However, for the purposes of our research, the focus is on higher education, and on post-secondary education itself. This finding is supported by the fact that for the vast majority of secondary school leavers, university education is the top priority in their future plans (Lengyel - Török, 2012).

LITERATURE REVIEW

THE ROLE OF LABOUR - MARKET EXPECTATIONS AND HUMAN CAPITAL

There is a growing focus on finding a career that is right for the individual, which should meet both the individual's expectations and those of society and the labour market. The new demands of the labour market are making higher education career choices increasingly important. Interest is of particular importance in this context. Interest is both a motivating function and, through its emotional and cognitive effects, influences the individual's behaviour and thus his or her decision (Lengyel - Török, 2012; Tudlik, 2021).

Just as Hoffmann (2022) and Tudlik (2021) referred in their study to the fact that there is a gap in the field of career guidance for secondary school students, our paper aims to reinforce and further analyse this. While the image of Generation Z is that they are well-informed and informed about the world around them - assuming this is due to the influence of the internet - the external stimuli, the labour market expectations, present students with challenges that leave them uncertain (Hoffmann, 2022). From a very young age, the interests that will shape later young adulthood are already being developed in terms of career choices. Their ideas about the world of work are encoded at a very early age (Hoffmann, 2022; Tudlik, 2021.)

This is why career guidance is a lifelong process, as individuals need to be able to adapt to a constantly changing world. Today we should no longer talk about a career choice point, but about a process, which can be shaped by a number of factors and can change in different directions (Tudlik, 2021, 103). The role of school is to help the process of career choice to crystallise, to provide a broad horizon and to help avoid specialisation too early, as the focus of interest can shift after the teenage years. However, interest determines how an individual can make use of his or her intellectual potential (Tudlik, 2021).

It is also true for adult workers that their occupational interests are constantly changing, even if they have chosen a career that matches their interests. They may change their interests as a result of work circumstances and train in new areas to make their job match even more complete (Tudlik, 2021). Although everything is instantly available on the web, the basis of today's information society, finding the right information is more difficult.

Helping Generation Z and helping them find the right path is a priority in secondary school (Hoffmann, 2022).

The importance of developing career interest has been demonstrated by several studies (Tudlik, 2021; Czető, 2022), which show that career interest affects several models of well-being, such as personal learning and work well-being, and that interest also shapes the mindset related to exploring and learning about careers, thus influencing the chosen further education direction and motivation (Tudlik, 2021; Czető, 2022).

Education plays a crucial role in labour market performance, but in addition to attaining a higher level of education, the acquisition of a marketable profession is also important to achieve a positive career path in economic and social life (R. Fedor - Pálosi, 2018).

Parents' educational qualifications and status, family income (Csákó 1998; R. Fedor - Pálosi, 2018; Olteanu, 2019; Hoffmann, 2022), the added value of the school and the support of teachers (R. Fedor - Pálosi, 2018; Hoffmann, 2022) are of particular importance for further education. However, according to information available today, parents do not have a clear vision of their child's future (Bóné V. - Hegedüs R., This can be contributed to by the amount of information that one encounters on a daily basis, making it difficult to make better decisions

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and to seek help. This is why, in addition to the added value of the school, human capital is important. The concept of capital is a familiar definition from economics, as a basic unit of economic activity. It is based on knowledge, which is the most important source of social mobility.

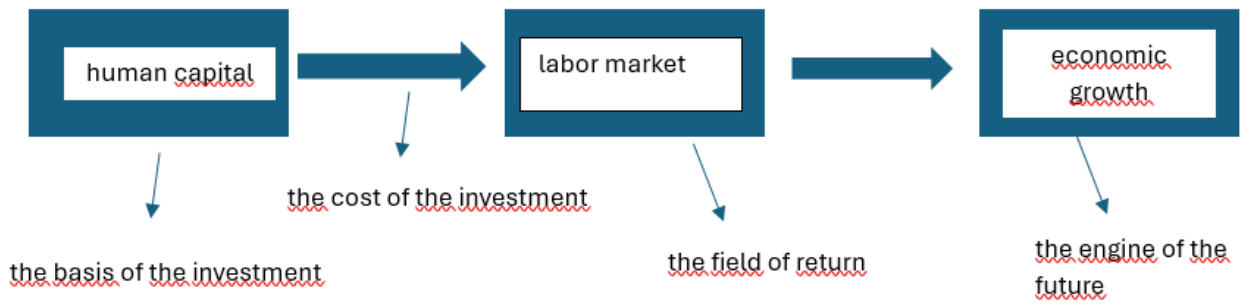
School is the primary, formal means of acquiring knowledge. The source of development is therefore knowledge and education acquired in an institutionalised framework (R. Fedor - Pálosi, 2018, 52- 53.)

Knowledge is the element of human capital (Lengyel, Gy. - Szántó, Z., 1998) in which the individual invests, and the costs of this investment will be exceeded by the benefits that the individual achieves by investing in knowledge. The labour market itself will be the field of return. However, the cycle does not stop there, because if the individual uses the knowledge he has acquired in the labour market, it will feed back into the economy and contribute to its growth. Thus, the source of development is knowledge and education acquired in an institutionalised framework (R. Fedor - Pálosi, 2018). This is of course not a recent development, as our history also confirms the role of education in shaping society and the economy. Just think of Maria Theresia's reform, the Ratio Educationis, or Kunó Klebelsberg's idea of cultural supremacy.

This is why the energy and faith invested in knowledge and schools is of paramount importance at all times, as the return on investment is inestimable. (Figure 1.)

The theory of human capital was first developed by Schultz, Rosen and Coleman, who emphasised the economic utility of the return on invested energy and knowledge, as illustrated in Figure 1. Rosen added that human capital is the sum of a person's skills and productive knowledge. The key to knowledge acquisition lies in education (R. Fedor - Pálosi, 2018, p. 52).

Figure 1
The impact of human capital (own editing)



Beyond education, however, there is a significant increase in family resources devoted to raising children. The social and economic status of the family has a significant impact on educational decisions, since economic disadvantage determines the possibility of further education, and the ability and motivation of the student is also an influencing factor (R. Fedor - Pálosi, 2018).

In addition to the characteristics listed above, a good working environment, which can be achieved through higher education, can be interpreted as an external, i.e. an additional return, and also as a source of finding a good job (R. Fedor - Pálosi, 2018, 52). Besides intelligence and personality traits, Tudlik (2021) highlights the motivational effect of educational achievement as a third pillar. However, interest determines how an individual can make use of his/her intellectual potential (Tudlik, 2021).

Several studies (Borcsa, 2007; Tódor, 2019; Tudlik, 2021; Olteanu, 2023) support the prominent role of the secondary school age group, as it is the 18-year-olds who have a mature interest that determines the next period of career choice. However, personality development is complex and multifaceted, and can be influenced by many factors, such as family, class, school, wider community, and of course the individual (Borcsa, 2017; Szabó et al., 2019).

AIMS, RESEARCH QUESTIONS AND HYPOTHESES

H1. Teachers who listen to their students, take an interest in them and their problems, and focus on the students are the ones who have the greatest impact on students.

H2. There is little information available on career choices.

METHODS

Our sample consisted of 11-12th grade students from four high schools in Szabolcs - Satu Mare - Bereg county. 97 students participated in the study. The reason for our sample selection is that this is the age group and the study period when young people aged 17-19 (quoting Supert, Oltenau 2023) may have sufficient experience of teacher characteristics, have a better insight into certain characteristics and are about to choose a career, Thus, they are the most decisive for them when it comes to dealing with career choices and planning for the future, and last but not least, they are the age group with the most definite teacher image, and their opinions are the basis for the outline of the most typical teacher types in our research.

In this phase of our measurement, we conducted a questionnaire survey using the questionnaire of the MTA

CSATOK, Suplitz, 2012; Olteanu, 2023 study as a sample instrument.

The data were collected after obtaining permission from the head of the institution, using an online questionnaire administered by the teachers who taught in the schools. The assisting teachers were class teachers and subject teachers who teach students/classes in grades 11-12.

Teacher profiles from the perspective of secondary school students

In this part of the research, we first asked students about their perceptions of what makes a good teacher. This involved asking students to rate on a four-point Likert scale which of the attributes listed they thought were important about teachers. 1= not important, while 4= very important was the rating.

Based on the results, a maximum likelihood method with varimax rotation and 3 factors were drawn. The total explained variance is 49.75%, which is adequate. Out of this, the first factor (Professional Awareness and Openness) explains 22.516% of the data, the second factor (Leadership and Consistency) explains 14.524% of the data, while the third factor (Student centricity) explains 12.711% of the data. For the fit indicators, the KMO is 0.86, which is also a high value, the degree of freedom (df) is 91, chi square is 564.48. The communality of each variable is adequate.

For the fit indicators, the KMO is 0.86, which is also a high value, the degree of freedom (df) is 91, chi-squared is 564.48.

According to the data, the attributes that best reflect students' perceptions of the most important teacher attributes have been outlined. Thus, we can distinguish between teachers who are most characterised by professional awareness and openness, leading by example and consistency, and student-centredness.

The results obtained show that the largest variance, i.e. the most diverse opinions, was observed for the type of professional awareness and openness, while the least variance between respondents was observed for the student-centred teacher type.

The teacher also works with his/her personality, because in addition to having the right professional knowledge, the teacher must know his/her subject well and have a broad methodological culture (Tomosovszky, 2013).This confirms one of our teacher types, namely Professional Awareness and Openness; who teaches with heart and interest, thus setting an example for students, (Tomosovszky, 2013), is also reflected in our research as exemplary and consistent as a typical teacher role; and is also a defining characteristic of caring, ability to listen, desire to get to know students (Tomosovszky, 2013), which includes the characteristics of student-centredness according to students' opinions.

Factors affecting career choice and difficulties in choosing a career

The purpose of understanding career difficulties is to build a picture of the ideal career choice, a person who is aware of his or her own goals and is able to make rational choices to achieve them. The illumination of the deviation from the ideal career chooser outlines the problems that can later become a pattern in career choice. (Olteanu, 2023, 28.) Lukács (2012) found the highest levels of career choice anxiety in high school seniors. This anxiety is also related to the type of school itself, as it is more pronounced in a gymnasium than in a vocational school, which can also be related to the goals set, even to societal expectations.

Although the career choice is a short process of lifelong career orientation, it is the most crucial period, as it is when an individual acquires the competences, knowledge and life experience that are the defining elements of adulthood (Olteanu, 2023, 34.).

Results

Motives for choosing a career

Knowing the individual and defining his or her personality plays an important role in choosing a career. Career choice is linked to motivation. An individual's motivation depends on a number of factors such as need, interest, ideals/dreams. These factors act in different ways, with some factors being stronger and others weaker. The content of human motivation is therefore complex and regulates human thought and action from individual to individual. In career choice, it is essential to examine career motivation, which can be understood in terms of the understanding of the motivational system involved in career orientation.

Motive = motive that stimulates further action. Increasing life experience and the development of the individual have an impact on the so-called motivational profile. If we could talk about career motivation, we should mention work motivation, which acts as an internal driving force. This motivation to work arises from the relationship between man and work, which is influenced by society and the micro-environment (Schüttler, 1993).

Factors influencing career choice

Our research focuses on career choice and the factors that influence career choice. Thus, the question was also directed at this segment of our study. The first major change compared to the pilot research or secondary analysis carried out so far relates to the examination of this factor. In order to group the factors influencing career choice, we also conducted a factor analysis with maximum likelihood method and varimax rotation. The first factor (Career guidance sources/tools) explains 31.435% of the data, and the second factor (Motivating/helping actors, persons) explains 16.197% of the data.

The total explained variance is 47.63%, which is sufficiently high. In terms of the fit indicators, the KMO is 0.805 with a degree of freedom (df) of 21, chi square 206, 694.

According to students, the factors that have the most impact on their career choice are career guidance resources/tools and motivating/helping actors. The survey revealed that friends were a minority of the factors influencing career choice among the respondents. Most of the respondents considered as determining factors the already concrete events and sources of information that already helped them to make a conscious career choice. These include university publications and open days. This awareness is also demonstrated by the fact that in the research we interviewed 11th and 12th year students who are already at the stage in their secondary school career when it is important to have already developed future plans that will influence their further education.

Comparing our study with previous research (Gábor and Szemerszki (2006)), referred to by Lengyel - Török in their

2012 study, we can observe that the most frequently mentioned source of information by the students surveyed was the admission prospectus, followed by felvi.hu, secondary school teachers and various media. Institutional open days and websites of individual higher education institutions received lower percentages.

These results from 2006 can be related to the current data of our research, since the results outline that the time elapsed between the two studies only confirms the importance of university propaganda and, in addition, the informative role of teachers in further education.

So, in addition to parents, the teacher still has a key role to play, according to the students' views, in motivating and helping them to find their desired vocation. It is interesting to note that the role of the father is also prominent among parents, which may be influenced by several factors. On the one hand, the father is a money earner who can be an example in terms of labour market expectations.

Students prefer careers that offer a good income and higher prestige. The role of the mother is also significant, but her role is perhaps concentrated on everyday/ordinary matters, and the role of the father as a role model in determining issues was found to be stronger.

In addition to the factors influencing career choice, the difficulties that make it difficult for students to make a decision on further education are also decisive (Oltenau, 2023). These are summarised in the following table. Factor analysis was used to determine which factors most overlap with respondents' uncertainty in terms of future planning.

Based on the results using maximum likelihood method with varimax rotation, 5 factors emerged, namely, self-awareness problems, conflicting information, information poverty, failure and indecision, external control. The total explained variance is 59.53%, which is adequate. For the fit indicators, the KMO is 0.803, which is a high value, the degree of freedom (df) is 21, chi square is 194.247.

The external control had the smallest variance (1.108), i.e. the opinions were very consistent, while the largest variance, with the most different answers, was in the category of self-awareness problems. Thus, it can be concluded that the main obstacle to students' career choice is the lack of awareness of their own abilities, strengths and weaknesses.

Regression analysis was used to measure the factors influencing each of the factors that determine a good teacher. Since the first factor analysis revealed that the factors that determine a good teacher are clustered into three factors, the factors that influence each factor were examined separately through regression analysis. In each case, the explanatory variables were included in four models. First, we examined the factors determining professional awareness and openness, illustrated in the table below, which shows the standardised beta values along each model and variable.

In the first model, the variables gender, grade, type of municipality, mother's and father's education, mother's and father's labour market status, and subjective financial situation were included. The first model with an R-squared value of 0.079 suggests that the included variables account for only 7.9% of the variance of Professional Awareness/Open-mindedness. The adjusted R-square is also too small to be taken into account.

The data suggest that no significant effect is observed, as neither gender (p=0.325), grade (p=0.484), type of municipality (p=0.775), father's education (p=0.861), mother's education (p=0, 514), the subjective financial situation of the family (p=0.143), the father's occupation (p=0.893) and the mother's occupation (p=0.288) have no effect on the type of professional awareness and openness that define a good teacher.

In the second model, we examined the role of the desired level of education. In this case, the R square is 0.127, which is also low, since the variance of the variables included is only 12.7% of the variance of Professional Awareness/Open-mindedness, which is still low.

The desired level of training also does not show a significant correlation, as p= 0.083, although this indicates a trend level positive effect (β=0.234), i.e. for those for whom the desired level of training is higher, the professional awareness and openness shown by the teacher is more important.

In the third model, the two factors that play a role in career choice (the factor analysis of which I described above), the career guidance resources/tools and the motivating/helping actors and persons were included.

In this case the R squared is 0.131, which is again low. The variance of the variables included is only 13.1%, which is also low in this case. Neither for the career guidance resources/means (p=0.726) nor for the motivating actors/persons (p=0.655), no significant effect is found.

Finally, the fourth model included five factors of career choice difficulties (self-awareness problems, conflicting information, lack of information, failure and indecision, and external control). Here the R squared is 0.221, which is only 22.1% of the variance of the variables included. Different results are also observed in this respect. No significant effects were found, however, for the information poverty factor, a trend level positive effect is observed, i.e. higher presence of information poverty is a predictor of higher teacher professional awareness (β 0.225; p=0.075).

Discussion

Our research confirmed our first hypothesis that student-centered teachers are dominant among the students we surveyed. In other words, teachers who listen to students and take an interest in them and in their problems are of paramount importance to them.

There are several factors that make career choices difficult, one of the most important from the students' point of view is the lack of information. Although they have more opportunities to gather information, this is what makes the choice difficult and guidance is needed. In addition to parents, the teacher has a crucial role to play in this. Some students are still searching for a path and need to be supported in finding the right career.

Conclusion

Career choice and its associated factors have been the focus of much of the literature for decades. However, today the study of this issue has become even more intense, if only because of the increasing number of options open to students, the diversity of career paths available to them, but perhaps it is this diversity that is the difficulty. Increasingly, the need to consider the most appropriate career for the individual is a key issue. Although this can be influenced

by a number of factors (family background and opportunities, school performance, individual attitudes, motivation, abilities and skills), perhaps the most important factor in determining the right choice is interest itself (Tudlik, 2021). Secondary school teachers may thus face one of the great challenges of our time, as they have the task of shaping students' motivation to pursue a career. However, interest is constantly changing. In his study, Tudlik (2021) draws attention to the lack of research on the relationship between career motivation, education and academic performance in secondary schools. In the present research, we aim to fill this gap by focusing on the role of teacher's career motivation and its impact on students' career choices.

There are many aspects to consider when looking at interest, academic achievement, the impact of the teacher and issues and difficulties related to career choices. What is certain is that it is crucial to focus on this issue, since it is in secondary schools that the basic stages of social and economic advancement and labour market acceptance are established.

References

Antal, Sz. Á. – Hámori, V. – Kimmel, M. – Kotschy B. – Móri, Á. – Szőke-Milinte, E. – Wölfling, Zs. (2013). Guide to the teacher certification system, Budapest

Bábosik, I. – Torgyik, J. (2007). Teacher education in the European Union. Budapest

Bernstein, B. (1975). Language socialisation and teachability. Csilla Melegh (2003, ed.) School and Society. Collection of texts. Dialóg Campus Publishers, Budapest-Pécs, 173-196.

Birch, S. H. & Ladd, G. W. (1997). The Teacher-Child Relationship and Children's Early School Adjustment. Journal of School Psychology, 35(1), 61-79

Bóné, V. & Hegedüs, R. (2018). Dimensions of security and career choice: Relevant findings from the longitudinal birth-birth study, Budapest, 180-186.

Borcsa, M. (2017). What does school socialise you to do? Graduating students' vision of the future in terms of motivation and openness, Journal of Childhood Education, 5(3), 39-45. https://doi.org/10.31074/gyntf.2017.3.39.45

https://ojs.elte.hu/gyermekneveles/article/view/543/443

Czető, K. (2022). What do pupils and teachers think of the school? School Culture, Vol. 32, No. 2022/8-9

Csákó, M. (1998). Further vocational training. Educatio, no. 3, 470-486.

Csapó, B. (1999). *The surface layers of school knowledge: what do grades reflect? In Quality assessment and quality assurance in education: a collection of texts. Quality assessment and evaluation in quality assurance: a booklet. ISBN 963-03-7445-5*

Coleman, J. S. (1996). Social capital. In György Lengyel - Zoltán Szántó (eds). György György Zoltán, Sociology and Social Policy Department, BKE, Budapest, 99-129.

Hegyi, I. (1996). Success and failure in the work of the teacher

Falus, I. (szerk.) (2011). Teacher career suitability - competences - standards. An international overview. Eger

Gábor Kálmán és Szemerszki Marianna (2006): BSc students 2005/2006. In: Kálmán Gábor (ed.): The beginnings of two-cycle education. Gábor G. Kálmán.

Gyifkó, M. (1978). Needs level and self-awareness in career choices. Szeged. 1-22.

Hamre, B. K. & Pianta, R. C. (2001). Early teacher–child relationships and the trajectory of children's school outcomes through eighth grade. Child Development, 72, 625–638. DOI: 10.1111/1467-8624.00301

Hoffmann, A. (2022). The career choices of Generation Z. A new approach to a multidimensional study. New Labour Review, Vol. III No. 2022/4.

Kotschy, B. (szerk.) (2011). Standards for becoming a teacher and professional development, Eger.

Kozma, T. (1990). Whose school is it?, Budapest

Lengyel, Gy. & Szántó, Z. (szerk). (1998). Types of capital: the sociology of social and cultural resources. Budapest.

Lengyel, J. & Török, T. (2012). Further education ideas of 11-12th grade high school students in Szeged. 59-75. https://www.iskolakultura.hu/index.php/iskolakultura/article/view/21317/21107

Lukács, É. F. (2012). The relationship between career choice and identity development. PhD thesis. ELTE PPK, Budapest.

Malmos, E. & Chrappán, M. (2016). An investigation of attitudes to science in the light of a pilot measurement. Educatio, 4.

Nagy, J. (1997). Bonding networks and education. School Culture, 7(9), 61-71.

Nagy, K. & Zsolnai, A. (2016). Examining school attachment from a social relations perspective. In Tóth, P. & Holik, I. (eds.), New Research in Education (2015). 53-61.

Nikitscher, P. (2016). What makes a good teacher? - Expectations, roles, competences in the light of empirical research. https://ofi.oh.gov.hu/publikacio/milyen-jo-pedagogus-elvarasok-szerepek-kompetenciak-az-empirikus-kutatasok-tukreben

MTA-DE-Families and Teachers' Cooperation Research Group questionnaire

OKM 2020 student questionnaire https://www.oktatas.hu/pub_bin/dload/kozoktatas/meresek/orszmer2020/Tanuloi_kerdoiv.pdf

Olteanu, L. L. (2019). The role of the family in career choices. OxIPO - interdisciplinary scientific journal, 2019/4, 23-35

Olteanu, L. L. (2023). A study of career choice difficulties among secondary school students. Educational Science, Vol. 11, 2023/1 https://ojs.elte.hu/nevelestudomany/article/view/5390/4348

Polónyi, I. (2016). Human resources in the 21st century, Budapest.

Porkoláb, A. (2015). The personality of the teacher. Journal of the Educational Psychology Centre of Mures County, no. 1, 2.

R. Fedor, A. & Pálosi, R. (2018). Young people's career choices in the light of school and family background. Debrecen.

Rosen, S. (1998). Human capital. In György Lengyel - Zoltán Szántó (eds). Budapest. 71-100.

Schultz, W. T. (1998). Investing in human capital. In Lengyel, György - Szántó Zoltán (eds). Budapest, pp. 45-70.

Schüttler, T. (1993). Exploring the motives for career choice. Szeged. 3-24.

Szabó, L. – Rausch, A. – Zsolnai, A. (2019). Characterizing the teacher-student bond in a national study. School Culture, 29(2-3), 22-38.

Szántó, L. (2019). The social transformations of capital in the 20th century.

Suplitz, S. (2012). Psychological characteristics of teachers as seen by students. Debrecen.

Tódor, I. (2019). The decision mechanism of school choice. Secondary school students in Szeklerland in an intersectoral cross-section, Budapest.

Tódor, I. (2020). School choice decision mechanisms: a cross-sectoral cross-section of secondary school students in Szeklerland, Cluj-Napoca.

Tomasovszky, E. (2013). Teacher competences, or what makes a good teacher? http://tomacolor.hu/jotanar.pdf

Trencsényi, L. (1988). Teacher roles in primary school. Budapest

Tudlik, Cs. (2021). The importance of developing career interest in school work. Eger. 103-132.

https://doi.org/10.3311/BICE2024-003

Varga, M. (1998). The changing roles of teachers today. New Pedagogical Review, 7-8, pp. 112-117

https://doi.org/10.3311/BICE2024-004

Applied Geography in the Classroom: A Case Study of Preparation for the International Geography Olympiad

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ABSTRACT

This article focuses on a specific segment of geography education: supporting talented students in their preparation for the International Geography Olympiad (iGeo). The primary aim is to present a practical approach to developing the skills essential for success in this competition. This approach, however, is not limited to competition preparation; it can also be effectively integrated into classroom settings, where there is an emphasis on resource analysis, systems thinking, and case study-based learning. The study demonstrates the implementation of this approach through an example task about the Mount Everest, using a Module task from a private school in Hungary. Additionally, the article explores how case studies, such as the commercialization of Mount Everest and its effects on the Khumbu region, can bridge physical and human geography, providing opportunities for students to analyze complex processes such as climate change, overtourism, or globalization.

KEYWORDS

Geography education, International Geography Olympiad, talented students

INTRODUCTION

The International Geography Olympiad (iGeo) is the largest annual, individual geography competition for secondary school students aged between 16 and 19. Every country sends four students to represent their country chosen from national olympiads (Meadows, 2020.). While general knowledge about the national qualifiers (Garcia-Garcia, 2007; Naumov, 2007; Pospíšil, 2020) and the structure of the tasks (Winter and Berg, 2007; Barwiński et al., 2014; Van der Schee and Kolkman, 2010) exists in the literature, there is an identifiable gap about a more practical approach that providing framework for geography teachers globally for the preparation process (both for the iGeo and its national qualifiers). Therefore, this article aims to present a case study about a structured way of preparation for one round of the iGeo, the Written Test. The framework can be used in every country that sends a team to the Olympiad so it is not only relevant to Hungarian teachers, but it can attract international interest.

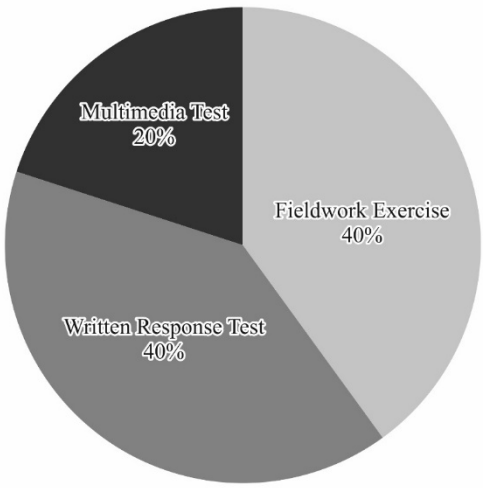
Before the methods, the study highlights the competition's main structure and required competencies.

LITERATURE REVIEW

THE STRUCTURE OF THE IGEO

The iGeo is made up of three graded rounds conducted in English. The process of having three rounds can be viewed as an intellectual triathlon in the field of geography. It takes nearly four days in the host city to complete, which changes annually. The three distinct rounds are the Written Response Test, the Fieldwork Exercise, and the Multimedia Test (iGeo Statutes, 2015). Figure 1 shows that points awarded in two of the rounds (the Written Test and the Fieldwork Exercise) make up more than three-quarters of the final score (see: Figure 1). Therefore, these two rounds are considered the most important parts of the individual competition.

Figure 1.
The proportion of iGeo rounds in the final score (based on the iGeo website).



Source: Author's elaboration based on iGeo Statutes 2015

Since this study focuses specifically on preparation for one round (Written Test), I will focus on this round. Students studying in English have a total of 160 minutes (including reading time) to complete the Written test, while those studying in their native language in their home country have 190 minutes. The topics are selected from 12 themes (covering topics from Physical to Human Geography in an integrated and equal way), but it is important to note that they are not presented in the form mentioned in the title but are narrowed down to subtopics in the test. Along with the test, students receive a resource booklet that contains all the data and information they can use during the round. These resources typically include visual or textual sources related to the topic or case study to be interpreted. Although the questions in the iGeo written

test are diverse, they can be grouped into common categories. They often focus on evaluating the advantages or disadvantages of the phenomena being studied, making comparisons, and analyzing impacts, consequences, and causes of processes.

Required Competencies for the iGeo

In general, iGeo's tasks focus on applied geographical knowledge, such as problem-solving, resource analysis, and spatial decision-making, which all require higher-order thinking (iGeo Guidelines 2015; Krause et al. 2022; Bálint et al. 2018; Farsang et al. 2020). Thus, theoretical geographical knowledge, that is, lexical knowledge, is significantly overshadowed in favor of other competencies (van der Schee et al., 2010; Winter and Berg, 2007). Two-thirds of the competition tasks (Written Tests and Fieldwork) consist of tasks that require hardly any data-centered knowledge. As the concept of 'everyday geography' by Martin, F. (2006) points out, it is not the knowledge itself that is crucial, but rather the geographical thinking linked to everyday, observable processes or "issues that are geographically and socially relevant" (iGeo Guidelines 2015). Within a task, topics are often found as 'synoptic' themes linking different processes, including physical and human geography.

Beyond having a broad perspective, system thinking is necessary. It's crucial to integrate natural and societal processes, as well as the ability to synthesize information. For example, when studying a specific case (such as the melting of permafrost), it is important to identify the causes and consequences of the phenomenon both on the local and global level (e. g. formation of pingo lakes; positive feedback loops) in addition to the societal consequences (damage to the local infrastructure or emergence of potential new viruses). This approach requires students to connect the information in different geographical subtopics, therefore the competition does not seem to favor specialists.

Aims, Research Questions, and Hypotheses

This study aims to develop and present a structured, practical framework for preparing secondary school students for the International Geography Olympiad (iGeo), with a particular focus on one round: Written Response Test. While the approach is tailored to competition preparation, its broader objective is to demonstrate how case study-based learning can be integrated into classroom geography education. The dual goal is to: First, to enhance students' applied geographical competencies, such as problem-solving, systems thinking, and resource analysis, aligning with iGeo's emphasis on applied geography. Second, to provide geography educators with a replicable model that bridges the gap between theoretical learning and practical application. The main question of the study is: How can a structured, task-oriented module improve students' geographical thinking and competency development for competitions like iGeo?

Methods

The article examines a possible preparation path for students for the competition in a structured way using a module taught at a private school (Milestone Institute, Budapest) for secondary students. The module is called the 'Geography Olympiad Learning Lab' (furthermore Geolab) which was offered four times between 2019 and 2023 to students enrolled in the course. The module is conducted on Saturdays for a small group (5 students on average) over 8 weeks, with each session lasting 50 minutes. The article uses the Module's syllabus and their workbook (Geography A to Z) to examine a possible path for preparation for one round of the iGeo, the Written Test.

Results

The main structure of the Module

As soon as a module officially begins, it provides 50-minute in-person sessions each week for 8 weeks, requiring students to prepare independently for 4 hours beforehand. Based on the flipped classroom method (Bishop and Verleger, 2013) this approach is a key component of the institution's educational philosophy. In this case, students are expected to learn the material and complete the assigned tasks independently before attending the session. During the sessions, the focus shifts to deepening their understanding and engaging in interactive activities related to the material, such as discussions and analyses.

In this system, emphasis is placed on independent study, individualized feedback, and active participation during class. The submission and evaluation of pre-session assignments take place through the institution's e-learning platform, Canvas. This online system plays a central role in the school's educational program: all class-related materials (curriculum, resources, assignments), communication (group announcements, individual emails), and assessments (ongoing individual feedback, end-of-term grading) are managed here.

Module leaders have the freedom to design their syllabus, with their work being supported and monitored by the institution in various ways. This support includes providing pedagogical training, reviewing submitted curricula, and conducting classroom observations.

The primary goal is to practice competencies previously outlined with participants in harmony with iGeo. The module does not rely on a designated textbook; instead, it is task-oriented, focusing on preparation for competitions. While students can independently work through past exam papers, I have developed a workbook for this module (Geography A to Z) that mirrors the format of the written test. This workbook assigns a task to each of the 26 letters of the English alphabet, with tasks designed to explore various geographical concepts and relationships through current events.

The six sessions of Geolab are organized around six major themes that correspond to the 12 topics outlined in the iGeo Guidelines 2015: Land and Life, Change, Climate Frontlines, Inequalities, Global to Local, and Urban Challenges. Each of the six sessions includes a set of tasks (with two sessions featuring two sets each), structured similarly to the written tests of iGeo (called sections). Since the written tests in these competitions typically consist of six sets of tasks on different topics, during the Geolab module, we gradually work through an entire test paper, session by session.

To complete the Geolab, as with other courses at Milestone, a minimum attendance of 60% is required, along with a grade of at least 4 (the module system uses a 10-point grading scale like the Anglo-Saxon system), which heavily relies on the practice of written test exercises.

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Example Task from the Workbook

In this section of the study, a specific portion of the Geography A to Z workbook will be analyzed. The focus is on the fifth session, "Global to Local," which examines the impacts of globalization on local communities, infrastructure, and the environment. This session explores how various locations—ranging from remote regions to popular tourist destinations—adapt to the rising influx of visitors.

A related pre-session assignment addresses the commercialization of Mount Everest, including the remote Khumbu region in Nepal. This case study is included in the workbook because it aligns with the criteria for effective case studies, providing a clear intersection between physical and human geography in the context of Mount Everest. The assignment delves into subtopics such as high-altitude hazards, the effects of climate change on mountain ecosystems, global extreme tourism, pollution in mountainous regions, overtourism, the challenges facing underdeveloped regions, and the broader implications of globalization on remote areas. Thus, the topic serves as a suitable framework for exploring multiple interconnected processes and for formulating questions regarding the causes and consequences of commercialization. Additionally, this topic carries a contemporary relevance, as it intersects with the tragic death of a Hungarian climber near Everest's summit in 2023, an event that attracted significant media attention in Hungary.

Table 1.
Example task (author's own elaboration)
Task 5: Study Resource Booklet Figure H3: Infographics about climbing Everest and Figure H4: Deaths on Everest. (Figures can be found on page 7) Compare and contrast the information and the way it presented in the figures (4 m).

Similarities	Differences
• Both figures present the fatalities that occurred in the Mount Everest • Both present the camps and their elevation number • Both figures differentiate death according to the climber's nationality (local or foreign) – both pictures show that more Sherpas died on Everest than foreigners	• The figures cover different periods (1950–2009 and 1920–2015) • Figure 3 identifies specific locations where hazards occur (e.g., Khumbu Icefall) and describes them • The figures use different terminology (e.g., climbers vs. Sherpas, Nepalis vs. foreigners). • Figure 4 presents not only the elevation but also the exact year when each death occurred.

The first question opens with the question of why this commercialization occurs in Mount Everest (the section is available via this link) using a resource about how the number of people in the base camp changed over time. Here, students have to name some cause with the help of another resource in the resource booklet (H1) which lists several expedition services for the climbers. For higher marks, they have to find out that technological development and sophisticated services that make the base camp more comfortable (and accessible) play an important role with other factors (higher demand). Every answer is accepted, not only those that are found in the resource booklet.

Following this, based on the first figure in the task, students were required to distinguish and name different phases in the history of Mount Everest. A more detailed analysis of the figure was necessary for grouping the data, where it was important to consider the changes in the two values (people above base camp, successful summits) to achieve a high score. It is evident that this task does not require lexical knowledge; however, the student must interpret the task and the source precisely.

In the third task, the focus shifts to the social impacts using the motivations and role of an ethnic group, the Sherpas, within the context of expeditions. Students need to interpret how the emergence of tourism has affected the lifestyle of the locals and the region's economy through the situation of the Sherpas.

Next, in the fourth task, the consequences are examined more broadly by including the perspectives of two other groups alongside the Sherpas—the climbers and the Nepalese government. This task consists of two parts. Firstly, students need to identify short-term, observable impacts relevant to all three groups (for example: human traffic jams for climbers, more job opportunities for Sherpas, and increased revenue from annual climbing permits for the government). The second part focuses on the long-term impacts, requiring students to think over a longer time horizon (for example: diverse services for climbers, lost traditions for Sherpas, and a higher employment rate in the region). Task 3/b asks for suggestions on how to make tourism in the region more sustainable. Here, students must propose specific actions that the Nepalese government could take to support this.

In the fifth task, students must analyze the visual representation of data by the comparison of two figures (Resource Booklet, Figures H3-4), which depict fatalities on Everest. In the first part of the task, they also need to recognize the intended audience for each mode of presentation. This allows students to connect how the target groups (researchers, general public) influence the characteristics of a figure. In addition, the figures are also used to present the subjective nature of visualization where the highlighted data and even the colors determine the main message of the figure. After that, the two figures (H3-4) are used to identify why most deaths occur on the top of the mountain switching to the natural hazards of extreme altitudes. In the last task of the section, the importance of the region as a water resource is highlighted. Students need to explain the label "Third Pole" of the region and the possible effects of climate change on millions of living in Asia.

Based on the analysis of the task series labeled 'H,' assigned for the first session of the Geolab, it becomes clear how an applied approach can be used to study an event or phenomenon, aiming to encourage systematic thinking both temporally and spatially. Within the Geolab framework, students complete different sets of tasks

before each session, following the flipped classroom method. These tasks are uploaded to the Milestone e-learning platform (Canvas). This preliminary work is essential because, during the in-person sessions, we will discuss the geographical phenomena and connections related to each task.

Additionally, individualized feedback plays a key role in the competition preparation process. Students receive personalized written evaluations, meaning that, in addition to the marking guide, they can also continuously track their performance, strengths, and weaknesses. For example, during preparation, it may become evident who is struggling with source analysis or defining concepts, allowing us to place special emphasis on these areas.

Thus, the focus of the in-person sessions is greatly influenced by the results of the tasks. As a result, the structure of sessions varies each year: there is no fixed schedule for topics and tasks during the class. In addition to the written task practice, the final grade is determined by an online task involving internet resource usage (5%) and a longer essay (15%). The topic for the essay can be chosen from a list related to the six major themes discussed in the sessions. However, due to the emphasis on writing, the pre-assignments account for the remaining portion of the final grade (80%). This structure is also applicable to Fieldwork, with the only difference being the content of the tasks (mainly observation and planning).

Conclusion

Based on the structure of the subject and the example task presented, it becomes clear how a resource-based approach, integrating both physical and human geography subfields, can serve as an alternative to the more traditional, factual approach in Geography education. From this analysis, several recommendations emerge that can enhance preparation for advanced geography competitions and support the structured implementation of extracurricular activities, such as talent development programs.

A task-oriented approach in classroom settings enables students to engage with geographical phenomena they may observe directly or indirectly in their surroundings, thereby making the natural and social concepts presented in textbooks more tangible. This pedagogical perspective is not new; the term "everyday geography" (Martin, F. 2006) highlighted its importance as early as the 2000s. The study demonstrated how competition preparation can, in practice, emphasize the development of critical thinking, analytical skills, and decision-making through case studies, with a strong reliance on cartographic and textual sources. In this framework, factual knowledge is embedded within the provided sources, as is often the case in real-world scenarios, shifting the focus from mere recall of information to fostering an understanding of connections between knowledge domains. This approach promotes system thinking through questions that explore causes, consequences, and both the short- and long-term impacts of various phenomena.

Accordingly, the tasks related to the case studies are designed as open-ended questions that require concise, written responses, allowing for multiple acceptable answers within the scoring rubric. It is also crucial to select case studies that extend beyond a single disciplinary perspective integrating aspects of both physical and human geography. Such interdisciplinary case studies offer a more holistic understanding of geographical issues, aligning with the broader goals of contemporary geographical education (IGU 2016).

References

Bálint, D., Pirisi, G. and Trócsányi, A. 2018. Adalékok a földrajz tantárgy szemléleti kérdéseihez a Nemzetközi Földrajzi Olimpia tapasztalatai alapján. *Földrajzi Közlemények* 142 (3): 235-246.

Barwiński, M., Sawicki, T. and Uroda, J. 2014. Poles in the International Geography Olympiad. *Geographia Polonica* 87 (2): 309-316.

Bishop, J., Verleger, Matthew A. 2013. The flipped classroom: A survey of the research. – In: 2013 ASEE Annual Conference & Exposition. pp. 23–1200. DOI: https://doi.org/10.18260/1-2–22585

Farsang, A., Szilassi, P., Csíkos, C., Szőllősy, L., Kádár, A., Pál, V. and M Császár, Z. 2020. Egy tanulóközpontú módszertani eszköztár fejlesztése Magyarország földrajzának tanításához. *Geometodika* 4 (3): 33-47.

iGeo Guidelines 2015. http://www.geoolympiad.org/fass/geoolympiad/participation/iGeoGuidelinesForTests.pdf (20 March 2024).

iGeo Statutes, 2015. http://www.geoolympiad.org/fass/geoolympiad/participation/index.shtml (12 December 2023).

IGU 2016. https://www.igu-cge.org/2016-charter/ (11 November 2024).

Garcia-Garcia, F. 2007. The Geography Olympiad in Mexico. *International Research in Geographical and Environmental Education* 16 (3): 271-279.

Krause, U., Béneker, T. and van Tartwijk, J. 2022. Geography textbook tasks foster thinking skills for the acquisition of powerful knowledge. *International Research in Geographical and Environmental Education* 31 (1): 69-83.

Martin, F. 2016. Everyday geography. *Primary Geographer* 61 (3): 4–7.

Meadows, M. E. 2020. Geography education for sustainable development. *Geography and Sustainability* 1 (1): 88-92.

Naumov, A. 2007. "The all-Russian geography olympiad." *International Research in Geographical and Environmental Education* 16 (3): 283-292.

Pospíšil, B. J. 2020. "Comparison of Tasks of Czech Geography Olympiad with tasks of Geography Olympiads in the USA and Australia." Diploma Thesis. https://is.muni.cz/th/c5sdu/Diplomova_prace_Pospisil.pdf (1 May 2022).

Van der Schee, J. and Kolkman, R. 2010. Multimedia tests and geographical education: the 2008 International Geography Olympiad. *International Research in Geographical and Environmental Education* 19 (4): 283-293.

Winter, K. and Berg, K. 2007. "Fieldwork and the International Geography Olympiad." International Research in Geographical and Environmental Education 16 (3): 299-306.

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The Necessity of Renewing Pedagogical Methods - PedaDome

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ABSTRACT

This research is centered on exploring the responses to the challenges posed by 21st-century pedagogy. I am investigating innovative approaches to enhance the processes, content, environments, methods, and tools of teaching and education, as well as redefining the roles of both teachers and students. The objective is to conceptualize a potential model of a postmodern school that stands apart from current research and educational practices, emphasizing experiential learning, interdisciplinary connections, simulation techniques, blended learning environments, and flipped classroom models. My focus extends beyond the young school-age demographic to include individuals at any life stage, allowing for a vast array of thematic combinations across various subjects.

KEYWORDS

postmodern pedagogy, alternative school, PedaDome method, geodesic dome

INTRODUCTION

Educational goals and core values have changed significantly over the past decade. The geodesic dome can fulfill important pedagogical purposes and missions in the 21st century, particularly since the emergence of the latest cultural-philosophical movement, metamodernism (see Monolithic Dome Schools). Contemporary research (Meynert, 2013; Rostoka, Cherevychnyi, Luchaninova & Pyzhyk, 2022, and others) has made it clear the necessity for further renewal of pedagogy.

Our research aims to establish the topic through the simultaneous application of several methods. Our research methods include qualitative-analytical and empirical methods: in-depth historical and cultural background analysis, questionnaire surveys, and semi-structured interviews for data collection, analysis, innovative research, followed by an experimental pilot study using various methods of involving participants, and drawing conclusions. As the first and most important outcome, we plan to describe and delineate the PedaDome, that is, the new area of 21st-century pedagogy, and the method itself during the research, and later, if possible, to build and create it, laying the foundations for the dome school.

METHODS

To ensure successful knowledge transfer, we must find the most effective combination of methods and forms while not overlooking anthropological insights that define humans as experience-oriented beings. Representatives of reform pedagogical trends have recognized that the process of education and value transmission is more effective when it involves multiple senses to achieve the desired effect. For this purpose, a complete renovation of tools and methods is necessary. The alternative pedagogical method, form, and space we call PedaDome — complexly integrating various artistic fields and disciplines — is particularly suitable for communicating and representing the most valid and recent knowledge. After launching the project, we consider it useful and necessary to collect a questionnaire — potentially fillable online — within two to three days after participants got their experiences. Feedback from participants in the PedaDome program can provide important insights for planning future events, reflecting on the method's effectiveness, clarity, and experiential quality. Additionally, it can offer vital information regarding location, theme, implementation, and other aspects relevant to organization.

AIMS, RESEARCH QUESTIONS AND HYPOTHESES

My research focuses on mapping the responses to the challenges of 21st-century pedagogy: I am seeking ways to innovate the process, content, space, methods, and tools of teaching and education, as well as the roles of teachers and students. My goal is to define a possible type of postmodern school that differs from existing dome research and school practices, with a central focus on experiential pedagogical effects, interdisciplinarity, simulation, blended learning, and flipped classrooms. My target groups include not only the young school-age population but also individuals at any stage of life, and the themes offer almost limitless possibilities for combinations of different subjects.

LITERATURE REVIEW

The concept of alternativeness cannot be understood in isolation. It can only be defined as a relational concept, its meaning can only be defined in conjunction with an opposing content, idea, or value. Accordingly, pedagogical alternativity, as otherness, is a dual, two-option offering, selectable (Kissné, 2011, p. 55), representing a different path or method from the existing one. Therefore, pedagogy is considered alternative if it is new compared to the established, widespread, traditional, and currently valid school system. To define the concept of alternativity in the sense of educational science, it is essential first to delineate the concept of traditional education and the school system, against which a school experiment or pedagogical method represents an alternative vision.

Here, we briefly list the main characteristics of the traditional school model: in terms of its organizational form, it is teacher-centered and characterized by frontal teaching and learning methods. Its methods mostly consist of teacher lectures and explanations, with textbooks as the primary teaching and learning tool. In terms of output requirements, it is characterized by a uniform level of expectations, a lack of differentiation, information centrism, repetitive assessments, evaluation through grading, age-homogeneous classes, and a subject-

classroom-lesson system (Németh & Skiera, 1999; Langerné, 2011).

The definition of the concept of alternativism — like that of reform pedagogy — proves to be an unanswerable question because its content and meaning have continuously changed throughout the history of pedagogy. Today, it is used in a sense that is new, different from the Herbartian school type, better, more modern, and more effective (Kissné, 2011). According to educational science professionals, the main characteristics of the alternative school model are novelty, an exploratory and discovery-oriented nature, its specificity (regarding the content of the curriculum, its approach, the teaching process, tools, methods, goals, the teacher-student relationship, etc.), choice, and remaining a minority. This is because in the Western European sense, alternativity is always defined as a label for a trend that is in a minority position as a corollary of pluralism (Trencsényi, 1999).

The criteria for alternativity may also include that they offer a complete school program plan; in this case, only comprehensive pedagogies that integrate all fields of knowledge belong to this category (see Brezsnyánszky, 2002). Alternatively, they may completely distance themselves not only from the traditional (state) school model and mass education but also from the traditional (pre-World War II) reform pedagogical efforts (Németh, 1998; Kissné, 2011). In this sense — narrowly defined— alternative schools were born out of parental-teacher demand, but they are not rethought reform pedagogical models (Langerné, 2011). After clarifying all of this, a question remains regarding the relationship between the alternative school model and reform pedagogy, as they often appear simultaneously or interchangeably in educational discourse (Langerné, 2010). Furthermore, educational encyclopedias categorize individual initiatives differently — one encyclopedia labels the same initiative as alternative, while another categorizes it as reform pedagogy. According to some sources (see Langerné, 2011), the term "alternative school" is more general and encompasses reform pedagogical experiments as well. Other sources interpret it more narrowly and distinguish it from reform pedagogical school concepts, applying the latter designation to traditional models established before World War II (Langerné, 2011).

In our interpretation, the concept of pedagogical alternativity encompasses all novel pedagogical methods that have not been previously applied and emerged after the last decade of the 19th century. Therefore, in our research, we also consider reform pedagogical school experiments and methods as alternative, while using the concept of reform pedagogy in a broader sense — not historically defined — meaning we do not limit this category solely to school experiments, pedagogical methods, and representatives established before World War II. Our starting point is the definition provided by the Hungarian Pedagogical Encyclopedia published in 1997, which is still considered authoritative today (Báthori & Falus, Vol. III, 1997; Langerné, 2011), interpreting both key concepts more broadly.

DISCUSSION

Modernity brings with it its own unique educational problems, challenges, pitfalls, and crises faced by educators, which are generated by the social and cultural environment of our time. Within this context, we must address the educational task of nurturing those entrusted to us into normal individuals who live in harmony with themselves and are capable of love and social relationships. To accomplish this responsible task, we seek pedagogical, spiritual, and relational anchors — various methods. The explosive development of technical tools signifies both the devaluation of personal relationships and the simplification of maintaining connections. However, modern IT tools and solutions can also serve as instruments for the school and education.

The focus of our research is to explore responses to the challenges of 21st-century most updated pedagogy, particularly concerning the healthy developmental conditions for school-aged youth, adolescents, and young adults, as well as their mental and spiritual health growth. Our goal is to create the necessary material conditions for this. Additionally, we seek ways to engage different social strata and groups through interactive activities organized around their personal questions for mission purposes. Furthermore, we aim to organize activities for groups and communities of different ages in the spirit of alternatives. Given that reform pedagogies and alternative school experiments have similarly sought new paths for harmonious personality development, we interpret these as starting points for our research, placing them in the context of the present age and integrating them with the most modern technical solutions as well as various artistic methods and practices.

The PedaDome project's instrumental conditions include equipment, tools, and programs that complicate its dissemination, as they require significant financial investment. Such items include a geodesic dome or planetarium-type dome structure, video projectors (8 projectors are needed for domes larger than 10 meters in diameter), sound systems, microphones, bean bags (which also need to be transported), air conditioning and heating systems (especially for mobile domes), sound installation to ensure a distraction-free environment (depending on the location), as well as specially produced presentation films, animations, audio materials (see http://www.dome3d.com/), and professional staff who create the films, camera equipment, software for implementing special spherical film segments, and (for movable domes) transportation devices. The PedaDome pedagogy represents a new approach in its content, method of presentation, communication form and placement, as well as in the structure and selection of space. Our goal is to develop and educate today's individuals through the latest technical solutions, as well as to renew the vision and prototype of the 22nd-century school in an alternative way by creating a form and space for audiovisual communication. In this space, not only does the change arising from placement, interactivity, and the altered role of educators bring something new, but by integrating new elements, perception and visuality are also involved in education. Thus, the impact of audiovisual experiences and spatial experiences is realized in achieving pedagogical goals. All these innovations aim not just to provide experiences to metamodern individuals in the experience market; our primary goal is to educate digital generations in their own language and open doors to future generations. This beautiful, intimate venue and the planned programs target all age groups and demographics. Events, gatherings, and interactive pedagogical processes occurring within the dome space activate the healing powers inherent in personal relationships and unique paths of mental health

preservation. In this space, alongside delivering the curriculum with novel language, various opportunities for connection and personality development are available: identity and self-identity, self-awareness, deepening community and human relationships, and community character. Additionally, communication skills, proper value systems, autonomy and stress management, healthy lifestyles, clarifying personal boundaries and limits, self-education, empathy, inner peace, and prevention are emphasized. For these goals, we assign specific programs with appropriate visual and audio materials, interactive challenges, meditation materials, etc. With the PedaDome programs, alongside teaching and personality shaping, our aim is also to enrich emotional worlds, nurture spiritual growth, and develop empathy.

Considering that reform pedagogies and alternative school experiments similarly sought new paths for harmonious personality development, I interpret these as the starting point of my research, placing them in the context of the present age and combining them with the most modern technical solutions, while also integrating methods and practices from various artistic fields. My research method involves analyzing existing similar practices, adapting them, experimenting, and conducting pilot research to find my own method, which could revolutionize the future of education.

The PedaDome, as a method, represents the transmission of knowledge through postmodern tools and serves as a unique form of communication and language, as well as a meeting place and workshop for various target groups. Accordingly, it involves relationship-building, communication, and poetics, creating a multi-arts creative and viewing space that also generates a unique world through programs, visual materials, and interactive activities. When used for educational purposes, geodesic domes can be defined as alternative school experiments suitable for conveying the most diverse interdisciplinary curricula in the spirit of experiential education. The PedaDome, as an installation, symbolizes the sky and serves as a representation of the entire world, embodying the external, internal, or fetal intrauterine universe. The challenges, methodological-ideological changes, and pitfalls of the 21st century have rewritten educator roles, radically renewing the content, tools, methods, and even the goals of teaching and learning. While these can be generally defined, they are hardly concretized. To raise individuals who can flexibly adapt to new situations and expectations while possessing digital competencies and the ability to retrain themselves requires educators who actively practice lifelong self-education. These educators must also be innovative personalities capable of continuously developing and renewing their toolset and teaching methods. Thus, postmodern pedagogy is a quest for new paths and even "anti-pedagogy," a blend of previous pedagogical experiments and methods. The role of the postmodern educator is that of a learning organizer who responds to children's behavior; it is essential that they navigate the diversity of pedagogies, understand them, and apply the most appropriate ones when necessary.

Added Values – The Surplus of PedaDome

The novelty of the research and its expected results lie in the adaptation of various dome structures, such as 21st century lightweight frame and planetarium-type buildings, for pedagogical purposes, i.e., the creation of a postmodern school. Additionally, the planning and development of new, specific programs aimed at teaching, education, career guidance, and community-building using the most advanced tools possible is needed. Existing events, films, lectures, and programs will be processed with a new focus for all age groups and target audiences.

The method is not fixed, regular, predetermined, or curriculum-like. Instead, the methods flow in a colorful manner, alternating and adapting to the specific programs and target groups in each case.

The life of a person living in the metamodern, experience-oriented society is living within the category of freedom and adventure, and their expectations towards school and teaching have changed. The question is what a metamodern educational institution should be like, one that does not lack experiential quality but is also not solely focused on being beautiful and aesthetic. In addition to these value categories, it must also be good and true, primarily child-centered and valid, modern, and effective. The language of the postmodern individual has changed significantly compared to earlier eras, and mere auditory information transfer, verbal and cognitive teaching is no longer sufficient for them. This was recognized by the founders of reform pedagogical schools when they sought to transform school education to engage as many senses as possible. Humans fundamentally learn visually and through experiences, so it is important for schools to convey knowledge through multiple senses. The PedaDome aims to do the same with today's possibilities by striving to utilize the opportunities provided by advanced, state-of-the-art technical tools to the greatest extent possible, as well as all the knowledge, understanding, and insights that have previously been represented by alternative and reform pedagogies, their followers, representatives of the life reform movement, multimedia procedures, and film techniques for the purpose of teaching and education.

The direction of development can be sensed, and predictions can be made about it, but we cannot provide specifics. However, it is important to at least understand the current processes and challenges, to gain clarity about the modern individual and their way of thinking, as well as the opportunities provided by modernization. This understanding is essential for clarifying the pedagogical goals and target groups, the possible tools, and the methods of conveying the message. Indeed, in our world overwhelmed by irrelevant information, clarity is power (Harari, 2018, p. 9), and a crucial step in this regard is community-building and organizing communal events for various social strata. Digitalization and information systems have also generated new pedagogical methods. However, computer-based learning, programs, and databases not only assist in visualization, information flow, storage, and transmission but also raise the possibility that today's school may fundamentally change, losing its personal touch and eliminating direct human relationships (the roles of teachers or educators), shared learning spaces (schools), textbooks, personalized assessments, questioning, and joint activities.

Furthermore, our goal is to organize activities for groups and communities of different ages in the spirit of alternativity. Considering that reform pedagogies and alternative school experiments similarly sought new paths for harmonious personality development, we interpret these as starting points for our research, placing them in the context of the present age and integrating them with the most modern technical solutions as well as various artistic methods and practices.

Conclusion

The added values and advantages of the PedaDome include: aesthetics, complexity, meaning that space-sound-content work together on the soul, multifunctionality, mobility, portability (in the case of the tent dome), innovativeness, advertising surface, modernity, high-level technological solutions, richness of experiences, diversity of programs, placement, goals, and target groups, as well as various possibilities for interior arrangement, etc.

The PedaDome, as a method, space, and form, alters the role of the educator, the way messages are conveyed, and the instrumental conditions in an alternative manner, while also adding acoustic and visual elements compared to traditional school education. As the first and most important outcome, we plan to describe and delineate the PedaDome, that is, the new area of the 21st-century metamodern school and the method itself during the research. Later, if possible, we aim to build and create it, laying the foundations for the dome project. There are no obstacles to empirical research and theoretical grounding, nor to describing the program; however, implementing it in practice and creating an experimental site is essential. The realization of this plan requires not only financial resources—though securing these is indeed a significant obstacle—but also the expertise of professionals in acquiring the building (planetarium) and projectors: creating projected audio-visual materials requires substantial specialized knowledge. Considering all of this, we view researching the PedaDome method as a feasible goal, providing concrete program proposals as inspirational material for implementation. For this purpose, we will need historical background exploration, an understanding and mapping of the worldview of our target audience, a reflection on contemporary alternative pedagogy and possible paths forward, detailed and exhaustive presentations of our plans for the PedaDome method, specific program proposals, and a pilot study that will include interviews.

The dome shape plays a key role in the PedaDome method; it embodies its essence and can be expanded to achieve various mission-related and general pedagogical multidisciplinary goals. Thus, the PedaDome opens up new perspectives for pedagogy and science popularization for educational practice and experiential education. The essence and focal point of every pedagogy is the relationship aimed at communication, development, value transmission, interactivity, and positive change. The PedaDome method opens pathways and spaces not only for verbal communication but also for visual representation, musical-auditory expression, emotional expression, movement-based activities, playfulness, improvisation, and self-expression using instruments and various tools. In summary, our research aims to reinterpret the practice of pedagogy, information transfer, and the concept of education.

References

Báthory, Z., & Falus, I. (1997). Pedagógiai lexikon [Pedagogical lexicon] III. Keraban.

Brezsnyánszky, L. (2002). A Herbart-paradigma magyar neveléstani recepciója. *Iskolakultúra, 12(5),* 38–43. https://real.mtak.hu/60885/1/EPA00011_iskolakultura_2002_05_038-043.pdf

James, A., & Prout, A. (2007). *Constructing and Reconstructing Childhood –Contemporary Issues in the Sociological Study of Childhood.* Polity Press Publication.

Harari, Y. N. (2018). *21 Lessons for the 21st Century*. Spiegel & Grau.

Kissné, Zs. R. (2011). „Mozdonypedagógusok" az alternativitás és pluralizmus füstjében – avagy az 1985. évi oktatási törvény a 80-as, 90-es évek pedagógiai reformjainak tükrében. *Képzés és Gyakorlat, 9(3-4).* 51-64. https://real-j.mtak.hu/17225/1/TP-2021-Vol_19-1-2-Full_Issue.pdf

Langerné, B. J. (2010). A reformpedagógiai iskolakoncepciók és az alternatív iskolák elterjedésének korlátai és lehetőségei a közoktatásban. Doktori értekezés, kézirat. http://konyvtar.uni-pannon.hu/doktori/2010/Langerne_Buchwald_Judit_dissertation.pdf

Langerné, B. J. (2011). Az alternativitás értelmezési lehetőségei és megjelenése az oktatásban és a pedagógusképzésben. *Iskolakultúra, 21(12).* 92-105. http://real.mtak.hu/56710/1/EPA00011_iskolakultura_2011_12_092-105.pdf

Németh, A. (1998). *A reformpedagógia múltja és jelene.* Nemzeti Tankönyvkiadó.

Németh, A., & Skiera, E. (1999). *Reformpedagógia és az iskola reformja.* Nemzeti Tankönyvkiadó.

Meynert, M. J. (2013). *Conceptualizations of childhood, pedagogy and educational research in the postmodern. A critical interpretation.* [manuscript]. Lund University, https://lucris.lub.lu.se/ws/files/5912966/4438100.pdf

Monolithic Dome Schools. https://www.monolithic.org/schools

Rostoka, M., Cherevychnyi, G., Luchaninova, O., & Pyzhyk, A. (2022). Philosophical and Pedagogical Discourse in the Postmodern Educational Space: Peculiarities of Distance Learning. *Postmodern Openings, 13(4),* 244-272. https://doi.org/10.18662/po/13.4/517

Trencsényi, L. (1999). Az alternatív pedagógiák nyomában. *Iskolakultúra, 9 (5).* 92-97. https://real.mtak.hu/61692/1/EPA00011_iskolakultura_1999_05_092-097.pdf

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Exploring Contemporary Perspectives on EFL Motivation in Ecuador: An In-depth Look at the English Learning Experiences of University Students

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ABSTRACT

This qualitative study delves into the motivations and experiences shaping non-English major university students' English language learning journey in Ecuador. As part of a university research project, it investigates individual, sociocultural, and educational factors shaping students' language acquisition endeavors through semi-structured interviews with ten participants. Key focal points include students' perceptions of their Ideal L2 Self, the role of teachers in motivation, and the challenges ingrained within the Ecuadorian educational system. The findings depict that teacher-student relationships, dynamic teaching methods, and contextual relevance boost positive learning experiences and student motivation. The study reveals students' reliance on teachers for emotional support alongside methodological guidance, highlighting the symbiotic relationship between teacher attributes—such as empathy, altruism, and charisma—and student engagement. Moreover, students often perceive their professors as paragons of language proficiency, drawing inspiration from teachers for their own linguistic journeys; a dimension often overlooked in traditional pedagogical approaches. In light of these findings, the study advocates for a paradigm shift in teacher training programs to cultivate attributes that can foster a supportive and stimulating learning environment. Future research avenues include longitudinal studies investigating the long-term impact of teacher characteristics and instructional practices on student motivation and language proficiency.

KEYWORDS

teacher's role, student motivation, Ecuadorian university, EFL experience, students' insights

INTRODUCTION

In the field of education, motivation is frequently cited by teachers and students as a critical determinant of learning success or failure, with a particular focus on the context of learning a foreign language (FL) or a second language (L2) (Guilloteaux & Dörnyei, 2008). Motivation, while pivotal in influencing linguistic outcomes, lacks a precise definition, encompassing a variety of meanings and constructs (Dörnyei, 2001). This complexity has led to a diverse range of theories and studies aimed at exploring motivation from different angles, a topic extensively discussed by Lamb (2017). Motivation in language learning is essentially about learners' choices and the effort they put into sustaining these choices (Dörnyei, 2001). Over the past five decades, second language acquisition (SLA) research has focused on identifying the motivational drivers that lead to and maintain the effort in L2 learning (Al-Hoorie, 2017). This study examines explicitly two constructs within Dörnyei's L2 Motivational Self System (L2MSS)—the ideal L2 self and the learning experience—to understand their influence on language learning motivation.

As Csizér and Kálmán (2019) outlined, key gaps in L2 motivation research include the role of teachers in shaping the L2 learning experience and the L2 learning experience itself. Notably, there is a scarcity of empirical studies on English language learning motivation in Ecuador, a gap this study aims to address. The focus here is to gain an in-depth understanding of teachers' roles in motivating non-English major university students in Ecuador through a qualitative research approach. This article investigates students' voices, ensuring their experiences and insights take center stage. By presenting these student perspectives, we aspire to offer a comprehensive and nuanced portrayal of the EFL learning landscape to contribute valuable insights that resonate with educators, researchers, policymakers, and, most importantly, EFL students seeking a deeper understanding of their educational journey.

LITERATURE REVIEW

Gardner and Lambert's (1959) seminal socio-educational model in SLA motivation introduced the key distinction between instrumental and integrative motivations. Instrumental motivation refers to language learning for practical purposes, such as career or academic goals. Integrative motivation, on the other hand, stems from a genuine interest in another culture or language, aiming for integration. Although foundational, these concepts have been critiqued for their limited relevance in EFL contexts and the evolving role of English globally (Csizér & Kormos, 2009; Islam et al., 2013; Kormos & Csizér, 2008; Lamb, 2012).

Csizér and Dörnyei (2005) addressed these criticisms by broadening the concept of integrativeness, reinforcing internal self-identification over external cultural assimilation. This shift paved the way for Dörnyei's L2 Motivational Self System (L2MSS), which redefined motivation in SLA. The L2MSS, according to Dörnyei (2009), is a comprehensive framework encompassing various psycho-linguistic factors previously treated as separate or overlapping concepts. It comprises three main components: the ideal L2 self, the ought-to L2 self, and the L2 learning experience. Martinović and Burić (2021) describe the ideal L2 self as an individual's vision of themselves as a proficient L2 speaker, while the ought-to L2 self reflects external expectations and the desire to avoid negative outcomes. The L2 learning experience is shaped by classroom dynamics, including the teacher, curriculum, peers, and experiences of success.

This study focuses on Ecuador's EFL context, examining the ideal L2 self and the L2 learning

experience. The ought-to L2 self is excluded due to its minimal correlation with language learning motivational behavior (LLMB) in related studies (Andrade-Molina et al., 2022). This exclusion reflects a pedagogical shift toward context-specific goals, moving beyond the pursuit of native-like proficiency (Andreou & Galantomos, 2009).

Lamb (2012) commended Dörnyei's L2MSS for adapting Gardner's concepts to contemporary global English learning. Taguchi et al. (2009) confirmed the cross-cultural validity of L2MSS, supporting its application in diverse contexts. Studies consistently show a stronger link between the ideal L2 self and L2 learning experience with motivated behavior than with instrumental or integrative motives (Al-Hoorie, 2017). However, Boo et al. (2015) spotlighted a research gap, showing that around 67% of studies between 2005 and 2014 overlooked the role of teachers and learning experiences in motivating learners. This underscores the need for further research on these factors, especially from both teachers' and students' perspectives.

THE L2 LEARNING EXPERIENCE

Csizér and Kálmán (2019) argue that the L2 learning experience has been comparatively overlooked, mainly due to its intangible nature which led to an under-conceptualization of the component and the focus on possible selves in motivational research. Accordingly, they urged researchers to study the construct more extensively. According to the scholars, the L2 learning experience encompasses the learner's internal thoughts and feelings, along with external factors experienced in language learning, both inside and outside the classroom. It is shaped by previous learning experiences and continues to influence perceptions even after the learning process.

Empirical studies consistently show that the L2 learning experience is a strong predictor of motivated behavior and achievement. For example, in a large-scale study in China, You and Dörnyei (2016) found that attitudes towards the L2 learning experience were the strongest motivator for language learning, even when controlling for factors like gender, vision, and learning context. It is important to note that in EFL settings, the desire to invest time and effort in learning is closely tied to the L2 learning experience.

THE CURRENT PERIOD OF MOTIVATION RESEARCH (SECOND DECADE OF THE CENTURY)

In recent years, second language acquisition (SLA) has witnessed notable shifts in research approaches, marked by an increased concentration on contextual influences. Academics like Lamb (2012) and Kormos and Kiddle (2013) have explored how social, cultural, and linguistic contexts impact learners' motivation. Following this prevailing paradigm, a substantial body of literature in EFL has emerged to explore groundbreaking theories within diverse geographic and sociocultural contexts. For instance, in Ecuador, Andrade-Molina et al. (2022) found that the Ideal L2 Self and learning experiences inside and outside the classroom were key drivers of motivation, while the ought-to L2 self was negligible. Ortega-Auquilla et al. (2019) surveyed 422 Ecuadorian university students to understand their motivations for learning English, including instrumental and integrative reasons. They uncovered that their motivations included both short-term goals, like travel, and long-term aspirations such as career advancement. These findings support the international posture construct, which captures attitudes toward global engagement and openness to diverse cultures (Yashima, 2012).

The role of teachers in motivating EFL learners has also gained renewed attention. Studies using Dörnyei's (2001) Motivational Strategies (MotS) taxonomy show that teachers who apply dynamic, student-centered techniques increase students' L2 learning motivation in-class behavior and survey responses, leading to L2 academic success (Lamb, 2017). However, the effectiveness of MotS varies by context, with teacher behavior emerging as the most crucial factor in motivating learners (Lamb & Wedell, 2015). Research has also asserted the importance of teacher-learner relationships, with supportive and nurturing teachers fostering a sense of community and enhancing motivation (Kálmán, 2023). Lamb (2017) argues that fruitful interpersonal communication and constructive teacher-student relationships could be among the highest-order motivational factors. In Little's (2007) view, fostering learner autonomy effectively requires that teachers first develop their own autonomy. Teachers must engage in reflective and self-managing processes in their teaching practices.

Similarly, Dörnyei and Kubanyiova (2014) concluded that teachers occupy a privileged position in shaping the EFL learning experience. Globally, numerous remarkable examples illustrate teachers' potential to become transformative leaders. Kubanyiova (2019) noted the need to recognize various teacher motives, including intrinsic, externally regulated, and altruistic ones. She upholds a practice-oriented epistemology to examine how these motives shape teaching practices and influence student motivation.

Finally, academics are progressively calling for a qualitative approach to better elucidate the psychological factors and key motivational constructs underpinning the EFL learning experience. As aptly stated by Chen (2012), a qualitative research approach is necessary to explore sociocultural influences on the construction of the L2 self. This method can provide deeper insights into the context and dimensions of L2 identities. The researcher also determined the importance of examining the connection between the potential L2 self and language learning, as well as the evolving changes in L2 motivation and identities throughout the learning process.

AIMS, RESEARCH QUESTIONS AND HYPOTHESES

This study explores the EFL learning journey of non-English major university students in Ecuador from their perspectives, aiming to uncover the unique facets of their experiences. Additionally, it examines how students perceive the role of teachers in motivating their EFL learning and identifies critical factors influencing this perception.

- What characterizes the EFL learning experience of Ecuadorian non-English major university students from their perspectives through the lens of the ideal L2 self-system?
- What characterizes the role of the teacher in the EFL learning motivation of Ecuadorian non-

English major university students from the student's perspective?

METHODS

This qualitative research employs a phenomenological approach to exploring EFL students' perspectives. The study focuses on understanding the viewpoints of non-English major university students in Ecuador as they navigate the challenges of learning English as a foreign language. The primary emphasis is unraveling EFL teachers' role in motivating these students and shaping their language learning experiences. In recognizing the pivotal role of teachers, this research acknowledges them not only as conveyors of knowledge but as essential facilitators and mentors who significantly influence the learning journeys of non-English major university students in Ecuador. Two distinct data collection techniques were employed: initial pilot stage focus group interviews and subsequent individual interviews. This methodological choice was made to enrich the substantive quality of the collected data by capturing diverse insights from the participants. Utilizing individual and focus group interviews contributes to a more comprehensive understanding of the students' perspectives and demonstrates the methodological rigor upheld in this study. By incorporating varied data sources and perspectives, this methodological approach enhances the credibility and reliability of the study's findings, aligning with established research principles (Privitera & Ahlgrim-Delzell, 2018).

RESEARCH CONTEXT

In Ecuador, university students from all majors must attain B1 proficiency in a foreign language, typically English, before graduation. Bravo et al. (2017) and Ortega and Fernández (2017) pointed out that Ecuadorian students' proficiency levels upon finishing university fall well below the expected competence. To address this widespread issue, this study focuses on non-English major students, a demographic more representative of the country's general population.

This research was conducted at a university known for its inclusive admissions policy, drawing students from diverse cultural and social backgrounds. Its strategic location plays a critical role in ensuring equitable access to education for both urban areas and those hailing from smaller towns and rural regions. Regardless of their major, students must complete five English courses and pass a rigorous language proficiency test. Alternatively, they can present an internationally recognized B1 certificate for validation or take the proficiency exam independently.

As the data collection instrument, a semi-structured interview guide was devised. Due to its open-ended format, this type of instrument allows the participants to expand on the phenomena under study using an exploratory approach with advice and orientation from the researcher (Dörnyei, 2007). As Wallace (1998) argued, this type of data collection involves a "certain degree of control with a certain amount of freedom to develop an interview" (p. 147). The questions of the semi-structured interview guide were primarily drawn from previous research studies on language learning motivation, notably Lamb's (2017) State-of-the-Art Article. Also, continuous expert advice was obtained while devising and validating the instrument for the pilot interviews. The instrument was piloted with three EFL students who were not part of the sample.

Ten EFL students, all living and studying in Ecuador, participated in semi-structured interviews, with full confidentiality ensured. These students are enrolled in mandatory English courses at their university. Participants were selected through convenience sampling, consistent with Dörnyei's (2007) definition: "members of the target population are selected for the study if they meet certain practical criteria, such as geographical proximity, availability at a certain time, easy accessibility or the willingness to volunteer" (p. 85). The participants, spanning a range of English proficiency levels from novice to more advanced levels, offer unique insights from their varied learning experiences. Background details for each one, including their educational history and English language learning journey, are comprehensively presented in Table 1.

Table 1
Participants

Pseudonym	Age	Gender	Major	Years of English Instruction Before Entering University	Current Uni English Level
Alisson	20	Female	Plastic Arts	12 years	2nd Level
Anita	25	Female	Graphic Design	12 years	3rd Level
Daniel	40	Male	Law	3 years	5th Level
Esther	21	Female	Accounting	12 years	2nd Level
Magdalena	30	Female	Elementary Education	6 years	2nd Level
Mikaela	24	Female	Psychology	6 years	5th Level
Monica	21	Female	Tourism	6 years	1st Level
Pedro	26	Male	IT	12 years	5rh Level
Rafaela	27	Female	Textile Engineering	4 years	5th Level
Sebastian	21	Male	Law	12 years	3rd Level

This study adhered to APA ethical guidelines for research with human participants. All interviews were conducted online in the respondents' first language (Spanish) and video recorded on Microsoft Teams with their written consent. A pilot phase involving a focus group with three EFL students helped refine interview questions for clarity and relevance. The pilot interview lasted 70 minutes, generating 6500 words, leading to

minor adjustments in the final guide. Subsequent individual interviews lasted 46-50 minutes, yielding a rich corpus of over 4500 words. Quoted excerpts were translated from Spanish to English by the author.

Interviews were transcribed verbatim for analysis, and the data was examined using thematic analysis following Braun and Clarke's (2006) framework. This approach involved familiarization with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the final report. A reflexive journal was maintained to document theoretical reflections on potential codes and themes, ensuring a thoughtful and systematic approach to the analysis.

After multiple reviews of the data, initial codes emerged, bringing key features to the forefront. These codes were grouped into themes, and connection diagrams were employed to refine them further—some themes were reworded, removed, or repositioned as needed. Peer debriefing ensured trustworthiness, with another researcher testing some coding schemes to validate the findings. The raw data was revisited throughout the process to confirm that the themes accurately reflected participants' responses, avoiding researcher bias and enhancing the reliability of the results.

RESULTS

The adaptability of the interviews revealed a range of motives for English proficiency. Instrumental motivation dominated, with participants highlighting the practical benefits of English, including meeting academic requirements, improving job prospects, and expanding professional opportunities. Participants stressed the immediate relevance of English in their fields, particularly for workplace communication. Some also noted intrinsic motivations, such as personal growth and enjoyment, as well as altruistic motives, like supporting family members in their education. Additionally, the teacher's role as a motivator and English's facilitation of cross-cultural interactions were recurring themes, stressing its importance in a globally connected world. The following analysis will explore the EFL experience in Ecuador through the L2MSS framework, examining the interplay between motivation and sociocultural context. The results will be presented in two main categories corresponding to the research questions.

The EFL learning experience of Ecuadorian non-English major university students from their perspectives through the lens of the ideal L2 self.

Table 2
Students' perceptions of ideal English speakers

Emerging themes
• Native speaker as ideal L2 self
• Teacher as ideal L2 self
• Influence of stereotypes on the construct of the ideal L2 self: Individuals holding a B2 certification

Three out of ten participants viewed native English speakers as the ultimate standard of language proficiency, recognizing not only their mastery but also their ease in everyday communication. Pedro reflected this view: Ideal speakers are natives, they master the English language as a more habitual, fluent language, with just one phrase, we can understand what they are trying to say." In the EFL context, however, native speakers were not the only idealized users. Most participants also viewed EFL teachers as ideal models of language mastery. Sebastian noted: "*I can definitely see my teacher as an ideal speaker because he speaks the language fluently. He told us what worked for him, how he learned the language, what mistakes we can make, and how to avoid them.*"

Participants viewed the ideal language teacher as someone who communicates clearly and fluently. They believe that a teacher should not only know the language but also teach it effectively. They also associated the B2 certification with the ability to communicate well in English. As Monica stated, "*For me, an ideal English speaker is someone who can reach at least the B2 level, to be able to communicate and share with others who speak English.*" Overall, participants idealized not only native speakers but also teachers, with certifications like the B2 level influencing their views on language proficiency, underscoring the multifaceted nature of their expectations.

Table 3
Vision as English speakers

Emerging themes
• Skills for global exploration: Language users as cultural ambassadors
• Challenges in self-visualization: Sociocultural barriers and temporal constraints
• Visualizing Ease: English language side with major and English acquisition for parenting
• Ambiguity in self-perceptions as language users
• Language identity and personal well-being

This research delves comprehensively into participants' multilayered perspectives on English proficiency, revealing insights into their roles as global language users. Central to their discourse is a genuine desire for international exploration and relationship-building, with English as the key facilitator. Rafaela encapsulated this sentiment, expressing the desire to use English to connect globally and travel abroad. Some participants also envisioned themselves as cultural ambassadors, using English to share Ecuadorian indigenous culture.

However, amidst these aspirations lies a narrative thread woven with challenges, mainly due to sociocultural barriers and limited exposure to English. They expressed fears of making mistakes, discomfort when interacting with native speakers, and difficulties with the language due to a lack of immersive environments in their formative years. Magdalena and Esther mentioned struggling to process rapid speech and understand information, attributing these difficulties to insufficient L2 exposure.

The study also highlights the strong link between English proficiency and participants' future aspirations, extending beyond professional success to personal fulfillment. Sebastian's reflections on the pride and achievement of mastering English exemplified this holistic view. Other participants echoed this, recognizing language proficiency as essential to personal growth. These narratives deepen our understanding of the role of

English proficiency in global citizenship, cultural exchange, and personal development.

Transitioning from exploring EFL learning experiences, the forthcoming discussion delves into an in-depth analysis of the teacher's fundamental role within this context. Participants accentuated the teacher's importance in engaging students, providing pedagogical support, and promoting English language appreciation. They acknowledged teachers as catalysts for sustained enthusiasm, adopting student-centered approaches to meet individual needs. The role of the teacher transcends knowledge transfer, it is instrumental in nurturing a broader appreciation for the language and its cultural relevance.

Table 4
The teachers' role concerning the ideal L2 self

Emerging themes
• Dynamic and Interactive Teaching Methods: Varieties of resources to learn English
• Teachers as Role Models, guide and mentor: Encouraging Teachers and Teachers' own learning journey
• Motivation and Support

Participants unanimously emphasized the pivotal role of language instructors in shaping their ideal L2 selves, viewing teachers as both educators and inspirations. One participant noted, *"I think that the teacher inspires an ideal speaker, for example, when sharing their experiences with us."* This recurring theme underlined the teacher as a role model, offering practical guidance on achieving proficiency. For participants, understanding how the teacher mastered English is essential, seeing the teacher as a model of linguistic success and a source of support.

Participants also stressed the value of dynamic teaching methods and diverse resources in fostering engagement. Sebastian reflected this preference: *"English must be very dynamic for a person to like it."* They remarked the importance of interactive methods, multimedia tools, and hands-on activities as essential components for a well-rounded L2 experience, aligning with their aspiration to reach the ideal L2 self.

Despite challenges, participants expressed gratitude for their teachers' continuous motivation. Daniel noted, *"Sometimes I want to quit English, but the teacher motivates us not to give up,"* underscoring the teacher's role in fostering perseverance. Teachers were acknowledged as a source of inspiration for students to overcome hurdles and stay committed to their language-learning endeavors. Esther eloquently echoed this sentiment:

"I think that the teacher inspires an ideal speaker, for example, when sharing their experiences with us—their experiences and how they have also managed to learn the language. So, for us, it is essential to know how the teacher learned the English language. It would also be something crucial for us to apply and how to carry something similar to the teacher."

Table 5
Teacher influence on students' experiences in EFL learning

Emerging themes
• Positive influences: Interactive and Motivational Teaching Approaches, extra-curricular activities, collaborative work, balancing demand with patience, fostering understanding through engagement and accessibility.
• Negative influences: Monotonous teaching approaches, limited support and demanding teaching, unrealistic expectations, overemphasis on rubrics and textbooks, disruptions in curriculum structure, overlooking varied learning abilities

The EFL students provided valuable insights into their learning experiences, addressing both positive and negative influences. An overwhelming majority of participants firmly agreed that the pedagogical methodology adopted by instructors was crucial in shaping a favorable learning experience. Monica, for instance, recalled how engaging activities, such as contests and games, motivated her to learn and participate. This underscores the role of teachers' methodological preparedness in fostering positive EFL experiences.

Students conducted a detailed examination of the methodologies used to create a secure learning environment, frequently mentioning the balance between academic rigor and patience. Mikaela appreciated her teacher's demanding yet patient approach, especially given her emotional nature. Participants also valued instructors' accessibility and willingness to offer feedback and second chances. As Daniel noted, *"I am not afraid of making mistakes because the teacher allowed me to resend the homework to improve the grade; she provided feedback and gave us a second chance."*

Conversely, negative experiences, particularly in high school, were often linked to teachers' lack of care and rigid methods. Esther described feeling disconnected due to monotonous teaching and a lack of feedback. Alisson reflected, *"I didn't really know if it was right or wrong; the teacher simply had us fill in the text and memorize, rather than engaging in real interaction. There was a lack of feedback regarding English."* A contrast emerged between motivating teachers who invested time in providing feedback and those who adhered to rigid structures. The contrast between dynamic and monotonous teaching methods highlights the critical importance of instructional vibrancy in English language education.

Table 6
Teacher influence on EFL motivation

Emerging themes
• Teacher's Personality: Positive behavior, attitude, humor, altruism, consideration, empathy, respect, charisma.
• Methodological preparedness: Supportiveness, student-centeredness, dynamism, practicality, use of technological resources, and teaching methods.

The results underscored the pivotal role of teachers in fostering a motivational learning atmosphere. Participants highly valued teachers who demonstrated empathy and altruism, seeing them as key to enhancing motivation and learning experiences. Altruistic teachers, who showed genuine concern for students' well-being, were praised for

building a profound sense of trust in the classroom. Empathetic teachers were similarly appreciated for understanding students' struggles and creating a supportive atmosphere. As Anita noted, *"The common denominator among my motivating teachers is that they have a certain level of empathy with the students."*

Charismatic educators, characterized by their vitality and fervor for pedagogy, inspired active participation. Their contagious zeal for the subject matter engendered a culture of academic excellence among students. Magdalena observed, *"Teachers with charisma are inspiring; they make us feel respected, and that motivates us to succeed."*

Beyond personality traits, participants also emphasized the significance of teaching methodologies. Methodological preparedness emerged as a cornerstone in shaping motivation, with teachers effectively using technological tools and varied techniques like songs, crosswords, and games to engage students. As Rafaela expressed: *"Teachers make classes fun; they play songs, use crosswords, puzzles, tongue twisters, table games, etc. and I remember the language."*

Participants unanimously agreed that by fostering a student-centered classroom philosophy, educators cultivated a supportive environment. This approach instilled a sense of belonging among students and significantly bolstered their academic motivation. *"It is easy if I feel supported. I will try my best to achieve"* (Pedro).

DISCUSSION

Participants' motivations for learning English ranged from academic requirements to altruistic and intrinsic drives. Instrumental motives, like job prospects and higher salaries, identified by Graddol (2006) as the practical utility of English, emerged as strong motivational predictors in Ecuadorian studies (Ortega-Auquilla et al., 2022). This study also stressed intrinsic motivations, including personal growth and enjoyment, harmonizing with findings from other Ecuadorian academics (Luna-Hernández, 2016; Ortega-Auquilla et al., 2019). Additionally, participants recognized English as essential for international cross-cultural relations, supporting Yashima's (2000) International Posture construct. Altruistic motives, such as helping family members, added a social dimension to language learning, a factor not commonly delineated in analogous Ecuadorian studies (Soto et al., 2024). These motivations exhibit the complex interplay of individual, socio-cultural, and economic factors in English acquisition.

Despite the evidence supporting the ideal L2 self as a key motivator, research on teachers' direct impact remains notably scarce. In a quantitative study conducted within the Ecuadorian context, compelling evidence emerged indicating that the Ideal L2 Self stands out as a paramount predictor of student motivation (Andrade-Molina et al., 2022). The present study delved deeper into participants' perceptions of the Ideal L2 Self, revealing that they viewed native speakers and teachers as models, alongside stereotypes like obtaining B2 or C1 certifications as the epitome of achievement. This idealization mirrors the global influence of anglophone pedagogical models (Pavlenko, 2003), linked to societal perceptions of authenticity (Seidlhofer, 2013).

The acknowledgment is notably heartening as it signifies students' discernment of the multifaceted attributes pivotal for effective language instruction, regardless of the instructors' native speaker status, reinforcing both pedagogical and interpersonal dimensions. Students also feel influenced by the stereotype of obtaining a standardized proficiency certificate as the ideal l2 self, which could be shaped by the decade-long importance on acquiring such credentials in Ecuadorian secondary and higher education (Mantilla & Andrade-Molina, 2020).

Participants' visions as English speakers offer glimpses of their aspirations, challenges, and self-perceptions in a globalized world. The emphasis on skills for global exploration and cultural ambassadorship concur with broader societal trends (Chlopek, 2008; Canagarajah, 2012). However, challenges related to sociocultural barriers and limited exposure exemplify the need for interventions to address structural disparities, reaffirming Dörnyei and Kubanyiova's (2014) view on external factors affecting L2 motivation. students' realization of their L2 vision as integral to personal well-being depicts the complex interplay of cognitive, social, and emotional dimensions in language learning (Dörnyei & Kubanyiova, 2014).

Participants also drew attention to the practical relevance of English for academic, professional, and community contexts, recognizing proficiency as essential for scholarships and career opportunities, consistent with findings in Ecuador (Luna-Hernández, 2016; Ortega-Auquilla et al., 2019; Soto et al., 2024). Altruistic motives surfaced again as sources of motivation and applications of language in future endeavors, bringing to the fore the ethical dimension of language learning and its potential for positive social change, diverging from the more conventional instrumental motives.

The findings shed light on teachers' significant impact on sculpting students' visions of their ideal L2 selves. Across the board, participants viewed educators as role models, gaining valuable insights from their learning narratives. As Dörnyei (2014) stated, *"...a positive role model – that is, an individual who has achieved outstanding success – can raise the observers' hopes for the future and thus motivate them to pursue similar excellence"* (p. 63). This adheres to the socio-cognitive perspective, where learners construct their ideal selves based on social interactions and EFL role models (Dörnyei, 2009).

Moreover, the importance of dynamic teaching methods and diverse resources reflects the role of experiential learning in fostering students' ideal L2 selves (Lamb, 2017). Participants stressed that interactive methods and practical guidance empowered them to take ownership of their language learning, resonating with research on learner autonomy and agency (Deci & Ryan, 1985).

Participants' insights affirm how engaging teaching methodologies and supportive instructors foster positive learning experiences. Achieving a balance between academic expectations and emotional support was seen as key to accessibility. Research consistently highlights the role of teacher-student interactions and affective factors in shaping students' language learning (Dörnyei & Ushioda, 2009; Mercer et al., 2016). Conversely,

monotonous teaching approaches led to disconnection and dissatisfaction, urging the need for dynamic, responsive instruction to meet individual needs (Richards & Rodgers, 2001). Participants conducted an in-depth analysis, extending beyond methodological factors, to spotlight the importance of emotional support and the potential impact of teacher disengagement. The results clearly show that students view the teacher's role as crucial in shaping their affective attitudes toward L2 learning. They recognized the teacher's influence in both methodological and emotional dimensions. The significant reliance on educators to create a positive learning environment requires careful consideration, as it may indicate a reduced sense of student ownership and accountability.

This study also examined the multifaceted influence of teacher personality and methodological preparedness on L2 motivation. The findings illuminated the importance of empathy, altruism, and charisma in creating a conducive learning environment, resonating with research on teacher-student relationships (Kálmán, 2018). Methodological preparedness, particularly through student-centered approaches and technology integration, fostered higher engagement, aligning with research linking active learning to increased motivation and achievement (Richards & Rodgers, 2014).

Mukminin et al. (2017) found that altruistic motivation influenced career choice in teaching. Our study reflects this from the students' perspective, as they identified altruistic traits in their teachers and internalized them as motivational sources. This highlights the symbiotic relationship between teacher attributes and student motivation. Teachers who show genuine care build trust and foster participation, while charismatic educators inspire students through their passion and dedication (Babad, 2009).

Conclusion

The motivational EFL landscape in Ecuador encompasses a multifaceted array of pragmatic, personal, and altruistic impetuses, reflecting the complex interplay of individual, cultural, and economic determinants, alongside the escalating significance of intercultural competence in a globalized milieu. While acknowledging the utilitarian value of English proficiency, participants identified challenges stemming from sociocultural impediments and temporal constraints, underscoring the exigency for targeted interventions and equitable learning opportunities. Central to this motivational framework was the conceptualization of the Ideal L2 Self, wherein linguistic proficiency benchmarks, admiration for native interlocutors, and the pivotal role of educators converged to shape learner aspirations and engagement in the language acquisition process.

The study elucidates the pivotal role of educators in shaping language acquisition experiences, positioning them not merely as facilitators but as catalysts of inspiration, underscoring the significance of pedagogical acumen and empathetic disposition. As pedagogues, it is imperative to harness the symbiotic nexus between instructor attributes and learner motivation, fostering an optimal learning experience that leverages our influence to empower and inspire students in their linguistic path. This research accentuates the necessity of prioritizing positive instructor-learner dynamics, characterized by empathy, mutual respect, and charismatic engagement. Consequently, professional development initiatives should underline the enhancement of educators' interpersonal competencies and didactic methodologies to engender supportive, dynamic learning environments.

The findings accentuate the efficacy of integrating dynamic instructional approaches, diverse resources, and technological tools in augmenting student engagement and motivation, thereby enhancing learning outcomes. These strategies have the potential to cultivate an enriching educational ecosystem that addresses learners' heterogeneous needs and preferences, catalyzes motivation, and nurtures a sustained commitment to language acquisition, ultimately fostering a profound affinity for the target language.

The study highlights the crucial need for contextually appropriate and adaptive pedagogical methods to enhance English language learning in Ecuadorian universities. It urgently calls for professional development programs tailored to address the idiosyncratic challenges inherent in the Ecuadorian educational landscape. It is imperative to critically interrogate the prevailing paradigm that posits student motivation as solely established on academic exigencies. This research elucidates the crucial importance of fostering awareness among educators regarding their capacity to catalyze student inspiration beyond scholastic objectives. Given the profound impact of personal attributes and experiential backgrounds on teacher-student dynamics, it is incumbent upon teacher preparation programs to prioritize the cultivation of these qualities to engender a more conducive and intellectually stimulating learning milieu. Moreover, it is essential to leverage the potent pedagogical potential inherent in educators' own language learning trajectories as exemplars for students, an aspect hitherto largely neglected in conventional pedagogical praxis.

This study's limitations include its focus on Ecuadorian non-English major university students. Future research could explore these findings across different contexts and student populations. Longitudinal studies could investigate the lasting impact of teacher personality and methods on student motivation and proficiency. Qualitative methods, such as classroom observations and interviews, could provide deeper insights into teacher-student dynamics and their influence on motivation.

References

Al-Hoorie, A. H. (2017). Sixty years of language motivation research: Looking back and looking forward. *SAGE Open*, *7*(1), 1-11.

Andrade-Molina, C., Bastidas-Amador, G., Posso-Yépez, M., & Alvarez Llerena, C. L. (2022). Exploring the L2 motivational self-system in Ecuador: A questionnaire study in secondary school / high school contexts. *RLA. Revista de lingüística teórica y aplicada*, *60*(2),39-62. https://doi.org/10.29393/rla60-10elcc40010

Andreou, G., & Galantomos, I. (2009). The Native Speaker Ideal in Foreign Language Teaching. *Electronic Journal of Foreign Language Teaching*, *6*.(2)200–208

Babad, E. (2009). *The social psychology of the classroom*. Routledge.
Boo, Z., Dörnyei, Z., & Ryan, S. (2015). L2 motivation research 2005-2014: Understanding a publication surge and a changing landscape. *System*, *55*, 145-157. Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77-101. https://doi.org/10.1191/1478088706qp063oa

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77-101. https://doi.org/10.1191/1478088706qp063oa

Bravo, J. C., Intriago, E. A., Holguin, J. V., Garzon, G. M., & Arcia, L. O. (2017). Motivation and autonomy in learning English as a foreign language: A case study of Ecuadorian college students. *English Language Teaching*, *10*(2),100 - 113. Canagarajah, S. (2012). *Translingual Practice: Global Englishes and Cosmopolitan Relations*. Routledge. https://doi.org/10.4324/9780203073889

Chen, S.-A. (2012). Motivation and possible selves: An interview study of Taiwanese EFL learners. *Language Education in Asia*, *3*(1), 50-59.

Chlopek, Z. (2008). The intercultural approach to EFL teaching and learning. *English teaching forum*, *46*(4), 10. https://eric.ed.gov/?id=EJ1096289

Csizér, K., & Dörnyei, Z. (2005). Language learners' motivational profiles and their motivated learning behavior. *Language Learning*, *55*(4), Article 4.

Csizér, K., & Kálmán, C. (2019). A study of retrospective and concurrent foreign language learning experiences: A comparative interview study in Hungary. *Studies in Second Language Learning and Teaching*, *9*(1), 225-246.

Csizér, K., & Kormos, J. (2009). Learning experiences, selves, and motivated learning behaviour: A comparative analysis of structural models for Hungarian secondary and university learners of English. In Z. Dörnyei & E. Ushioda (Eds.). *Motivation, language identity and the L2 Self*, (pp. 66-97).

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. Springer US. https://doi.org/10.1007/978-1-4899-2271-7

Dörnyei, Z. (2001). *Motivational Strategies in the Language Classroom*. Cambridge University Press.

Dörnyei. (2005). *The psychology of the language learner: Individual differences in second language acquisition*. Routledge.

Dörnyei, Z. (2007). *Research methods in applied linguistics: Quantitative, qualitative, and mixed methodologies*. Oxford University Press.

Dörnyei, Z. (2009). The L2 motivational self system. In Z. Dörnyei & E. Ushioda (Eds.) *Motivation, language identity and the L2 self* (pp. 9-42). Multilingual Matters.

Dörnyei, Z. & Kubanyiova. (2014). *Motivating learners, motivating teachers: Building vision in language education*. Cambridge: Cambridge University Press. http://archive.org/details/motivatinglearne0000dorn

Dörnyei, Z., & Ushioda, E. (2009). *Motivation, language identities and the L2 self.* Bristol, Blue Ridge Summit: Multilingual Matters. https://doi.org/10.21832/9781847691293

Gardner, R. C., & Lambert, W. E. (1959). Motivational variables in second-language acquisition. *Canadian Journal of Psychology/Revue canadienne de psychologie*, *13*(4), 266-272 https://psycnet.apa.org/doi/10.1037/h0083787

Graddol, D. (2006). *Why global English may mean the end of 'English as a Foreign Language'*. British Council.

Guilloteaux, M. J., & Dörnyei, Z. (2008). Motivating language learners: A classroom-oriented investigation of the effects of motivational strategies on student motivation. *TESOL Quarterly*, *42*(1), 55-77.

Islam, M., Lamb, M., & Chambers, G. (2013). The L2 motivational self system and national interest: A Pakistani perspective. *System*, *41*(2), 231-244.

Kálmán. (2018). EFL teachers' motivation and motivational impact in corporate contexts. *Journal of Adult Learning, Knowledge and Innovation*, *2*(1), 33-47.

Kálmán, C. (2023). Supermotivators in language education: An interview study on teachers' motivating agency. *European Journal of Applied Linguistics and TEFL*, *12*(1), 23-49.

Kormos, J., & Csizér, K. (2008). Age-related differences in the motivation of learning English as a foreign language: Attitudes, selves, and motivated learning behavior. *Language Learning*, *58*(2), 327–35.

Kormos, J., & Kiddle, T. (2013). The role of socio-economic factors in motivation to learn English as a foreign language: The case of Chile. *System*, *41*(2), 399-412.

Kubanyiova, M. (2019). Language teacher motivation research: Its Ends, Means and Future Commitments. In M. Lamb, K. Csizér, A. Henry, & S. Ryan (Eds.), *The Palgrave Handbook of Motivation for Language Learning* (pp. 389-407). Springer International Publishing. https://doi.org/10.1007/978-3-030-28380-3_19

Lamb, M. (2012). A self system perspective on young adolescents' motivation to learn English in urban and rural settings. *Language learning*, *62*(4), 997–1023.

Lamb, M. (2017). The motivational dimension of language teaching. *Language Teaching*, *50*(3), 301–346 https://doi.org/10.1017/S0261444817000088

Lamb, M., & Wedell, M. (2015). Cultural contrasts and commonalities in inspiring language teaching. *Language Teaching Research*, *19*, 207-224.

Little, D. (2007). Language learner autonomy: Some fundamental considerations revisited. *Innovation in Language Learning and Teaching*, *1*, 14-29.

Luna Hernández, A. (2016). La motivación y su influencia en la comunicación oral del idioma inglés en los estudiantes universitarios. *Dominio de las Ciencias*, *2*(2), 32-40.

Mantilla, M., & Andrade - Molina, C. (2020). Content-based instruction strategies to improve English Major students' L2 writing skills command. *Revista Ecos de la Academia*, *6*(11), 33-49.

Martinović, A., & Burić, I. (2021). L2 motivation: The relationship between past attributions, the L2MSS, and intended effort. *Vestnik za tuje jezike*, *13*(1), 409-426.

Mercer, S., Oberdorfer, P., & Saleem, M. (2016). Helping language teachers to thrive: Using positive psychology to promote teachers' professional well-being. In D. Gabryś-Barker & D. Gałajda (Eds.), *Positive psychology perspectives on foreign language learning and teaching* (pp. 213-229). Springer International Publishing/Springer Nature. https://doi.org/10.1007/978-3-319-32954-3

Mukminin, A., Kamil, D., Muazza, M., & Haryanto, E. (2017). Why teacher education? Documenting undocumented female student teachers' motives in Indonesia: A case study. *The Qualitative Report*, *22*(1), 309-326.

Ortega, D. P., & Fernández, R. A. (2017). La educación Ecuatoriana en Inglés: Nivel de dominio y competencias lingüísticas de los estudiantes rurales. *Revista Scientific*, *2*(6), 52–73. https://doi.org/10.29394/scientific.issn.2542-2987.2017.2.6.3.52-73

Ortega-Auquilla, D. P., Tamayo-Maggi, M. R., Hidalgo-Camacho, C. S., & Auccahuallpa-Fernández, R. (2019). Factors that influence Ecuadorian university students' motivation towards English learning: An exploratory research study. *Dominio de las Ciencias*, *5*(2), 736–766 https://doi.org/10.23857/dc.v5i2.1122

Ortega-Auquilla, D., Sigüenza-Garzón, P., Chumbay, J., & Heras, E. (2022). Motivation in English learning at university: A mixed-methods study investigating the perceptions of different stakeholders. *International Journal of Learning, Teaching and Educational Research*, *21*(12), 175-196.

Pavlenko, A. (2003). "I never knew I was bilingual": Reimagining teacher identities in TESOL. *Journal of Language Identity and Education, 2*, 251-268.

Privitera, G. J., & Ahlgrim-Delzell, L. (2018). *Research Methods for Education* (1st edition). SAGE Publications, Inc.

Richards, J. C., & Rodgers, T. S. (2001). *Approaches and Methods in Language Teaching* Cambridge University Press.

Richards, J. C., & Rodgers, T. S. (2014). *Approaches and Methods in Language Teaching* (3.ª ed.). Cambridge University Press. https://doi.org/10.1017/9781009024532

Seidlhofer, B. (2013). *Understanding English as a Lingua Franca*. Oxford University Press.

Soto, S., Espinosa Cevallos, L., & Rojas Encalada, M. (2024). *Studies on motivation and EFL teaching and learning in Ecuador*. *5*, 1-14.

Taguchi, T., Magid, M., & Papi, M. (2009). The L2 motivational self system among Japanese, Chinese and Iranian learners of English: A comparative study. In Z. Dörnyei & E. Ushioda (Eds.), Motivation, Language Identity and the Self (pp. 66-97). Multilingual Matters.

Wallace, M. J. (1998). *Action Research for Language Teachers*. Cambridge University Press.

Yashima, T. (2000). Orientations and motivations in foreign language learning: A study of Japanese college students. *JACET Bulletin*, *31*, 121-133.

You, C. (Julia), & Dörnyei, Z. (2016). Language Learning Motivation in China: Results of a Large-Scale Stratified Survey. *Applied Linguistics*, *37*(4), 495–519. https://doi.org/10.1093/applin/amu046

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The Contribution of Life Meaning, Mindfulness, And Resilience on Flourishing Among University Students: A Structural Equation Modeling Approach

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ABSTRACT

This study examines how meaning in life, mindfulness, and resilience contribute to university students' flourishing. Using a sample of 274 Tehran University students, data from validated questionnaires including the Meaning in Life Questionnaire (MLQ), Connor-Davidson Resilience Scale (CD-RISC), Five Facet Mindfulness Questionnaire, and Flourishing Scale (FFMQ), were analysed through structural equation modelling. Results revealed that meaning in life and mindfulness directly enhance resilience, which in turn influences flourishing. Both constructs also indirectly impact flourishing through resilience. The model fit well, highlighting the importance of fostering these psychological traits to promote student well-being and personal growth in educational settings.

KEYWORDS

life meaning, mindfulness, resilience. flourishing

INTRODUCTION

Recent focus in positive psychology emphasizes flourishing, which encompasses emotional, psychological, and social well-being, helping individuals thrive and sustain growth (Huppert & So, 2009; Seligman & Csikszentmihalyi, 2000). Key factors include meaning in life, providing purpose and direction (Steger et al., 2006), mindfulness, enhancing emotional regulation (Brown & Ryan, 2003), and resilience, crucial for recovering from adversity (Connor & Davidson, 2003).

Research shows strong connections between meaning, mindfulness, and resilience, especially in university students. Mindfulness improves stress management and emotional regulation, while meaning fosters resilience, aiding mental well-being (Platsidou & Daniilidou, 2021; Brown et al., 2023). Mindfulness further supports resilience across domains like organizational well-being and parenting (Atkins & Muscat-Inglott, 2023; Zhang et al., 2023).

This research investigates the dynamics between meaning in life, mindfulness, and resilience, and their combined effects on university students' flourishing. Recognizing the importance of holistic well-being alongside academic success, the study explores how these psychological constructs interact to enhance students' quality of life. Using structural equation modeling (SEM), we aim to map their contributions to individuals' development during university years. Grounded in existing literature, this study constructs a comprehensive model of flourishing, examining the psychological mechanisms involved. The findings are expected to inform educational strategies and mental health interventions to improve students' well-being and success (Anderson & Gerbing, 1988; Keng et al., 2011). This research seeks to advance understanding of how meaning, mindfulness, and resilience shape a flourishing life for university students, offering valuable insights for positive psychology and its practical application in educational settings.

LITERATURE REVIEW

The emergence of positive psychology in the late 1990s marked a paradigm shift in the field of psychology. Historically preoccupied with pathology and mental illnesses, the advent of positive psychology, led by pioneers like Seligman and Csikszentmihalyi (2000), redirected focus towards understanding and cultivating what makes life most worth living. This field is dedicated to uncovering and nurturing the strengths, virtues, and factors contributing to a high-quality life, enabling individuals, communities, and societies to thrive.

At the core of positive psychology lies the concept of individual strengths, defined by Peterson and Seligman (2004) as innate capacities for feeling, thinking, and behaving in ways that can benefit oneself and others. These strengths, the fundamental constituents of a fulfilling life, are associated with numerous positive outcomes, including increased happiness, reduced stress, and greater resilience (Park et al., 2004). The VIA Classification of Strengths and Virtues, developed by Peterson and Seligman (2004), organises these strengths into six broad virtues: wisdom, courage, humanity, justice, temperance, and transcendence, detailing specific strengths within each category that contribute to an enriched life experience and enhanced well-being.

The application of individual strengths in positive psychology is multifaceted. It involves recognising and leveraging one's unique strengths, integrating them into daily life, and utilising them to navigate life's challenges and achieve personal and professional goals. As Linley & Harrington (2006) note, this strengths-based approach emphasises building on inherent capabilities, contrasting the traditional focus on remediating weaknesses or deficits. Research, including findings by Harzer and Ruch (2012), consistently demonstrates that actively engaging with one's strengths can significantly enhance motivation, engagement, and satisfaction across various life domains, including work, education, and personal relationships.

In the realm of flourishing, individual strengths serve as a crucial foundation, enabling people to construct lives filled with fulfilment, meaning, and purpose. Utilising

these strengths allows individuals to align their actions with their values and aspirations, fostering a sense of achievement and growth. Furthermore, as Wood et al. (2011) have illustrated, these strengths play a pivotal role in resilience and overall psychological well-being, providing a buffer against mental health challenges and facilitating recovery from adversity.

Positive psychology's emphasis on individual strengths and virtues offers a comprehensive framework for understanding and fostering human flourishing. This perspective encourages a shift from merely surviving to thriving, promoting a holistic approach to mental health and well-being. As this field evolves, its contributions to the development of positive interventions and educational programs hold significant promise for fostering resilience, well-being, and flourishing on a global scale.

The Concept of Flourishing

Flourishing, a core concept in positive psychology, represents an optimal state of well-being characterized by positive emotions, meaningful activities, and a sense of purpose. It goes beyond mere survival or happiness, involving positivity, growth, and flexibility (Larsen & Prizmic, 2008). This state encompasses vitality, fulfillment, and meaning in life, where individuals experience emotional well-being, personal development, and societal contribution.

Keyes (2002) describes flourishing as a multidimensional construct, integrating emotional, psychological, and social well-being. Those who flourish actively pursue growth, build positive relationships, and contribute to their communities, free from mental illness (Michalec et al., 2009). Ryff (1989) further breaks down psychological well-being into six dimensions: self-acceptance, personal growth, purpose in life, environmental mastery, autonomy, and positive relations, all contributing to flourishing.

While flourishing includes elements of happiness and life satisfaction, it is distinct in its focus on realizing one's potential through meaningful goals and contributing to communal well-being (Huppert & So, 2013). Seligman (2011) identifies pleasure, engagement, and meaning as key components of flourishing.

Research shows that flourishing is linked to lower psychopathology, greater resilience, better health, and higher productivity in work and community life (Diener et al., 2010; Huppert, 2009). Achieving flourishing requires both personal efforts—positive relationships, meaningful activities, purpose—and societal support in health, education, and opportunities for growth, highlighting the crucial role of psychology in fostering collective well-being and resilience (Seligman, 2011).

Meaning in Life

The exploration of life's meaning has gained increasing attention in psychological research, reflecting a timeless human pursuit for purpose, significance, and coherence. Viktor Frankl (1963), in his seminal work *Man's Search for Meaning*, emphasized that the quest for meaning is humanity's primary motivational force. He argued that meaning can be found through work, relationships, enduring suffering, and facing life's challenges with courage.

Psychological perspectives on meaning converge on its role in creating existential coherence, defining life purpose, and achieving worthy goals. This contributes to a sense of completeness and usefulness, significantly impacting well-being and flourishing (Ho et al., 2010; Steger et al., 2006). Meaning extends beyond personal significance, fostering connections with something larger, and contributing to better mental and physical health, resilience, and life satisfaction (Steger et al., 2006).

Empirical research shows that meaning is cultivated through value-driven activities, deep relationships, and contributions beyond oneself (Park, 2010). Developing personal strengths and virtues is also key in enhancing meaning, helping individuals navigate adversities and contribute positively to their communities (Peterson et al., 2005).

In positive psychology, meaning is integral to understanding and promoting flourishing. Seligman's PERMA model (2011) identifies meaning as one of five essential elements of well-being, alongside Positive Emotion, Engagement, Relationships, and Accomplishment. The model underscores the critical role meaning plays in living a fulfilling life and guides how communities and institutions can support this quest. Studies have demonstrated the effectiveness of the PERMA model in promoting psychological flourishing and happiness across various contexts (Chisale & Phiri, 2022; Alves, 2023; Iskin, 2022; Varga, 2022).

Meaning evolves throughout life, influenced by personal experiences and cultural contexts, highlighting its dynamic nature. Recognizing the complexity and profound impact of meaning on well-being is crucial for developing interventions and policies that enhance resilience and flourishing.

Mindfulness

Mindfulness, rooted in Buddhist meditation, has gained prominence in psychological research due to its significant impact on mental health and well-being. Defined as purposeful, present-moment awareness, mindfulness involves non-judgmentally observing thoughts, feelings, and sensations, fostering a deeper connection with one's experiences (Kabat-Zinn, 1994). This practice enables individuals to step back, gain perspective, and reduce stress, promoting emotional regulation.

Mindfulness has been recognized as a key predictor of flourishing and psychological well-being (Catalino & Fredrickson, 2011). By improving emotional regulation, reducing stress, and enhancing cognitive functioning, mindfulness contributes directly to flourishing, increasing resilience, self-awareness, and a positive outlook (Baer, 2003; Hölzel et al., 2011). Central to mindfulness is cultivating a compassionate, non-judgmental attitude toward oneself and others, which promotes acceptance of challenges, the development of personal strengths, and a greater sense of meaning and purpose (Brown & Ryan, 2003).

Research supports the strong connection between mindfulness and flourishing. Regular practice enhances positive qualities like insight, well-being, and emotional regulation while reducing negative affect (Baer et al., 2012; Brown & Ryan, 2003). Studies consistently link

higher mindfulness with greater emotional well-being, life satisfaction, and resilience, helping individuals recover more effectively from stress (Davidson et al., 2003).

Mindfulness also nurtures personal strengths and virtues, encouraging individuals to recognize and cultivate their inherent capacities, which contributes to both personal growth and the well-being of others (Shapiro et al., 2005). This process enhances individual flourishing and promotes empathy, compassion, and altruism, enriching the broader social fabric.

The Role of Resilience

Resilience refers to the ability to withstand, adapt to, and recover from adversity, stress, and trauma (Masten, 2001). It involves actively engaging with challenges, allowing individuals to emerge stronger and more resourceful. Resilience plays a crucial role in flourishing by enabling individuals to maintain or regain well-being in the face of life's challenges. While meaning in life and mindfulness have direct relationships with flourishing, research suggests that resilience may act as a key intermediary variable (Keng et al., 2011; Gimpel et al., 2014).

Masten (2001) describes resilience as "ordinary magic," emphasizing that thriving despite adversity relies on common adaptive systems like problem-solving skills, self-efficacy, optimism, and external resources such as supportive relationships. Research shows that resilience is linked to higher life satisfaction, happiness, and positive affect, while also correlating with lower levels of depression and anxiety (Luthar et al., 2000). It enables individuals to pursue meaningful goals, engage fully in life, and find satisfaction in their achievements, which are essential aspects of flourishing (Ryff & Singer, 2003).

Resilience not only helps individuals bounce back from adversity but also promotes personal growth through overcoming challenges. This process enhances personal strength, deeper relationships, and a renewed sense of purpose (Tedeschi & Calhoun, 2004). Resilience fosters emotional stability, psychological flexibility, and social connectedness—key elements for flourishing (Luthar et al., 2000; Bonanno, 2004). Emotional stability allows individuals to navigate upheavals, psychological flexibility helps adapt to changing circumstances, and social connectedness provides vital support and belonging (Southwick & Charney, 2012).

Ultimately, resilience is a dynamic process of positive adaptation that enables individuals to use adversity as an opportunity for growth, contributing to overall flourishing. It mediates the relationship between positive psychological constructs and flourishing, making it a crucial factor in personal development and well-being.

Aims, Research Questions and Hypotheses

This study's framework suggests that while meaning in life, mindfulness, and resilience are individually linked to flourishing, their relationships are more complex. The hypothesis proposes that resilience acts as a mediator, creating both direct and indirect effects. The model includes three direct effects (meaning in life and mindfulness on resilience, and resilience on flourishing) and two indirect effects (meaning in life and mindfulness on flourishing via resilience). This approach offers a deeper understanding of how these factors interact, providing valuable insights for interventions to enhance well-being.

Methods

This study employed a descriptive-analytical design to examine the relationships between meaning in life, mindfulness, resilience, and flourishing among university students. The sample focused on students from the University of Tehran during the 2023 academic year.

Sampling

A convenience sampling method was used to select 274 students from four groups: Medical and Paramedical, Humanities, and Engineering. The study's purpose was explained to participants, who were informed that participation was voluntary and confidential. Informed consent was obtained before data collection, and strict confidentiality of participant information was maintained. Participants completed the questionnaire package at their own pace, taking between 15 to 25 minutes.

Measuring Instruments

This study utilized four questionnaires:

Meaning in Life Questionnaire (MLQ):

Developed by Steger et al. (2006), this 10-item scale assesses two dimensions: the Presence of Meaning and Search for Meaning. It has established reliability with Cronbach's alpha values of 0.86 (Presence of Meaning) and 0.87 (Search for Meaning). In Iran, the Cronbach's alpha for the translated version was 0.75 for Presence and 0.78 for Search for Meaning (Shtad, 2008).

Connor-Davidson Resilience Scale (CD-RISC):

This 25-item scale measures resilience with responses ranging from "Not True at All" to "True Nearly All the Time" (Connor & Davidson, 2003). Scores range from 0 to 100, with higher scores indicating greater resilience. The Persian version demonstrated a Cronbach's alpha of 0.79 and a split-half reliability of 0.74 (Madanlu, 2008).

Five Facet Mindfulness Questionnaire (FFMQ):

This 39-item scale measures mindfulness in five aspects: Nonreactivity, Observing, Acting with Awareness, Describing, and Nonjudging (Bayer et al., 2006). The questionnaire's internal consistency ranges from 0.84 to 0.87. The Persian version showed test-retest reliability between r=0.57 (Nonjudging) and r=0.84 (Observing), with acceptable alpha coefficients (Ahmadvand, 2011).

Flourishing Scale:

Developed by Diener et al. (2010), this 8-item scale assesses positive aspects of human functioning, such as relationships and life purpose. Responses are scored on a 7-point Likert scale. Diener et al. (2010) reported a Cronbach's alpha of 0.87. The Persian version of this scale has a Cronbach's alpha of 0.80 (Fassih-Ramandi et al., 2012).

Analysis Method

The study's methodological rigor was maintained by employing Structural Equation Modeling (SEM) using LISREL software to analyze the complex relationships between observed and latent variables (Byrne, 2001; Anderson & Gerbing, 1988). SEM's ability to test the

entire theoretical model simultaneously allowed for a thorough evaluation of the hypothesized relationships. To ensure measurement validity, each latent variable was represented by at least two observable variables, with selection based on the highest factor loadings from each scale, ensuring statistical significance and representation.

Data analysis followed a two-step approach, as recommended by Anderson and Gerbing (1988). The first step involved Confirmatory Factor Analysis (CFA) to assess the fit of the measurement model, ensuring that the indicators accurately reflected the latent constructs. Once the measurement model was validated, SEM was applied to test the structural relationships between the variables.

The model's fit was initially evaluated using the Chi-square statistic, where a non-significant result indicated a good fit between the hypothesized model and the data. Given the Chi-square's sensitivity to sample size, additional indices such as SRMR, GFI, CFI, NFI, IFI, and TLI were also used to confirm the model's fit.

RESULTS

The research sample consisted of 247 participants: 168 males (61.3%) and 98 females (38.7%). The average age was 24.73 (SD = 3.26), with a range of 18 to 32 years and a median age of 25. Participants included 63 first-year (23%), 64 second-year (23%), 93 third-year (34%), and 54 fourth-year students (20%).

Table 1
Sample statistics

Gender Group	Count	Percentage
Male	168	61.30%
Female	106	38.70%
Total	274	100%

Statistic	Value
Mean age	25.23
Standard deviation	3.03
Age range	18-32

In Structural Equation Modeling (SEM), thoroughly examining statistical assumptions is crucial for ensuring valid and reliable results. This prevents drawing artificial or misleading conclusions from the analysis. Two key assumptions essential for accurate SEM application are univariate and multivariate normality (Anderson & Gerbing, 1988). Univariate normality refers to the distribution of individual variables, evaluated by analyzing skewness and kurtosis. Skewness assesses the asymmetry of the data around its mean, while kurtosis measures the distribution's peakedness or flatness compared to a normal distribution. (Anderson & Gerbing, 1988).

Based on Table 2, skewness values ranged from -1.06 to -0.87, indicating a slight negative skew but well within acceptable SEM thresholds. This suggests a minor deviation from symmetry, with lower values more spread out, though not enough to affect the analysis. Kurtosis values ranged from -0.87 to 1.12, which is far below the problematic threshold of ±10 (Klein, 2011), indicating no significant issues with the tails or peak of the distribution. The presence of both platykurtic (-0.87) and leptokurtic (1.12) tendencies suggests normal variation, reinforcing the data's suitability for SEM.

Table 2
Univariate Normality Assumptions

Skewness Range	Lower bond	Upper bond
	-1.06	-0.87
Kurtosis Range	Lower bond	Upper bond
	-0.87	1.12

These skewness and kurtosis ranges confirm the data's compliance with univariate normality, supporting the use of SEM. The relative multivariate kurtosis index is applied to assess multivariate normality, with a cut-off point of ±3 for skewness deemed appropriate (Chou & Bentler, 1995). This index complements univariate measures by evaluating the joint distribution of all variables in the model. Since the multivariate kurtosis index value in this study is 2.41it confirms that the assumption of multivariate normality is met (Table 3).

Table 3
Multivariate Normality Assumptions

Multivariate Normality	Value
	2.41

In SEM, model fit is indicated by indices like TLI, IFI, NFI, CFI, and GFI, where values above 0.90 suggest an acceptable fit, and above 0.95 indicate a good fit (Kline, 2023). Our model shows a strong fit with TLI = 0.98, IFI = 0.97, NFI = 0.95, CFI = 0.99, and GFI = 0.93 (Table 4). An SRMR value of 0.03, below the 0.05 threshold, further supports the model's robustness and effective representation of the latent constructs (Byrne, 2001; Bentler, 1999).

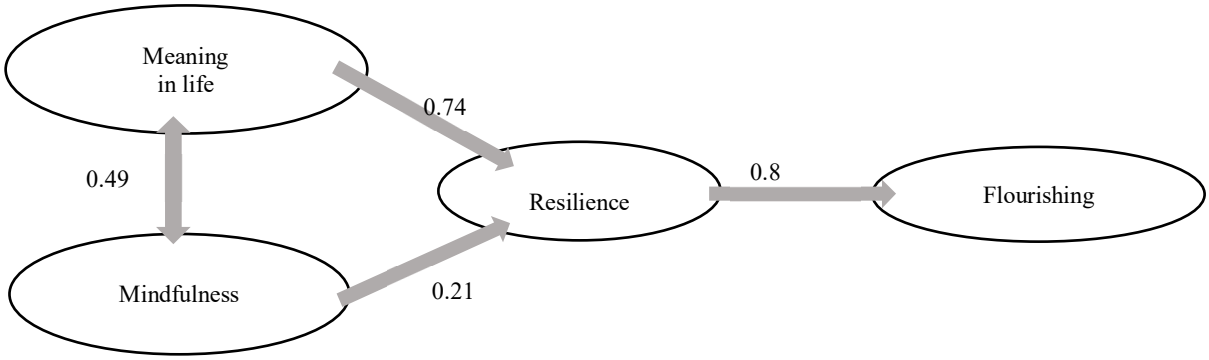
Table 4
SEM Model Fit Indices

Index	TLI	IFI	NFI	CFI	GFI	SRMR	Chi-Square
Value	0.98	0.97	0.95	0.99	0.93	0.03	118.75

The correlation matrix can reveal multicollinearity, with coefficients above 0.85 potentially affecting model accuracy (Klein, 2011). In this study, correlations ranged from 0.18 to 0.72. The structural model (Fig. 1) shows that meaning in life and mindfulness, as exogenous variables, impact resilience with standardized coefficients of 0.72 ($p<.001$) and 0.27 ($p<.01$), respectively. Resilience also affects flourishing with a standardized coefficient of 0.76 ($p <.001$).

https://doi.org/10.3311/BICE2024-007

Figure 1
Structural model of direct and indirect effects of research variables



The bootstrapping test was used to evaluate the significance of mediating effects. A mediating effect is deemed significant if the bootstrap intervals have the same sign (either both negative or both positive). The results in Table 5 show that resilience mediates the effects of meaning in life and mindfulness on flourishing, with standardized coefficients of 0.54 (p<.001) and 0.67 (p<.005), respectively.

Table 5
Bootstrap test results mediating effects of resilience on the relationship between meaning in life, mindfulness, and flourishing

Independent Variable	Mediating Variable	Dependent Variable	*Bootstrap Interval*		Standard Error	Standardised Coefficients	Significance Level
			Lower	*Upper*			
Meaning in life	*Resilience*	*Flourishing*	0.42	0.82	0.06	0.64	0.001
Mindfulness	*Resilience*	*Flourishing*	0.01	0.31	0.05	0.15	0.005

Table 6 shows the standardized coefficients and significance levels of direct and indirect effects, all of which are statistically significant:

- **Meaning in Life → Resilience**: A strong positive effect (0.72, p = 0.001), indicating that a strong sense of meaning enhances resilience.
- **Mindfulness → Resilience**: A smaller positive effect (0.27, p = 0.015), showing mindfulness also improves resilience, though less than meaning in life.
- **Resilience → Flourishing**: A robust positive effect (0.76, p = 0.001), indicating that higher resilience leads to greater flourishing.
- **Meaning in Life through Resilience → Flourishing**: A significant indirect effect (0.53, p = 0.001), showing resilience mediates the effect of meaning in life on flourishing.
- **Mindfulness through Resilience → Flourishing**: A smaller but significant indirect effect (0.28, p = 0.001), demonstrating mindfulness contributes to flourishing via resilience.

These findings confirm that meaning in life and mindfulness positively influence resilience, which has a strong direct effect on flourishing; indirect effects further reinforcing this relationship.

Table 6
Standardised coefficients and significance levels for direct and indirect effects in the model pathways

Independent Variable	Mediating Variable	Dependent Variable	Stand. Coeff.	Signif. Level
Meaning in life	-	Resilience	0.74	0.001
Mindfulness	-	Resilience	0.21	0.015
Resilience	-	Flourishing	0.8	0.001
Meaning in life	Resilience	Flourishing	0.67	0.001
Mindfulness	Resilience	Flourishing	0.15	0.006

DISCUSSION

The study aimed to build a structural framework to explain flourishing, a key focus in positive psychology (Seligman & Csikszentmihalyi, 2000). It was hypothesized that meaning in life and mindfulness would influence flourishing, with resilience as a mediator. The structural model showed a good fit, confirming that both direct and indirect effects were significant (Anderson & Gerbing, 1988). The results strongly support that meaning in life and mindfulness are significant predictors of flourishing, both directly and through resilience. This discussion explores the relationships between these constructs and their role in enhancing psychological well-being in university students.

Consistent with previous studies (Govender et al., 2006; Steger et al., 2008), our findings confirm the crucial role of meaning in life for flourishing. As a cornerstone

of positive human functioning (Steger & Shin, 2010), meaning in life helps individuals set meaningful goals, leading to increased positive emotional states and promoting flourishing (Ho et al., 2010).

Our model highlights mindfulness as a key factor in fostering flourishing. Elements of mindfulness, such as observation and non-reaction to internal experiences, equip individuals with personal resources that enhance positive emotions and increase the likelihood of flourishing (Catalino & Fredrickson, 2011).

Resilience plays a vital mediating role between meaning in life, mindfulness, and flourishing. This aligns with research showing that individuals with greater mindfulness and meaning in life also exhibit higher resilience. Resilience enables positive functioning during stress (Luthar et al., 2000) and promotes post-traumatic growth, as suggested by Tedeschi and Calhoun (2004). Our findings support the idea that resilience helps transform adversity into personal development, contributing to well-being and life satisfaction.

Practical Implications and Considerations for Future Research

The findings highlight the importance of meaning in life, mindfulness, and resilience in promoting students' psychological flourishing, consistent with Keng et al. (2011) and Shapiro et al. (2005). Mental health professionals and educators should incorporate mindfulness and meaning-making into student programs to enhance well-being and vitality, making such interventions integral to educational settings.

However, the study's generalizability is limited by its sample from the University of Tehran, suggesting the need for further research across diverse groups (Madanlo, 2008). Additionally, the use of self-report measures raises concerns about response bias (Fassih-Ramandi et al., 2020). Future research should replicate these findings with larger populations and use multimethod approaches for a more comprehensive analysis (Anderson & Gerbing, 1988).

Conclusion

This study demonstrates how meaning in life, mindfulness, and resilience interact to influence flourishing in university students, showing both direct and indirect effects through resilience. The findings underscore the value of cultivating meaning and mindfulness to boost resilience and well-being. These insights suggest that interventions in educational and mental health contexts could greatly enhance students' quality of life and academic success. However, the study's focus on a specific academic population and reliance on self-report measures calls for more diverse research to generalize the results. This study contributes to positive psychology by deepening our understanding of the pathways to a flourishing life and offering practical ways to support individuals on this journey.

References

Ahmadvand, Z., Heidarinassab, L., & Shaeri, M. (2012). Psychometric properties of the Five Facet Mindfulness Questionnaire (FFMQ) in a student sample. The 6th National Seminar on Student Mental Health. University of Guilan. http://noo.rs/Q69Bg

Alves, M. A., Palmer, S., & Gouveia, M. J. (2023). Psychometric properties of the Portuguese version of the PERMA-profiler. *Trends in Psychology*, 1-15. https://doi.org/10.1007/s43076-023-00261-3

Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modelling in practice: A review and recommended two-step approach. Psychological Bulletin, 103(3), 411–423. https://doi.org/10.1037/0033-2909.103.3.411

Atkins, E., & Muscat-Inglott, M. (2023). The relationship between mindfulness and resilience in Maltese undergraduates: a study of affective well-being as a potential mediator. https://doi.org/10.56300/kcyy1339

Baer, R. A. (2003). Mindfulness training as a clinical intervention: A conceptual and empirical review. *Clinical Psychology: Science and Practice*, 10(2), 125–143. https://psycnet.apa.org/doi/10.1093/clipsy.bpg015

Baer, R. A., Lykins, E. L. B., & Peters, J. R. (2012). Mindfulness and self-compassion as predictors of psychological well-being in long-term meditators and matched non-meditators. The Journal of Positive Psychology, 7(3), 230-238. https://doi.org/10.1080/17439760.2012.674548

Bartrés-Faz, D., Cattaneo, G., Solana, J., Tormos, J. M., & Pascual-Leone, A. (2018). Meaning in life: resilience beyond reserve. *Alzheimer's research & therapy*, *10*, 1-10. https://doi.org/10.1186/S13195-018-0381-Z

Bentler, P. M. (1990). Comparative fit indexes in structural models. Psychological Bulletin, 107(2), 238-246. https://psycnet.apa.org/doi/10.1037/0033-2909.107.2.238

Bentler, P. M. (1999). Structural equation modelling with small samples: Test statistics. Multivariate Behavioral Research, 33(2), 181-197. https://doi.org/10.1207/S15327906Mb340203

Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. Psychological Bulletin, 88(3), 588–606. https://doi.org/10.1037/0033-2909.88.3.588

Bonanno, G. A. (2004). Loss, trauma, and human resilience: Have we underestimated the human capacity to thrive after extremely aversive events? *American Psychologist*, 59(1), 20–28. https://psycnet.apa.org/doi/10.1037/1942-9681.S.1.101

Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology*, 84(4), 822–848. https://psycnet.apa.org/doi/10.1037/0022-3514.84.4.822

Brown, T. L., Oliffe, J. L., Kealy, D., Rice, S. M., Seidler, Z. E., & Ogrodniczuk, J. S. (2023). The influence of meaning in life on psychological distress among men: a serial multiple mediation model involving resilience and loneliness. *Current Research in Behavioral Sciences*, *4*, 100114. https://doi.org/10.1016/j.crbeha.2023.100114

Buranapin, S., Limphaibool, W., Jariangprasert, N., & Chaiprasit, K. (2023). Enhancing Organizational Resilience through Mindful Organizing. *Sustainability*, *15*(3), 2681. https://doi.org/10.3390/su15032681

Byrne, B. M. (2001). Structural equation modeling with AMOS, EQS, and LISREL: Comparative approaches to testing for the factorial validity of a measuring instrument. *International journal of testing*, *1*(1), 55–86. https://doi.org/10.1207/S15327574IJT0101_4

Chisale, E. T., & Phiri, F. M. PERMA Model and Mental Health Practice. Asian journal of pharmacy, nursing and medical sciences. https://doi.org/10.24203/ajpnms.v10i2.7015

Connor, K. M., & Davidson, J. R. T. (2003). Development of a new resilience scale: The Connor-Davidson Resilience Scale (CD-RISC). Journal of Depression and Anxiety, 18(2), 76–82. https://doi.org/10.1002/da.10113

Davidson, R. J., Kabat-Zinn, J., Schumacher, J., Rosenkranz, M., Muller, D., Santorelli, S. F., Urbanowski, F., Harrington, A., Bonus, K., & Sheridan, J. F. (2003). Alterations in brain and immune function produced by mindfulness meditation. *Psychosomatic Medicine*, 65(4), 564–570. https://doi.org/10.1097/01.PSY.0000077505.67574.E3

Diener, E., Wirtz, D., Tov, W., Kim-Prieto, C., Choi, D. W., Oishi, S., & Biswas-Diener, R. (2010). New well-being measures: Short scales to assess flourishing and positive and negative feelings. Social Indicator Research, 97(2), 143-156. https://doi.org/10.1007/s11205-009-9493-y

Effendi, F. A., & Haryati, E. (2022). Hubungan kebermaknaan hidup dengan resiliensi pada remaja di panti asuhan Bani Adam-As Medan. *Journal of Education, Humaniora and Social Sciences (JEHSS)*, *5*(1), 814-819. https://doi.org/10.34007/jehss.v5i1.1287

Fassih-Ramandi, Z., Soleimani, M. A., Allen, K. A., Gorgulu, O., & Motalebi, S. A. (2020). Validity and reliability of the flourishing scale in a sample of older adults in Iran. *Clinical interventions in aging*, 673-681. https://doi.org/10.2147/CIA.S251067

Frankl, V. E. (1963). Man's search for meaning. Boston: Beacon..(1967). Psychotherapy and existentialism. https://doi.org/10.1037/e518072004-001

Fredrickson, B. L., Cohn, M. A., Coffey, K. A., Pek, J., & Finkel, S. M. (2008). Open hearts build lives: Positive emotions, induced through loving-kindness meditation, build consequential personal resources. *Journal of Personality and Social Psychology*, 95(5), 1045–1062. https://psycnet.apa.org/doi/10.1037/a0013262

Gable, S. L., & Haidt, J. (2005). What (and why) is positive psychology? Review of General Psychology, 9(2), 103–110. https://doi.org/10.1037/1089-2680.9.2.103

Govender, S., Drummond, L. M., & Menzies, R. G. (2006). Danger Ideation Reduction Therapy for the treatment of severe, chronic and resistant obsessive-compulsive disorder. Behavioural and Cognitive Psychotherapy, 34(4), 477–480. https://doi.org/10.1017/S1352465806003018

Hammill, J., Nguyen, T., & Henderson, F. (2023). The impact of mindfulness interventions in higher education to enhance engagement. *Journal of Further and Higher Education*, *47*(5), 619-632. https://doi.org/10.1080/0309877X.2023.2175652

Harzer, C., & Ruch, W. (2012). When the job is a calling: The role of applying one's signature strengths at work. Journal of Positive Psychology, 7(5), 362-371. https://doi.org/10.1080/17439760.2012.702784

Ho, M. Y., Cheung, F. M., & Cheung, S. F. (2010). The role of meaning in life and optimism in promoting well-being. Personality and Individual Differences, 48(1), 658-663. https://doi.org/10.1016/j.paid.2010.01.008

Hölzel, B. K., Lazar, S. W., Gard, T., Schuman-Olivier, Z., Vago, D. R., & Ott, U. (2011). How does mindfulness meditation work? Proposing mechanisms of action from a conceptual and neural perspective. *Perspectives on Psychological Science*, 6(6), 537–559. https://doi.org/10.1177/1745691611419671

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. Structural Equation Modeling: A Multidisciplinary Journal, 6(1), 1-55. https://doi.org/10.1080/10705519909540118

Huppert, F. A. (2009). Psychological well-being: Evidence regarding its causes and consequences. *Applied Psychology: Health and Well-Being*, 1(2), 137-164. https://doi.org/10.1111/j.1758-0854.2009.01008.x

Huppert, F. A., & So, T. T. C. (2013). Flourishing across Europe: Application of a new conceptual framework for defining well-being. Social Indicators Research, 110(3), 837-861. https://doi.org/10.1007/s11205-011-9966-7

Iskin,, M.. (2022). Application of the PERMA Model of Well-being in Undergraduate Students. International Journal of Community Well-Being, https://doi.org/10.1007/s42413-022-00184-4

Jöreskog, K. G., & Sörbom, D. (1982). Recent developments in structural equation modelling. Journal of Marketing Research, 19(4), 404-416. https://doi.org/10.1177/002224378201900402

Kabat-Zinn, J. (1994). *Wherever you go, there you are: Mindfulness meditation in everyday life.* New York: Hyperion. https://doi.org/10.17761/ijyt.6.1.3g081728271536v6

Karadjova-Kozhuharova, K. G., & Baker, R. L. (2023). Positive effects of mindfulness practices on academic performance and well-being. Polytechnic University of Valencia Congress. https://doi.org/10.4995/head23.2023.16244

Keyes, C. L. M. (1998). Social well-being. *Social Psychology Quarterly*, 61(2), 121–140. https://doi.org/10.2307/2787065

Keyes, C. L. M. (2002). The mental health continuum: From languishing to flourishing in life. *Journal of Health and Social Behavior*, 43(2), 207–222. https://doi.org/10.2307/3090197

Kline, R. B. (2023). Principles and practice of structural equation modeling. Guilford publications.

Liao, Y. C., Huang, T. Y., Lin, S. H., Wu, C. H., Chang, K. T., Hsieh, S., ... & Yang, C. T. (2023). Mediating role of resilience in the relationships of physical activity and mindful self-awareness with peace of mind among college students. *Scientific reports*, *13*(1), 10386. https://doi.org/10.1038/s41598-023-37416-2

Linley, P. A., & Harrington, S. (2006). Strengths coaching: A potential-guided approach to coaching psychology. *International Coaching Psychology Review*, 1(1), 37–46. https://doi.org/10.53841/bpsicpr.2006.1.1.37

Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development*, 71(3), 543–562. https://doi.org/10.1111/1467-8624.00164

Madanlo, F. (2008). Investigating the relationship between resilience, stress coping strategies, and social support with the psychological status of bereaved women. Master's thesis. Mohaghegh Ardabili University.

Masten, A. S. (2001). Ordinary magic: Resilience processes in development. *American Psychologist*, 56(3), 227-238. https://doi.org/10.1037//0003-066x.56.3.227

Ojell, H., Palohuhta, M., & Ferreira, J. M. (2023). A qualitative microanalysis of the immediate behavioural effects of mindfulness practices on students' self-regulation and attention. *Trends in Psychology*, *31*(4), 641-664. https://doi.org/10.1007/s43076-023-00263-1

Park, C. L. (2010). Making sense of the meaning literature: An integrative review of meaning-making and its effects on adjustment to stressful life events. *Psychological Bulletin*, 136(2), 257–301. https://doi.org/10.1037/a0018301

Park, N., Peterson, C., & Seligman, M. E. P. (2004). Strengths of character and well-being. Journal of Social and Clinical Psychology, 23(5), 603-619. https://doi.org/10.1521/jscp.23.5.603.50748

Peterson, C., & Seligman, M. E. P. (2004). *Character strengths and virtues: A handbook and classification.* Washington, DC: American Psychological Association.

Peterson, C., Park, N., & Seligman, M. E. P. (2005). Orientations to happiness and life satisfaction: The full life versus the empty life. *Journal of Happiness Studies*, 6(1), 25–41. https://doi.org/10.1007/s10902-004-1278-z

Platsidou, M., & Daniilidou, A. (2021). Meaning in life and resilience among teachers. *Journal of Positive School Psychology* https://doi.org/10.47602/JPSP.V5I2.259

Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, 57(6), 1069–1081. https://doi.org/10.1037//0022-3514.57.6.1069

Ryff, C. D., & Singer, B. (2003). Ironies of the human condition: Well-being and health on the way to mortality. In L. G. Aspinwall & U. M. Staudinger (Eds.), A psychology of human strengths: Fundamental questions and future directions for positive psychology 271–287. Washington, DC: American Psychological Association. https://doi.org/10.1037/10566-019

Seligman, M. E. P. (2011). Flourish: A visionary new understanding of happiness and well-being. New York: Free Press. https://doi.org/10.5860/choice.48-7217

Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologis*t, 55(1), 5–14. https://doi.org/10.1037//0003-066x.55.1.5

Shapiro, S. L., Astin, J. A., Bishop, S. R., & Cordova, M. (2005). Mindfulness-based stress reduction for health care professionals: Results from a randomized trial. *International Journal of Stress Management*, 12(2), 164 https://doi.org/10.1037/1072-5245.12.2.164

Southwick, S. M., & Charney, D. S. (2012). The science of resilience: Implications for the prevention and treatment of depression. *Science*, 338(6103), 79–82. https://doi.org/10.1126/science.1222942

Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The Meaning in Life Questionnaire: Assessing the presence of and search for meaning in life. Journal of Counseling Psychology, 53(1), 80-93. https://doi.org/10.1037/0022-0167.53.1.80

Tedeschi, R. G., & Calhoun, L. G. (2004). Posttraumatic growth: Conceptual foundations and empirical evidence. *Psychological Inquiry*, 15(1), 1–18. https://doi.org/10.1207/s15327965pli1501_01

Ulagammal, S. Ramesh, C. (2023). Expanding Access to Mindfulness Education in Adaptive Learning: Enhancing Student Well-Being and Academic Success https://doi.org/10.34293/eduspectra.v5is1-may23.014

Varga, BA, Oláh, A., & Vargha, A. (2022). Examination of the reliability and validity of the Hungarian-language PERMA Jóllét Profile questionnaire. *Mental Hygiene and Psychosomatics*, *23* (1), 33-64. https://doi.org/10.1556/0406.23.2022.001

Wood, A. M., Linley, P. A., Maltby, J., Kashdan, T. B., & Hurling, R. (2011). Using personal and psychological strengths leads to increases in well-being over time: A longitudinal study and the development of the strengths use questionnaire. *Personality and Individual Differences*, 50(1), 15–19. https://doi.org/10.1016/j.paid.2010.08.004

Zhang, J., Mao, Y., Wang, Y., & Zhang, Y. (2023). The relationship between trait mindfulness and resilience: A meta-analysis. *Personality and Mental Health*, *17*(4), 313–327. https://doi.org/10.1002/pmh.1581

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The Mediating Effect of Higher Education Research and Innovation Practices in Addressing Economic Challenges: Graduates' Employability Perspectives

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ABSTRACT

This study was conducted to scrutinize the role of higher education research and innovation practices in addressing economic challenges, with due focus on perceived graduates' employability. A mediation analysis, with parameter estimates was utilized to observe the direct, indirect, and total effects of different higher education characteristics including access, quality, program relevance, and institutional facilities and infrastructures on graduates' employability. The study also involved some other intervening variables that affect graduates' employment in one way or another. To analyze the data, Jaffrey's Amazing Statistics Program (JASP 018.3.0), which is open and free, was used. The findings of the study showed that both education quality and program relevance have positive significant direct effect on graduates' employability while a negative effect was observed between access and the outcome variable. The mediation effect of higher education research and innovation practices was found to be less strong with most of the variables treated in the study. In another words, there is no strong statistical evidence to reach a conclusion that such practices in higher education contribute to graduates' employability. The total effect of higher education on the response variable is found to be statistically significant with program relevance and education quality practices. To conclude, as the effect of program relevance found to be statistically significant, aligning the educational programs with industry needs plays a crucial role in addressing macro-economic problems such as employment issues.

KEYWORDS

higher education, research and innovation, employability, mediation analysis

INTRODUCTION

During the age of knowledge economy, among other arenas of the subsystems of the education, higher education is becoming one of the important areas of research agenda vis a vis determining economic growth both at macro and micro level (Schultz, 1961; Oancea, Pospíšil, & Drăgoescu, 2017). It has been recognized for its role in connecting labor-market supply and demand through the supposed link that exists between higher education training programs and job market requirements. As a result of the increasing importance of knowledge in the global economy, employers are looking for recent graduates who possess advanced levels of both knowledge and skills. Recent studies show Higher education institutions are coming under increasing pressure of providing graduates with the skills and competencies required to be able to compete in the world market of workforce (UNESCO, 2019). The idea behind is that by fulfilling this 'matching' demand-driven policies, HE can help to accelerate economic growth, including the need for supporting economic growth through the reduction of economic and other barriers and regional inequities among developing countries. The point of argument happens to be more imperative especially in regions such as Africa and developing economies in general, that are working on their young population for the accumulation of socio-economic development (World Bank, 2019).

Globally, a due attention has been given by both academicians and policy makers to higher education the fact that it plays a tremendous role in determining the employability of graduates by equipping them with the knowledge and skills necessary to the global labor market and thereby drives innovation, economic growth, and social progress (Kivinen eat al., 2017; Marginson, 2016). Unequivocally, higher education (HE) research and innovation (R&I) practices have been attributed a significant role in addressing macro-economic problems such as employment issues (Smith, 2020). According to this author, among other roles, the role of university-industry linkage and knowledge and technology transfer has particularly emerged as fundamental and such initiative became a clear interest has received national and global nod, referencing its importance as a mechanism for stimulating national economy.

From African stand of point, even though the continent is facing various challenges, including but not limited to access to quality and relevance education, which doesn't stimulate an innovative environment, and poor infrastructural development, its member states are working hard to boost their human capital accumulation through enormous investment in higher education system (AU, 2015). In the context of this region, Ethiopia stands out as a country that has lofty development objectives and a rapidly expanding higher education sector that is working to address these challenges.

THE ETHIOPIAN CONTEXT

Ethiopia has made significant investment regarding providing access to higher education. These days, according to the MoE (2019), there exist 50 public and 105 private universities which are currently engaged in teaching, research, and community-based services, which paved the way to a significant increase in the number of students enrolled to more than 1.2M.

Nevertheless, there are diverse problems in the system which are induced due to massification of higher education. Among others, the first and most critical issue, which is an ongoing debate among scholars, is the massification of higher education institutions. An undeniable number of scholars appreciate the commitment by the government for allowing access to higher education by establishing as many universities as possible with considerable investment. On the other hand,

there exists a significant group of scholars who strongly argue and criticize the government for allowing massive expansion of higher education for the fact that poor education quality is highly linked to such a situation. For example, Alemayehu &Solomon (2017) argued that huge enrolment rates in higher education are highly associated with various limitations. According to them, this massive enrolment doesn't allow to implementation more appropriate, student-centered, and innovative pedagogical approach; it rather encourages teachers for mass evaluation so that students can get the easy way out. They further noted that the Ethiopian higher education system is less organized, unequipped, suffering from qualified manpower who oversees shouldering responsibilities that best fit higher education, and in the adequacy of facilities. Less relevant curriculum, which doesn't consider the Ethiopian socio-cultural context and loosely linked to the daily life learners has also adversely affected the training not to be associated to real situations in the country.

Another notable challenge, which scholars are claiming is a loose university-industry linkage. There needs to be a platform where students can practice what they have gained in academics. The argument is that; graduates are less competent in the world of work irrespective of their grade point average during their study. in this regard, Bareke (2018) in his study managing university-industry linkage concluded that there exists a poor interrelationship between universities and industries, which in turn resulted in a high rate of graduates' unemployment. World bank (2020) also predicted the country continues to struggle with several persistent economic challenges, such as high unemployment rates, and mismatches between skills and jobs.

There have been some empirical research conducted in the context of Ethiopia on different aspects of higher education and their relationship with graduates' employability. Among others, Tesfaye and Ayalew (2020) assessed the graduates skill gap for employability in Ethiopia. They found out that the existence of loose alignment between the curricula and the industry demands. Similarly, Lemma et al. (2018) studied the impact of entrepreneurship education on the entrepreneurial intentions of graduates, and they discovered that it has a positive significant effect. However, none of them took the role of research and innovation as an important variable that determines the employability of graduates. Moreover, they utilized a simple regression technique to estimate the effect of HE on graduates' employability. Therefore, this study is novel in terms of solving the lack of awareness concerning the mediating role that higher education research and innovation practices play a critical role in addressing economic problems. Furthermore, it is strongly believed that it is a step ahead in terms of methodological procedure as well.

Therefore, the purpose of this study is assessing the effect of higher education dimensions on perceived graduates' employability with the mediating role of research and innovation practices so that a comprehensive understanding of how higher education institutions can effectively contribute to addressing economic challenges and preparing graduates for the workforce will be understood. Hence, the study is meant to address the following research questions.

AIMS, RESEARCH QUESTIONS AND HYPOTHESES

RESEARCH QUESTIONS

1. What higher education related factors determine graduates' employability most?
2. To what extent does HE directly determine graduates' employability in the context of addressing economic challenges in Ethiopia?
3. To what extent does higher education research and innovation practices mediate the relationship between HE determinants and graduates' employability as economic challenge in Ethiopia?
4. Is there any statistically significant variation of perceived graduates' employability among different university categories?

RESEARCH HYPOTHESES

H1: Access to higher education has a positive direct effect on graduates' employability.

H2: Education quality practice in higher education does have a direct positive effect on graduates' employability.

H3: Higher education Program relevance has a significant direct effect on graduates' employability.

H4: Institutional infrastructure of higher education has a direct effect on graduates' employability.

H5: Research and innovation practices have a direct effect on graduates' employability among graduates of Ethiopian higher education institutions.

H6: Access to higher education has a significant effect on research and innovation practices.

H7: Education quality practice in higher education has a statistically significant effect on research and innovative practices.

H8: Higher education Program relevance has a significant effect on research and innovative practices.

H9: Institutional infrastructure of higher education has a direct effect on research and innovative practices.

H10: The effect of access to higher education on graduates' employability is mediated by research and innovation practices.

H11: research and innovation practice of higher education mediate the relationship between education quality and graduates' employability.

H12: The effect of higher education programs' relevance on graduates' employability is mediated by research and innovation practices.

H13: The effect of Infrastructure on graduates' employability is mediated by research and innovation practices.

H14: there are significance differences in perceived employability scores across the different categories of universities in Ethiopia.

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Literature Review

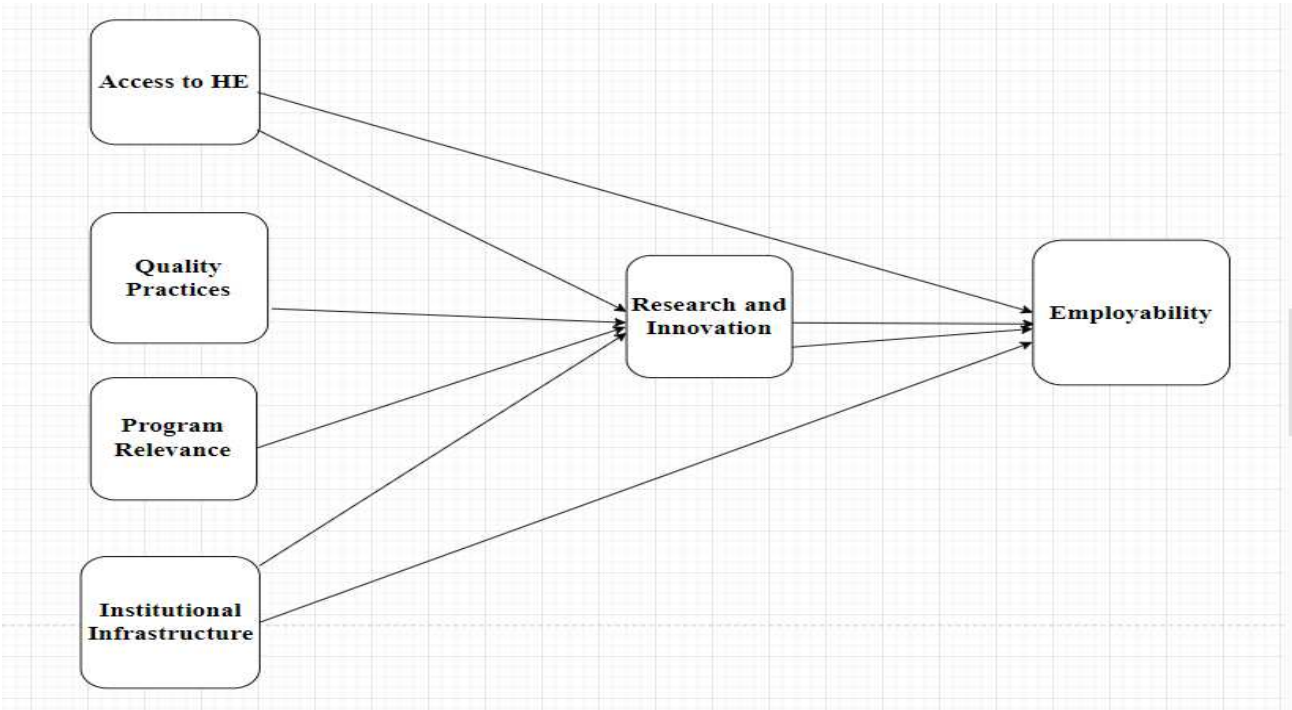
Theoretical Frameworks

This study is based on the theoretical framework of endogenous growth model and theory of human capital. Endogenous growth model assumes growth could be a function of and is possible with the creation of new knowledge (Wubet 2006). To clarify the idea, if the model has a focus on the importance of knowledge for economic growth, it is true that knowledge production solely remains the responsibility of the education system, which arises endogenously from the socio-economic activities of the society. Endogenous growth models amplify the significance of education and the process of acquiring knowledge and take it as central for developing human capital which in turn is crucial for economic growth. The endogenous growth model has come to be more popular since the work of Romer (1990), which postulates innovation of new knowledge/idea is directly associated with the accumulation and development of human capital manifested by scientific knowledge and skill, which in turn contributes to the advancement of economic growth. In a very simplistic terms, the above notion implies that investment in education (which improves human capital accumulation) and improving research and innovation practices generates growth in physical capital including technological advancement, which have significant relationship with economic growth (Romer, 1990). According to Freire-Seren (2001) investment in education has two folds of significance to economic growth. The 'level effect' and the 'rate effect'. In the first scenario, education has a direct influence with the existence of human capital accumulation as an important factor of production. Many Studies mainly conducted in the early 1990s tend to ascertain the existence of direct and positive relationship between education and economic growth (Saidi and Mongi, 2018). The second fold is 'rate of effect' of education in which education plays an indirect effect on the economic growth as technological changes are manipulated by educated human capital.

Human capital theory argues both the private and public investments in education. From the public view of point, the investment in education has a positive relationship in with economic growth at macro level associated with higher economic productivity and stability, which in turn leads to improved lifestyle of society. On the other hand, from individual/firm level perspective, human capital theory surmises education as a personal choice could increase earning in lifetime as one acquires more schooling (Becker, 1993; Mincer, 1974; Schultz, 1961).

Conceptual Model

Figure 1
Conceptual model of the study



Methods

Methods and Materials

This study employed quantitative research with a cross-sectional design. This design is feasible for data that's only collected at a single point in time. This design is usually effective in estimating the association among predictors and the outcome variables. Furthermore, it helps to capture the current situation and identify potential areas of investigation for future research (Setia, 2016). It also helps to generate a hypothesis for casual relationships that can be tested after a collection of reliable data (Mann, 2003). Online survey questionnaire was employed to university lecturers who can best understand the state of employment opportunity and employability of graduates' higher education institutions. A total of 112 responses were gained from the survey and

all the responses were used for data analysis. In analyzing the data, the researcher used a quantitative approach. In my analysis, I calculated descriptive statistics (mean, standard deviation) and performed inferential statistical analyses (one-way ANOVA). I also built a regression model examining both direct and indirect effects (mediation analysis). According to Kline (2011), mediation analysis is a powerful statistical technique used in research data analysis to examine complex relationships among variables including the direct, indirect effects, total effects and path coefficients of variables treated in the study.

Operationalization of Variables

To maintain clarity and accuracy of this research, variables involved in this study were operationally defined in a relatively measurable term. From previous studies the following variables were identified and operationally defined as follows:

Access to Higher Education: in this study access is defined as the opportunity of participating in higher education programs. Access is used as an indicator for graduates' employability prospect in different studies. For example, (Arulampalam et al 2007, Scott and Gallacher, 2017) used access to higher education as an indicator to estimate graduates' perceived employability.

Education Quality: the second key variable treated in this study was quality practices of higher education. In this study, it implies the process of the academic rigor, the methodological effectiveness, the curriculum design and instruction, assessment mechanisms and the meaningful interaction within the learning environment at large. Marginson (2016) and Harvey and Knight (1997) discussed the tremendous nature of quality education practices in enhancing graduates' competence for labor market readiness. They involved specific indicators like but not limited to quality teaching practices, support mechanism and assessment strategies.

Higher Education Program Relevance: indicates the extent to which higher education curricula are aligned to the industry job requirements and societal needs. Coetzee et al (2016) studied how higher education program relevance affects employment opportunities among graduates involving their perception about internship opportunities, curriculum content, and university-industry linkage practices in the context of south Africa. Albatch and Knight (2007) also employed curriculum relevance of higher education in determining employment prospects.

Institutional Facilities and Infrastructure: in the context of this study, it refers to the availability of resources necessary to support teaching and learning processes and research and innovation practices. This variable was used in studies conducted by Mohajan (2017) and Naidoo and Soobrameney (2012) as a predictor variable to graduates' employability. They employed specific measurements like availability of facilities, use of technologies, library resources and laboratories in support of academics and research.

Research and Innovation: it involves activities related to enhancing research culture, innovation, and scientific inquiry in higher education institutions. In studies by Zhao and Chong (2019) Brew (2003), research and innovation practices in higher education institutions were used as a determinant factor of labor market outcomes of graduates. Specific indicators such as investment in research, students' engagement in innovative practices, quality of research outputs, the extent of faculty participation in research activities, and the integration of research outputs in the academics were used in the studies.

Model Specification

The Direct Effect Model

$$Y=\beta_0+\beta_1(X_1)+\beta_2(X_2)+\beta_3(X_3)+\beta_4(X_4)+\epsilon_1 \quad (1)$$

Where:

Y is the dependent variable represents graduates' employability

β_0 is the constant.

β_1, β_2, β_3, and β_4 indicate the coefficients of the direct effects of the predictors on the response variable.

X_1, X_2, X_3, and X_4 are the predictor variables namely access to higher education, higher education quality practices, higher education program relevance, and institutional facilities and infrastructure.

$\epsilon 1$ indicates the error term.

The Indirect Effect Model (The effect of the predictors on the mediator)

$$R=\gamma 0+\gamma 1(X1)+\gamma 2(X2)+\gamma 3(X3)+\gamma 4(X4)+\epsilon 2 \quad (2)$$

and

$$Y=\delta 0+\delta 1(R)+\epsilon 3 \quad (3)$$

Where:

Y is the dependent variable represents graduates' employability

R represents the mediator variable, research, and innovation

$\gamma 0$ and $\delta 0$ are the constants.

$\gamma 1$, $\gamma 2$, $\gamma 3$, $\gamma 4$ indicate the coefficients in the mediation.

X1, X2, X3, and X4 are the predictor variables.

$\delta 1$ represents the coefficient of the mediator.

$\epsilon 2$ and $\epsilon 3$ are the error terms in equation (1) and (2) respectively.

Total Effect Model (the full mediation model)

$$Y=\beta_0+\beta_1(X_1)+\beta_2(X_2)+\beta_3(X_3)+\beta_4(X_4)+\delta 1(\gamma 0+\gamma 1(X1)+\gamma 2(X2)+\gamma 3(X3)+\gamma 4(X4)+\epsilon 2)+\epsilon_1+\epsilon 3 \quad (4)$$

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RESULTS

DESCRIPTIVE ANALYSIS

Table 1 shows the descriptive statistics of the variables treated in this study. The mean scores for access ($\bar{x}$=3.102, SD=0.644), quality ($\bar{x}$=3.022, SD=0.726), Relevance ($\bar{x}$=2.839, SD=0.830), infrastructure ($\bar{x}$=2.739, SD=0.768), research ($\bar{x}$=2.649, SD=0.853) and employability ($\bar{x}$=2.770, SD=0.805) indicate a certain degree of variability exist in the sample.

Table 1
Descriptive Statistics

	N	x̄	SD	Minimum	Maximum
Access	112	3.102	0.644	1.400	4.600
Quality	112	3.022	0.726	1.220	5.000
Relevance	112	2.839	0.830	1.000	5.000
Infrastructure	112	2.739	0.768	1.000	4.600
Research	112	2.649	0.853	1.000	4.570
Employability	112	2.770	0.805	1.000	4.800

ANOVA TEST

As can be seen in table 2, a test of analysis of variance was conducted to observe whether there existed score differences in employability of graduates by university differentiation. The result (F=1.455, p=0.231) there is no statistically significant variations among the perceived graduates' employability across the different types of universities in Ethiopia.

Table 2
ANOVA test for Employability by university differentiation

Cases	Sum of Squares	df	Mean Square	F	p
Differentiation	2.822	3	0.941	1.455	0.231
Residuals	68.546	106	0.647		

Note: results are significant at p<0.05

DIRECT, INDIRECT, AND TOTAL EFFECTS

Table 3 shows the direct, indirect, and total effects of higher education on graduates perceived employability. To begin with the direct effects, the path regression coefficient estimates, (β= -0.254, p<0.05) indicates the direct effect of access to higher education on graduates' employability found to be statistically significant. A unit increase in access to higher education decreases employability by 0.254. The coefficients (β= 0.397, p<0.05; β= 0.396, p<0.05; β=-0.013, p>0.05) shows the direct effects of Education quality practices, program relevance and institutional infrastructure on graduates' employability respectively. The coefficients portrayed that education quality practices and program relevance have statistically significant positive effects. On the other hand, institutional infrastructure has a negligible negative impact on the outcome variable.

The second point is the indirect effect of higher education parameters as mediated by research and innovation practices. The statistical values (β= 0.049, p>0.05; β= 0.030, p>0.05; β=-0.066, p>0.05; β=-0.084, p>0.05) for access, relevance, quality, and institutional infrastructure respectively represent none of the mentioned predictors have statistically significant indirect effects.

The table also depicts the total effect of the predictor variables treated in the study on graduates' employability. The coefficient for access (β= -0.205, p>0.05) revealed in every unit increase in access to higher education diminishes the employability of graduates by 0.205 unit. However, this is not supported with strong statistical evidence at p<0.05. The coefficients for quality (β= 0.427, p<0.05) and relevance (β= 0.462, p<0.05) show there is strong statistical evidence that quality education practices and program relevance of higher education positively affects graduates' employability implying a unit increase to maintain education quality and program relevance increases graduates' employability by 0.427 and 0.462 respectively. However, there doesn't exist a strong statistically significant effect of instructional infrastructure on the response variable.

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Table 3
Direct Indirect and Total effects

Paths	Effect type	β	SE	z-value	*p*-value	95% CI Lower	95% CI Upper
Access → Employability	Direct	-0.254	0.113	-2.255	0.024*	-0.474	-0.033
	Indirect	0.049	0.043	1.143	0.253	-0.035	0.133
	Total	-0.205	0.119	-1.718	0.086	-0.438	0.029
Quality→ Employability	Direct	0.397	0.156	2.542	0.011*	0.091	0.703
	Indirect	0.030	0.058	0.514	0.607	-0.084	0.143
	Total	0.427	0.166	2.568	0.010*	0.101	0.753
Relevance → Employability	Direct	0.396	0.127	3.119	0.002*	0.147	0.645
	Indirect	0.066	0.049	1.335	0.182	-0.031	0.162
	Total	0.462	0.134	3.444	< .001*	0.199	0.724
Infra → Employability	Direct	-0.013	0.116	-0.115	0.909	-0.240	0.214
	Indirect	0.084	0.047	1.788	0.074	-0.008	0.176
	Total	0.071	0.121	0.585	0.559	-0.167	0.308
R^2		**0.495**					

Note: *denotes *p-values<0.05 are considered statistically significant*

PATH ANALYSIS

Table 4 and figure 2 depict the path diagram and path coefficients of the mediation analysis that estimated to examine the relationships between the independent variables (Access, Quality, Relevance, Infrastructure), the mediator variable (Research), and the dependent variable (Employability). The results indicate that Research and innovation practices significantly predicts Employability (β = 0.294, p< 0.001), while Access (β = -0.254, p = 0.024), Quality (β = 0.397, p = 0.011), and Relevance (β=0.396, p = 0.002) also have significant direct effects on Employability. However, Infrastructure does not significantly predict Employability (β=-0.013, p= 0.909). Among the predictors, only institutional infrastructure significantly predicts Research and innovation practices in higher education (β = 0.286, p = 0.044), while the mediation effects of Access, Quality, and Relevance on Research are not statistically significant.

Table 4
Path coefficients of the mediation analysis

			β	SE	z-value	p	95% Confidence Interval Lower	95% Confidence Interval Upper
Research	→	Empl	0.294	0.076	3.887	< .001*	0.146	0.442
Access	→	Empl	-0.254	0.113	-2.255	0.024*	-0.474	-0.033
Quality	→	Empl	0.397	0.156	2.542	0.011*	0.091	0.703
Relevance	→	Empl	0.396	0.127	3.119	0.002*	0.147	0.645
Infr	→	Empl	-0.013	0.116	-0.115	0.909	-0.240	0.214
Access	→	Research	0.167	0.140	1.196	0.232	-0.107	0.441
Quality	→	Research	0.101	0.195	0.519	0.604	-0.281	0.484
Relevance	→	Research	0.224	0.157	1.422	0.155	-0.085	0.532
Infr	→	Research	0.286	0.142	2.014	0.044*	0.008	0.565

Note: *denotes *p-values<0.05 are considered statistically significant*

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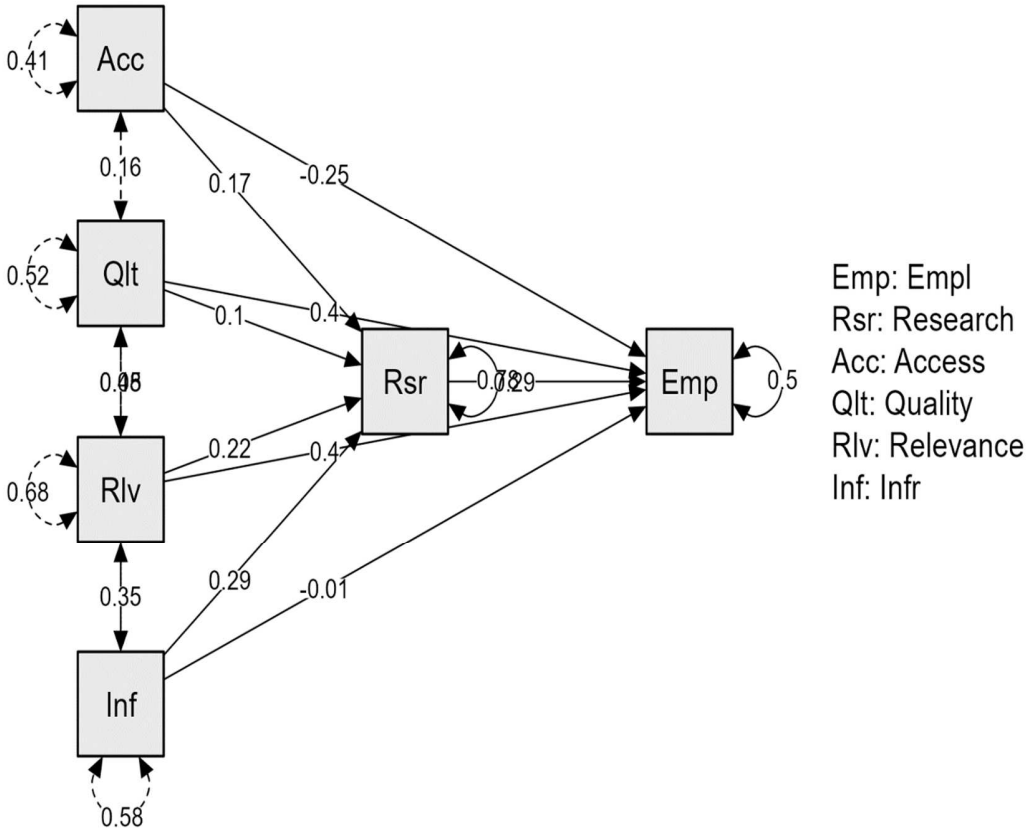
PATH DIAGRAM

Figure 2
Path diagram of the mediation analysis



DISCUSSION

The findings of the current study revealed the effect of the various higher education parameters in predicting graduates' readiness in the labor market. Education quality practices and higher education program relevance have positive effects on graduates' employability which emphasized the need for not only maintaining high academic standards but also call for a close partnership of universities and industries to make sure that graduates are acquiring the required knowledge and skill essential to meet the industry requirements. This has a dual purpose; one is industries in the future will secure competent manpower to meet their goals and the second is graduates will secure their employment prospects. In support of this study Marginson (2016), Oketch (2016), Cai (2013), and Altbach and Knight (2007) revealed the importances of maintaining academic quality and curriculum relevance to graduates prospects in different contexts.

The importance of access to higher education in relation to improving graduates' employability has been highlighted in different studies. Providing access to historical disadvantages and underrepresented society in the contexts of the global north leads to a significant opportunity of accessing employment prospects (Scott and Gallacher, 2017; Thomas, 2014). In other words, access to higher education positively affects employability of graduates according to their report. On similar fashion, another study by Otuya et al. (2019) access to higher education in developing world, especially to those youths of disadvantageous background increases to better job prospects. Unlike the previous studies, the current study however,

revealed a negative direct effect of access to higher education and employability of graduates indicating that massification of higher education institutions leads to huge participation which in fact adversely affects the labor market outcomes of graduates. This doesn't, however, mean that provision of higher education is not a necessity; it should be in line with the labor market capacity of the nation which accommodates the graduates. Even though access to higher education is regarded as tremendous to the society, a mere massification without considering the quality and relevance doesn't guarantee employability in the labor market.

While institution infrastructure in a general view is considered to have a tangible impact on the response variable, its effect was found to be statistically non-significant in the current study. Several studies have been conducted so far in different contexts regarding the role of institutional facilities and infrastructures in relation to graduates' employability. They revealed that improved facilities and institutional infrastructure had positive effects in supporting student learning and enhancing greater job opportunities (Mohajan, 2017; Olamide and Olawaiye, 2013). The non-significant direct effect in contrary to its significant effect on research activities, indicates the indirect pathways through which infrastructure influences employability. The fact that research and innovation practices have a direct effect on graduates' employability implies that this study supports the growing concerns of research and innovation led teaching practices among higher education institutions. The notion that allowing students in research and innovation practices not only broadens their understanding of the subject matter, but also enables them to develop problem-solving skills and critical thinking. Studies by Zhao and Chong (2019) and Boffo et al. (2017) found out that research and innovation practices are critical in the academic environment. However, its mediating role of the higher education parameters mentioned above and the dependent variable, graduates' employability was found to be statistically non-significant in the context of this study.

CONCLUSIONS

The findings of this study in a nutshell portrayed that while there exist direct effects of higher education variables, the indirect effects were found to be statistically negligible even though institutional infrastructure has an indirect impact and contrasted with no direct effect. In other words, the mediating role of higher education research and innovation practices in bridging graduates' employability was found to be statistically non-significant. Furthermore, no statistically significant evidence was found whether there exist differences among the different categories of higher education institutions.

These findings of the study have vital implications for different stakeholders with primary attention to educational institutions and policymakers. For having an improved labor market outcome of graduates, research and innovation investments should be directed at enhancing the quality and relevance of higher education. To ensure this, both the academic and research steams of higher education institutions need to put in place a cross functional plan to meet organizational goals. Moreover, widening participation initiatives of any type without maintaining academic standards and industry-industry linkage, shouldn't be in place. Higher education institutions need to devise strategies where applicable to promote student engagement in research and innovation-oriented teaching practices so that research and innovation mission of the education institutes can play a mediating role in bridging employment prospects of graduates.

REFERENCES

African Union Commission. (2015). Agenda 2063: The Africa We Want. Retrieved from https://au.int/agenda2063/about

Alemayehu B. & Solomon M. (2017). Historical Analysis of the Challenges and Opportunities of Higher Education in Ethiopia. *Higher Education for the Future 4(1) 31–43.* https://doi.org/10.1177/2347631116681212

Altbach, P. G., & Knight, J. (2007). The internationalization of higher education: Motivations and realities. *Journal of Studies in International Education*, 11(3-4), 290-305. https://doi.org/10.1177/1028315307303542

Arulampalam, W., Naylor, R. A., & Smith, J. (2007). Factors affecting the probability of first-year medical student dropout in the UK: A logistic analysis for the intake cohorts of 1980-92. Medical Education, 41(4), 385-394. https://doi.org/10.1111/j.1365-2929.2007.02712.x

Bareke, M. L. (2018). Managing university-industry linkage in government universities of Ethiopia: challenges and opportunities (Doctoral dissertation).

Becker, G.S. (1975). Human capital, Columbia University Press, Columbia, USA.

Boffo, S., Dubois, P., & Moscati, R. (2017). University engagement and employability. In B. Maguire (Ed.), Higher education in Europe: Current developments and perspectives (pp. 45-60). Palgrave Macmillan.

Brew, A. (2003). Research and Teaching: Beyond the Divide. Basingstoke: Palgrave Macmillan.

Cai, Y. (2013). Graduate employability: A conceptual framework for understanding employers' perceptions. Higher Education, 65(4), 457-469.

Coetzee, M., van Zyl, M., & Rogan, J. (2016). Enhancing the relevance of higher education programmes for the world of work: A South African perspective. Higher Education, 72(3), 375-392. https://doi.org/10.1007/s10734-015-9899-9

Freire-Serén, María Jesús (2001), "Human Capital Accumulation and Economic Growth", Investigaciones Economicas, Vol. 25, No: 3, s. 585-602.

Harvey, L., & Knight, P. T. (1996). Transforming Higher Education. Buckingham: Society for Research into Higher Education & Open University Press.

Kivinen, O., Ruohotie-Lyhty, M., & Taina, L. (2017). The Changing Role of Universities in Regional Innovation Ecosystems. In The Future of University Education (pp. 21-37). Springer, Cham. https://doi.org/10.1007/978-3-319-47488-5_2

Kline, R. B. (2011). Principles and Practice of Structural Equation Modeling (3rd ed.). Guilford Press.

Lemma, T., Diriba, G., & Dhaba, S. (2018). The Impact of Entrepreneurship Education on Graduate Students' Entrepreneurial Intentions in Ethiopia. Journal of Small Business and Entrepreneurship Development, 6(1), 1-18. https://doi.org/10.15640/jsbed.v6n1a1

Mann, C. J. (2003). Observational research methods. Research design II: cohort, cross sectional, and case-control studies. Emergency medicine journal, 20(1), 54-60.

Marginson, S. (2016). Higher Education and Public Good. Higher Education Quarterly, 70(3), 233-254. https://doi.org/10.1111/hequ.12093

Marginson, S. (2016). The importance of higher education quality in enhancing graduates' employability: The role of rigorous academic standards, supportive learning environments, and effective teaching practices. *Higher Education Research & Development*, 35(5), 867-879. https://doi.org/10.1080/07294360.2016.1138452

Mincer, J. (1974). Schooling, Experience, and Earnings. Human Behavior & Social Institutions No. 2.

Ministry of education (2019) Education Statistics Annual Abstract retrieved from www.moe.gov.et

Ministry of Education, Ethiopia. (2018). Education Sector Development Program V (ESDP V). Retrieved from http://planipolis.iiep.unesco.org/sites/planipolis/files/ressources/ethiopia_esdp_v_final.pdf

Mohajan, H. K. (2017). The impact of infrastructure on employability in higher education: A case study of Bangladesh. Journal of Social and Economic Development, 19(1), 56-71.

Mohajan, H. K. (2017). The relationship between institutional infrastructure and graduates' employability in higher education. Journal of Education and Learning 6(3), 122-135. https://doi.org/10.5539/jelv6n3p122

Naidoo, R., & Soobramoney, S. B. (2012). Mapping the concept of employability for higher education. SA Journal of Industrial Psychology, 38(2), 1-9. https://doi.org/10.4102/sajip.v38i2.947

Oancea, B., Pospíšil, R., & Drăgoescu, R. M. (2017). Higher education and economic growth: a comparison between the Czech Republic and Romania. Prague economic papers, 26(4), 467-486.

Oketch, M. (2016). Financing higher education in sub-Saharan Africa: Some reflections and implications for sustainable development. Higher Education, 72(4), 525-539.

Olamide, O. B., & Olawaiye, S. O. (2013). Impact of infrastructure on employability in Nigerian higher education. International Journal of Educational Administration and Policy Studies, 5(8), 123-128.

Otuya, S., Ochieng, J., & Mungai, G. (2019). Access to higher education and employability of graduates in Kenya. Journal of Higher Education in Africa, 17(1), 1-15.

Romer, P. (1990). Endogenous technological growth. *Journal of Political Economics*, *98*(5), S71–S102.

Saidi, K. and Mongi, C. (2018). The Effect of Education, R & D and ICT on Economic Growth in High Income Countries, 38(2), pp. 810–825.

Schultz, T. W. (1961). Investment in human capital. *The American economic review*, *51*(1), 1-17.

Scott, P., & Gallacher, J. (2017). Widening participation initiatives and their impact on access to higher education for underrepresented groups: Implications for employability outcomes. *Journal of Education Policy*, 32(4), 523-535. https://doi.org/10.1080/02680939.2017.1280183

Setia, M. S. (2016). Methodology series module 3: Cross-sectional studies. Indian journal of dermatology, 61(3), 261-264.

Smith, J. (2020). The Role of Higher Education, Research, and Innovation in Economic Development. Journal of Economic Studies, 25(3), 45-60.

Tesfaye, K., & Ayalew, A. (2020). Employability Skills Gap Among Graduates in Ethiopia: Implications for Quality Higher Education. Journal of Education and Learning, 9(2), 38-47. https://doi.org/10.5539/jelv9n2p38

Thomas, L. (2014). Widening participation and student retention in higher education: A critical assessment. International Journal of Educational Development, 35, 111-120.

UNESCO. (2019). Global Education Monitoring Report 2019: Migration, displacement and education: Building bridges, not walls. Retrieved from https://en.unesco.org/gem-report/report/2019/migration

World Bank. (2019). Africa's Pulse, No. 20, October 2019: An Analysis of Issues Shaping Africa's Economic Future. Retrieved from http://documents.worldbank.org/curated/en/323031566185485989/Africa-s-Pulse-No-20-October-2019-An-Analysis-of-Issues-Shaping-Africa-s-Economic-Future

World Bank. (2020). Ethiopia Economic Update: Financing for Development in Ethiopia – Raising and Allocating Domestic Resources for Inclusive Growth. Retrieved from https://www.worldbank.org/en/country/ethiopia/publication/ethiopia-economic-update-financing-for-development-in-ethiopia-raising-and-allocating-domestic-resources-for-inclusive-growth

Wubet Kifle (2006) Human Capital and Economic Growth, Addis Ababa University (Unpublished)

Zhao, Y., & Chong, W. K. (2019). Investigating the impact of research-oriented teaching practices on graduates' employability: A study on engagement in research activities and readiness for employment in research-intensive industries. *Journal of Education and Work*, 32(4), 365-382. https://doi.org/10.1080/13639080.2019.1608343

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Psychometric Validation of The Healthy Lifestyle Scale for Mongolian University Students: A Pilot Study

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ABSTRACT

Introduction: University students are in a crucial transition stage to adulthood and experience various changes during the university period. Lifestyle during this period can positively and negatively impact their health for the rest of their life. Currently, there is yet to be validated instrument to measure the lifestyle of university students in the Mongolian context. The main objective of this study was to assess the reliability and validate the Mongolian version of the Healthy Lifestyle Scale of University Students (HLSUS) using a factor analysis among Mongolian university students.

Methods: A cross-sectional study was conducted on 369 undergraduate students (66.7% women and 33.3% men) randomly selected from three universities, including different departments in Ulaanbaatar City, Mongolia. Construct validities were examined using exploratory and confirmatory factor analyses (EFA and CFA) for eight component factor-structure. Internal consistency was examined using Cronbach's α.

Results: The findings of construct validity were supported by the EFA and CFA. Based on the EFA result, five items were removed, and the eight factors confirmed the original structure of the questionnaire. The overall Cronbach's α resulted above .70 (α=.87). The CFA examination model with eight factors and 33 items indicated a good-fit-indices: Comparative Fit Indices (CFI)=.93, Tucker-Index (TLI)=.92, Goodness Fit Index (GFI)=.94, and Root Mean Square Error of Approximation (RMSEA)=.057.

Conclusion: The Mongolian version of the HLSUS demonstrated initial reliability and construct validity with eight subscales of healthy lifestyle outcomes and 33 items.

KEYWORDS

healthy lifestyle, university student, psychometric properties, validity

INTRODUCTION

Studies have shown that a healthy lifestyle prevents disease occurrence and premature mortalities (F. B. Hu et al., 2011; Nöthlings et al., 2010; Reddy et al., 2011). Promoting a healthy lifestyle depends on adopting healthy behaviors early; an unhealthy lifestyle among youth is strongly linked with unhealthy behaviors in adulthood (Landsberg et al., 2010; Lowry et al., 2000).

University is a crucial transitional phase for students where they experience independence from their parents, social and physical environment changes, meet new people, develop more behavioral changes, and adjust to a new schedule (Greaney et al., 2009; Pullman et al., 2009). Also, university is viewed as a critical period for personal growth and development and represented as a period of increased risky behaviors that can result in consequences for their health, such as injury and morbidity (Almutairi et al., 2018; Binkowska-Bury & Januszewicz 2010; Musaiger et al., 2017; Nelson et al., 2008). In Mongolia, a few studies revealed that adolescents and university students are prone to engage in health-damaging behaviors, such as alcohol and tobacco use, unhealthy eating, risky sexual habits, and mental health issues (Badarch & Paulik, 2021; Burnee et al., 2017; Dashpuntsag et al., 2021; Demaio et al., 2013; Erdenebileg et al., 2018).

A limited number of studies have been conducted in Mongolia that validated multi-dimensional questionnaires, particularly for university students, to determine their healthy lifestyle and health-related behaviors. The "World Health Organization Quality of Life-Brief Version" (WHOQOL-BREF) (Group, 1998), which measures dimensions such as environmental health, general facet, physical health,

psychological health, and social relationships, was translated into Mongolian and validated by Bat-Erdene et al. (2023) with a sample of 301 aged between 18 to 65 years. Only 14.3% of the participants were students.

The Healthy Lifestyle Scale for University Students (HLSUS) was developed by Wang et al. (2012) and validated initially among Chinese university students. The tool was translated and validated into Persian for Iranian university students (Aminisani et al., 2016) and Spanish for Mexican public university students (Dominguez-Lara et al., 2019). Health education in a university context is an affordable and cost-effective way of developing a healthy lifestyle. Thus, assessing healthy lifestyles among university students is crucial for promoting their development and growth (Wang et al., 2012).

Mongolian is an official language of Mongolia and belongs to the Altai language family, it is spoken as a native language and is the primary communication tool of the people in Mongolia (Bulag, 2003).

Measuring the validity and reliability of translated instruments is crucial. Translating a healthy lifestyle instrument to different populations requires not only language but also cultural and linguistic adaptation (Hambleton et al., 2005). Since Mongolian language is the main spoken language of the Mongolian population, there is a need for a validated healthy lifestyle measuring instrument in Mongolian. Our study aimed to translate and validate the HLSUS for Mongolian undergraduate students and examine its psychometric properties.

LITERATURE REVIEW

The value of lifestyle in promoting health was first addressed in 1961 (Dunn, 1961, as cited in Walker et al., 1987). A healthy lifestyle is defined as "patterns of behavior that maximize one's quality of life and decrease one's susceptibility to negative health outcomes" (p.6). A healthy lifestyle balances various health aspects and dimensions of an individual's life by supporting the adoption of health-promoting behaviors (Gold & Miner, 2002).

University provides a setting where students experience independence and learn new life skills. Students during the university period are not only formally educated but also significantly increase personal and social development. These developments have substantial effects during their higher education and continue throughout the rest of their lives, including decision-making, values, jobs, families, and communities. A health-promoting university supports healthy personal and social development that enables students to explore their ability to make healthy decisions and enhances their health (Abercrombie et al., 1998).

However, studies indicated that university students are commonly engaged in unhealthy behaviors, for example, unhealthy eating, physical inactivity, smoking, and alcohol use (Bewick et al., 2008; Haghdoost & Moosazadeh, 2013; Hj & C, 2009; Irwin, 2004). Also, other health concerns among students were reported, such as poor sleep, stress, and anxiety due to academic achievement, social pressure, family issues, and financial difficulties (Campbell et al., 1992; Ln et al., 2006; Singh & Upadhyay, 2008).

HEALTHY LIFESTYLE MEASURING INSTRUMENTS

An accurate health and lifestyle assessment is the fundament for developing a health promotion plan. The purpose of the assessment, context, culture, and age explore the components of healthy lifestyle assessment (Pender et al., 2014).

Several instruments for assessing healthy lifestyles have been developed and validated in other countries among university students. For instance, the Healthy-Promoting Lifestyle Profile II (HPLP-II) is widely used questionnaire developed by Walker & Hill-Polerecky (1996), was translated and validated in several countries in different languages including Spanish, Portuguese, Chinese, Iranian, Japanese, Turkish, Arabic, Italian, and Malaysian (Kuan et al., 2019a; Meihan & Chung-Ngok, 2011; Mohamadian et al., 2013; Pinar et al., 2009; Savarese et al., 2018; Sousa et al., 2015; Wei et al., 2012a).

The FANTASTIC questionnaire by Wilson et al. (1984) was translated and validated in Portuguese and Spanish ((Murillo-Llorente et al., 2022; Silva et al., 2014a). The tool consists of 25 items and measures components of alcohol use, tobacco and drug use, sleep, stress, personality, and health-related and sexual behaviors.

Wang et al. (2012) introduced the Healthy Lifestyle Scale for University Students (HLSUS) based on Pender's Health Promotion Model and was validated among 5523 university students in China. The HLSUS is a self-administered 5-point Likert scale with eight subscales (38 items), including exercise behavior, regular behavior, nutrition behavior, health-risk behavior, social support, health responsibility, stress management, and life appreciation.

HEALTHY LIFESTYLE SCALE FOR UNIVERSITY STUDENTS (HLSUS)

Compared with other health behavior instruments, the HLSUS was found to be an applicable instrument for measuring both health-promoting and health-risk behaviors. The exercise behavior subscale consists of regular participation in light, moderate, and vigorous physical activity. Regular exercise or physical activity is essential for a positive and health-promoting lifestyle. It is proven that regular exercise helps to prevent and control noncommunicable diseases, such

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as cardiovascular diseases, diabetes, and obesity. Also, it helps to maintain body weight and prevents mental health issues. However, the World Health Organization (WHO)(2019a) reported that 1 in 3 adults and 81% of adolescents globally lack physical activity. University students are in an emerging adult group at risk of increasing physical inactivity due to the workload of pursuing academic education (Buckworth & Nigg, 2004; Irwin, 2004; Keating et al., 2005).

The regular behavior subscale includes items related to daily activities and their intervals, such as daily meals, sleep, and rest. Studies revealed that insufficient sleep has a significant association with risky behaviors, mental health issues, several noncommunicable diseases, and poor academic performance (Beihl et al., 2009; Clinkinbeard et al., 2011; Curcio et al., 2006; Talbot et al., 2010).

Nutrition behavior involves smart selection and consuming foods essential for health and well-being. Most recent estimates report that globally, 1.9 billion adults are overweight and obese, which leads to a higher risk of noncommunicable diseases (World Health Organization, 2019b). Pender et al. (2014) stated that several factors influence eating behaviors, including genetic, psychological, socioeconomic, environmental, cultural, and health policy factors. Thus, studies conducted among university students have shown that they are prone to have a poor diet (Dodd et al., 2022; Kang et al., 2014; Keller et al., 2008; Kritsotakis et al., 2016; Sogari et al., 2018).

The health-risk behavior subscale includes items of negative behaviors, such as smoking, alcohol consumption, screen use, and headphone listening. Globally, tobacco and alcohol use are considered to be a critical public health issue as they are among the leading preventable causes of morbidity and mortality (WHO, 2019c; 2019d). Hearing loss has become one of the most prevalent chronic diseases worldwide. The WHO (2024) stated that globally, over 1 billion young adults were prone to hearing loss exposed by loud sounds and excessive use of headphones. The increased use of smartphones or personal listening devices among university students leads to severe damage of hearing. There is no adequate treatment for hearing loss, so it is worth developing interventions to avoid risk factors of hearing loss through health education (Khan et al., 2018; Wang et al., 2021).

The health responsibility subscale involves an active sense of personal health and well-being. It consists of items paying attention on own health and others and seeking professional health care assistance (Wang et al., 2012). Also, the items indicate behaviors related to hygienic well-being, such as hand washing and dental hygiene.

The social support subscale entails items of communication to achieve close, meaningful relationships with peers and friends, expressing thoughts and feelings in verbal and nonverbal ways (Wang et al., 2012). Perceiving the social context where students study is crucial in health promotion. In other words, social support is referred to as a person-environment interaction that helps to prevent stressors or their impact. Several social support systems are related to health: natural support systems (families and relatives), peer support systems (friends and classmates), religious support systems, professional support systems, and organized self-help support systems. In most cases, natural support systems remain the primary support group (Pender et al., 2014). Wang et al. (2012) focused on peer support systems in the development of the HLSUS instrument, which included items of peer support from friends, communication, caring, listening, and problem-solving.

The stress management subscale consists of items for measuring of psychological and physical factors to control, practice, and manage emotions effectively (Wang et al., 2012). Pender et al. (2014) defined stress as "a potential threat to mental health and physical well-being and is associated with illnesses such as cardiovascular disease, cancer, and gastrointestinal disorders, as well as depression, poor sleep patterns, and inability to carry out daily activities at an effective level" (p.88). Internal and external events can cause life stress. External stressors are considered to be events that happen to individuals; for example, for students, changes may occur from adolescence to young adulthood related to growth and development, family-related issues, peers, and academic issues. Several methods are recommended to prevent or minimize the frequency of stress-causing situations, such as changing the environment, handling excessive change, time control, and management. Thus, the stress management subscale items of the HLSUS focus on the frequency of daily relaxation time, practicing proper leisure time, and methods of controlling emotions (Wang et al., 2012)

The life appreciation subscale includes items focused on life purpose and the development of the ability to reach full potential. Assessment of life appreciation is essential in a holistic approach to health promotion as a spiritual belief influence. Life appreciation helps to experience love, joy, peace, and self-caring (Pender et al., 2014)

AIMS, RESEARCH QUESTIONS AND HYPOTHESES

The pilot study aimed to adapt the HLSUS culturally and assess its psychometric properties for Mongolian undergraduate students. The objective was to investigate whether the questionnaire's structures appropriately characterize the subscales of university students' lifestyles, and the following research questions were developed for our study:

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1. What is the factor structure of the HLSUS, and does it align with the original model in the Mongolian context?

2. Does the translated version of the HLSUS measure the theoretical constructs of a healthy lifestyle among Mongolian university students?

3. What is the internal consistency of the HLSUS in the Mongolian context?

We hypothesized that the Mongolian version of the HLSUS would demonstrate construct validity with its items loading significantly to the intended components in factor analyses. We expect that the scale will show high internal consistency overall and for each subscale.

METHODS

A cross-sectional study was obtained to examine the psychometric properties of the HLSUS among Mongolian university students from three public universities in Ulaanbaatar City, Mongolia.

PARTICIPANTS

A random sample of 369 undergraduate students (aged 18-25 years) participated in the study from the National University of Mongolia (NUM, 34.1%), the Mongolian State University of Education (MSUE,31.6%), and the Mongolian University of Science and Technology (MUST, 34.3%). 66.2% of the students were women, and 33.8% were men. The majority of the students were 1-2 graders (see Table 1).

Table 1
Demographic of participants

Variables		Mean (SD)	n (%)
Age		19.4 (1.65)	
Gender			
	Male		123 (33.3)
	Female		246 (66.7)
University			
	NUM		124 (33.6)
	MSUE		120 (32.5)
	MUST		125 (33.9)
Grade			
	1		120 (32.5)
	2		121 (32.8)
	3		67 (18.2)
	4		54 (14.6)
	4<		7 (1.9)

INSTRUMENT AND TRANSLATION PROCEDURE

The HLSUS was developed by Wang et al. (2012) based on Pender's Health Promotion Model and validated among Chinese university students. The Delphi technique was used to develop, and the psychometric validation was determined in three rounds. Through all updates and improvements, the final version of the instrument consisted of 38 items with eight subscales, including exercise behavior (EB, 4 items), regular behavior (RB, 4 items), nutrition behavior (NB, 4 items), health-risk behavior (HrB, 4 items), health responsibility (HR, 6 items), social support (SS, 6 items), stress management (SM, 5 items), and life appreciation (LA, 5 items). A 5-point Frequency scale (1-"never," 2-"rarely," 3-"sometimes," 4-"usually," and 5-"always") measures the reported behaviors. Wang et al. (2012) reported the validation results based on split-half reliability, internal consistency, and exploratory factor analysis. The HLSUS is confirmed to be reliable, can be used by intended users, health professionals and practically used for the assessment of university students. The tool showed high internal consistency with Cronbach's α=.89 overall.

Our study intended to translate the HLSUS from English into Mongolian using the standard forward and backward translation method (Hambleton et al., 2005). Three bilingual translators performed the translation. Two bilingual translators conducted the forward translation separately of the questionnaire. The third translator synthesized the two translated versions into one questionnaire. Then, the questionnaire was returned to the two translators so they could independently back-translate it from Mongolian into English. After the back-translation, the differences were solved, and each item was compared with the original items.

DATA COLLECTION

Data was collected in the paper between October and November 2023 at three public universities from different departments. Before collecting data, we contacted the departments and informed them about the study's purpose. The departments and lecturers assisted in data collection, distributing the questionnaires, and explaining the purpose of the survey to the participants. The participants' responses were confirmed non-identifiable and asked to complete demographics, including age, gender, year of study, university, major, and the HLSUS in Mongolian. No incentives were given to the participants. A total of 380 questionnaires were collected, and 369 were completed appropriately, which indicated a 95% of response rate.

DATA ANALYSIS

Data analysis was processed using Statistical Package for Social Sciences (SPSS) version 25 and JASP. The exploratory factor analysis (EFA) was

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performed using SPSS to confirm the structure of the scale for Mongolian students, and the factors were extracted using Principal Component Analysis (PCA) with varimax rotation. The Kaiser-Meyer-Olkin (KMO) and Bartlett's sphericity test were applied to measure sampling adequacy. To achieve good psychometric validation, factor loadings higher than .40 were preferred (Field, 2013).

The confirmatory factor analysis (CFA) was employed using the JASP to examine the construct validity. Several fit indices and acceptable threshold values were employed as follows: the Comparative Fit Indices (CFI), Tucker and Lewis Index (TLI), and the Goodness of Fit Indices (GFI) with standardized value higher than .90. and the Root Mean Square Error of Approximation (RMSEA) lower than .08, and the Standardized Root Mean Square (SRMR) less than .08 (L. Hu & Bentler, 1999). Cronbach's α coefficient tested the internal consistency of the items accepted higher than .70.

Four items of the Health-risk behavior subscale were scored inversely (1=5, 2=4, 3=3, 4=2, and 5=1), and the high score could show the impairment.

RESULTS

The mean score of the total questionnaire was M=3.46 (SD=.73). The highest mean score was in the SS subscale (M=3.83; SD=.66), and the lowest was in the EB subscale (M=2.88; SD=.87).

EXPLORATORY FACTOR ANALYSIS FINDINGS

The EFA was conducted on 38 items. The KMO value was .87, and Bartlet's test of sphericity was significant ($\chi 2$=5794.93, df=703, p<.001). The results of the PCA indicated that nine factors had eigenvalues over Kaiser's criterion of 1.00, which resulted in 62.14% of the variance. To fit the data to the original structure proposed by the authors, we obtained an eight-factor solution based on the EFA. The results of the EFA showed that eight factors addressed 59.37% of the variance.

Due to cross-loadings with other factors the following five items were removed from the study: HrB15 ("I listen to headphones more than 30 minutes"), HrB16 ("I read or use computer more than 1 hour/day"), SS23 ("I gladly help my classmates when they in trouble"), SS24 ("I enjoy keeping in touch with others"), and SM32 ("I plan study and leisure activities"). As a result, 33 items met the original structure of the HLSUS. The results of the EFA with 33 items are shown in the table 2.

Table 2
Results of exploratory factor analysis

	Items	1	2	3	4	5	6	7	8
EB1	I exercise vigorously 30min 3 times or more per week			.74					
EB2	I warm up before vigorous exercise			.78					
EB3	I exercise moderately 30-60 minutes 3 times or more per week (walking, bicycling, using stairs)			.77					
EB4	I exercise vigorously 30 minutes after meal			.46					
RB5	I eat breakfast daily					.54			
RB6	I eat three meals daily at regular intervals					.76			
RB7	I balance study and resting times					.64			
RB8	I sleep and rest enough					.70			
N9	I regularly replenish fluid during a vigorous exercise			.62					
N10	I drink at least 8 cups of water (1 cup~200ml)								.76
N11	I consume food rich in dietary fiber (fruits, vegetables)								.46
N12	I choose foods low diet fat, saturated fat, salt, and cholesterol								.79
HrB13	I drink alcohol excessively							.85	
HrB14	I smoke everyday							.79	
HR17	I visit doctor when any unusual sign or symptom appears	.45							
HR18	I follow doctor's advice and treatment	.47							
HR19	I brush teeth, use dental floss or mouthwash after meals	.67							
HR20	I wash regularly wash hands before eating	.79							

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HR21	I cover mouth and nose when sneezing and coughing in public	.81					
HR22	I keep public places clean (school environment, library)	.74					
SS25	I actively participate in group activities with classmates	.41				.60	
SS26	I talk about my issues with others					.73	
SS27	I pay attention to others' feelings when handling affairs					.69	
SS28	I express my feelings in an inoffensive manner to others					.59	
SM29	I take time to relax daily			.62	.44		
SM30	I accept things in life that I can't change			.75			
SM31	I make an effort to control my emotions			.70			
SM 33	I remain unruffled and respond calmly with pleasure when something unexpected happens			.59			
LA34	I gladly accept new experiences and challenges		.53	.40			
LA35	I feel confident and content with myself		.68				
LA36	I make an effort to take interest and be challenged in daily studies and life		.65				
LA37	I believe am developing and growing in positive way		.64			.40	
LA38	I clarify my learning purpose in future		.68				

Component 1 included six items from the original Health responsibility subscale.

Component 2 consisted of five items from the Life appreciation subscale of the HLSUS.

Component 3 included four items from the Exercise behavior subscale and one from the Nutrition behavior subscale, N9 ("I regularly replenish fluid during a vigorous exercise").

Component 4 consisted of four items from the Stress management subscale of the HLSUS. Item SM32 ("I plan study and leisure activities") was removed from the component due to cross-loading with the Regular behavior component.

Component 5 involved four items from the original Regular behavior subscale. Component 6 included four items from the Social support subscale of the HLSUS.

Component 7 included two items from the Health-risk behavior subscale of the HLSUS. Two items, HrB15 (" I listen to headphones more than 30 minutes per day") and HrB16 ("I read or use the computer more than 1 hour daily, except studying"), were removed. These items did not correspond to any of the HLSUS subscales.

Component 8, Nutrition behavior, consisted of three items from the Nutrition behavior subscale of the original questionnaire.

CONFIRMATORY FACTOR ANALYSIS FINDINGS

The CFA was applied to examine the construct validity of the Mongolian version of the HLSUS using JASP. We compared the CFA results in two models (See table 3): Model 1 with 38 items, the original factor structure of the HLSUS, and Model 2 with 33 items, an emergent structure of the EFA output. Model 2 provided a better fit to the data compared with the original structure of the questionnaire: CFI=.93, TLI=.92, RMSEA=.057, SRMR=.076, and GFI=.94. The standardized estimate of factor loadings ranged from .42 to .82.

Table 3
Summary of fit indices for the Mongolian version of the HLSUS

	χ^2	df	p<	CFI	TLI	RMSEA	SRMR	GFI
Model 1 (38 items)	1597.72	637	<.001	.91	.90	.064	.083	.92
Model 2 (32 items)	1063.57	467	<.001	.93	.92	.057	.076	.94

https://doi.org/10.3311/BICE2024-009

Reliability

The internal consistency of the overall scale and subscales were calculated for the 33-item structure. Overall, the instrument indicated high internal consistency with Cronbach's α coefficient of .89. The reliability of the subscales was >.70, except for the NB subscale (α=.64).

The discriminant validity was determined using the heterotrait-monotrait (HTMT) ratio. The values ranged from .06 to .72. The lowest correlation was between HrB and LA, and the highest was between SS and LA subscales (table 4).

Table 4
Internal consistency of the Mongolian HLSUS (33 items)

Subscales	EB	RB	NB	HrB	HR	SS	SM	LA	Mean	SD	α	Item-total correlation
Exercise behavior	-								2.98	.84	.77	.40-.65
Regular behavior	.43	-							3.44	.80	.70	.32-.57
Nutrition behavior	.59	.59	-						3.28	.74	.64	.42-.47
Health-risk behavior	.30	.21	.13	-					2.06	1.07	.72	.57
Health responsibility	.26	.20	.32	.16	-				3.81	.69	.80	.47-.64
Social support	.25	.40	.41	.12	.42	-			3.74	.68	.73	.47-.54
Stress management	.28	.52	.34	.12	.47	.60	-		3.71	.74	.72	.44-.62
Life appreciation	.32	.50	.45	.06	.51	.72	.68	-	3.78	.68	.80	.52-.65

Discussion

This study was conducted to measure the psychometric properties of the HLSUS in the Mongolian version among undergraduate students applying for EFA and CFA. The study suggested that the Mongolian of the version HLSUS showed good validity and reliability for examining healthy lifestyles in the Mongolian context. Validating healthy lifestyles among young adults has become an important issue worldwide. University is a crucial period that provides excellent opportunities for obtaining a health-promoting lifestyle (Steptoe et al., 2002). The HLSUS (Wang et al., 2012) was developed and validated in China with eight health dimensions to assess healthy lifestyles among 5523 university students. Measuring and determining healthy behaviors among students using a valid and reliable instrument is essential. A limited number of studies have been found that used and validated the instrument in other languages, including Spanish and Persian, in Mexican and Iranian universities (Aminisani et al., 2016; Dominguez-Lara et al., 2019). Our study aimed to examine the validity and reliability of the Mongolian version of the HLSUS. Developing the questionnaire and assessing its validity and reliability is crucial to determining a healthy lifestyle among Mongolian university students. The results of this study indicated acceptable validity and reliability of the translated version of the instrument. Our translation fills the gap and will assist as a valuable tool in health education and research in the Mongolian population.

Previous validation studies of the HLSUS questionnaire reported different total numbers, which indicated that they fit the EFA and reliability measurement. For instance, for the validation study of Aminisani et al. (2016), eight factors and 38-item analyses fit well in the Persian language among Iranian students. In contrast, Dominguez-Lara et al. (2019) retained only 14 items with four subscales in the Spanish validation study. Our study retained 33 items with eight subscales indicating a good fit in EFA.

Factor analysis is essential to explore whether the predetermined factor structure of the tool is supported, and factor loadings were higher than .40, which endorsed the factor construction (Field, 2013). The component structure was examined by the EFA and forced eight-factor solution with 38 items aligned with the model based on Wang et al. (2012) version. However, the results indicated a few differences compared to the original eight-factor structure. Our initial examination yielded that the items HrB15 and ("I listen to headphones more than 30 minutes"), HrB16 ("I read or use the computer more than 1 hour/day"), SS23 ("I gladly help my classmates when they in trouble"), SS24 ("I enjoy keeping in touch with others"), and SM32 ("I plan study and leisure activities") should be removed. Items HrB15 and HrB16 were removed due to low item-total correlation. Also, these items were grouped into different components. These results are consistent with the research of Aminisani et al. (2016) in the Persian sample, that the items' group were named as "Inaccurate habits." Items SS23, SS24, and SM32 were removed because of cross-loadings. This might indicate that translating the instrument into Mongolian can explain the differences between the subscale structures. For example, SS23 ("I gladly help my classmates when they in trouble") from the Social support subscale cross-loaded with the Health responsibility subscale.

No studies have been conducted on the CFA of the HLSUS. However, Dominguez-Lara et al. (2019) reported that the CFA results showed an improper fit to the scale. Since the factors and items of the HLSUS have been predetermined, we conducted a confirmatory survey on the Mongolian version. We aimed to confirm if the eight-factor 38-item measurement model fit the data well. Based on the EFA results, after removing five items (HrB15, HrB16, SS23, SS24, and SM 32) with cross-loadings and low factor loadings, our study retained 33 items in the final measurement improved the fit indices. The final CFA examination of the HLSUS supported the eight-factor structure of the original HLSUS instrument.

Wang et al. (2012) and Aminisani et al. (2016) applied internal consistency, split-half reliability, and test-retest reliability in their psychometric studies. Our study

performed an internal reliability test, which indicated highly satisfactory results. The overall internal consistency with Cronbach's α coefficient was .89. Concerning the correlations, the highest correlation was found between the *Social support* and *Life appreciation* subscales and *Stress management* and *Life appreciation* subscales is consistent with the cross-loading of items of these subscales. Items of these subscales represent information about lifestyle's emotional and cognitive aspects. Some items are related to spiritual or social dimensions, and others ask about meaningful ways of communicating with loved ones. A weak correlation was observed between the *Health-risk behavior* and *Life appreciation subscales*.

Compared to other studies, the HLSUS developed by (Wang et al., 2012) found that the tool is applicable for the Mongolian context also because of the item number, and it includes health-risk behavior items as well.

Some limitations of the study must be acknowledged. First, the present study did not evaluate the influence of associated factors on healthy lifestyles among Mongolian undergraduate students. Second, due to a printing error in the paper-form questionnaire, a few items were not printed in several samples and excluded automatically from data analysis. The third limitation is using a self-reported questionnaire may address to response bias. A few samples were also excluded due to replicated responses. Finally, the questionnaire consisted of a few general socio-demographic information. Further, the research could include more detailed information on participants.

Conclusion

In conclusion, our study has shown promising results regarding the psychometric properties of the Mongolian version of the HLSUS, a valuable instrument for assessing a lifestyle among students in the Mongolian context. Like many other countries, the number of non-communicable diseases among the Mongolian population is increasing. Research related to the lifestyle among Mongolian university students focused mainly on factors that negatively influence health, such as alcohol and tobacco use, unhealthy eating habits, and physical inactivity. The final measurement for the present sample size scale consisted of 33 items and eight subscales. We removed five items from the subscales, including *Health-risk behavior, Social support*, and *Stress management*, due to low factor loadings and cross-loadings in both EFA and CFA, and the findings were consistent with the original version of the scale. However, further examinations are necessary to assess the instrument's validity in a broad population. Assessment of healthy lifestyles among young adults must be culturally and linguistically validated.

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References

Abercrombie, N., Gatrell, T., & Thomas, C. (1998). University and health in twenty-first century. In *Health promoting universities: Concept, experience and framework for action* (pp. 33–39). World Health Organization.

Almutairi, K. M., Alonazi, W. B., Vinluan, J. M., Almigbal, T. H., Batais, M. A., Alodhayani, A. A., Alsadhan, N., Tumala, R. B., Moussa, M., Aboshaiqah, A. E., & Alhoqail, R. I. (2018). H*ealth promoting lifestyle of university students in Saudi Arabia: A cross-sectional assessment.* BMC Public Health, 18(1), 1093. https://doi.org/10.1186/s12889-018-5999-z

Aminisani, N., Shamshirgaran, M., Asghari Jafarabadi, M., Sadeghi-Bazargani, H., Amini, A., Abedi Gheshlaghi, L., Kanani, S., & Kananikandeh, S. (2016). Reliability and Validity of the Persian Version of the Healthy Lifestyle Scale for University Students. *Research and Development in Medical Education, 5*, 79–84. https://doi.org/10.15171/rdme.2016.016

Badarch, J., & Paulik, E. (2021). Changing pattern of smoking behavior among Mongolian adolescents: Results from the GYTS (2003-2019). *European Journal of Public Health, 31(Supplement_3)*, ckab165.546. https://doi.org/10.1093/eurpub/ckab165.546

Bat-Erdene, E., Tumurbaatar, E., Tumur-Ochir, G., Jamiyandorj, O., Jadamba, T., Yamamoto, E., Hamajima, N., Oka, T., & Lkhagvasuren, B. (2023). Validation of the abbreviated version of the World Health Organization Quality of Life in Mongolia: A population-based cross-sectional study among adults in Ulaanbaatar. *Nagoya Journal of Medical Science, 85(1)*, 79–92. https://doi.org/10.18999/nagjms.85.1.79

Beihl, D. A., Liese, A. D., & Haffner, S. M. (2009). Sleep Duration as a Risk Factor for Incident Type 2 Diabetes in a Multiethnic Cohort. *Annals of Epidemiology, 19(5)*, 351–357. Scopus. https://doi.org/10.1016/j.annepidem.2008.12.001

Bewick, B. M., Mulhern, B., Barkham, M., Trusler, K., Hill, A. J., & Stiles, W. B. (2008). Changes in undergraduate student alcohol consumption as they progress through university. B*MC Public Health, 8*, 163. https://doi.org/10.1186/1471-2458-8-163

Binkowska-Bury, M., & Januszewicz, P. (2010). Sense of coherence and health-related behaviour among university students—A questionnaire survey. C*entral European Journal of Public Health, 18(3)*, 145–150. https://doi.org/10.21101/cejph.a3591

Buckworth, J., & Nigg, C. (2004). Physical Activity, Exercise, and Sedentary Behavior in College Students. J*ournal of American College Health, 53(1)*, 28–34. https://doi.org/10.3200/JACH.53.1.28-34

Bulag, U. E. (2003). Mongolian Ethnicity and Linguistic Anxiety in China. *American Anthropologist, 105(4)*, 753–763. https://doi.org/10.1525/aa.2003.105.4.753

Burnee, M., Chandaga, U., Narantsogt, G., Jagdagsuren, D., Magsar, T., Minjuur, E., Shijee, N., Gombodorj, A., Gurbadam, A., & Dorjsuren, T. (2017). Prevalence of Syphilis and HIV Diseases among Some Universities' Students in Mongolia. *J. of Health Science, 5*. https://doi.org/10.17265/2328-7136/2017.06.004

Campbell, R. L., Svenson, L. W., & Jarvis, G. K. (1992). Perceived level of stress among university undergraduate students in Edmonton, Canada. *Perceptual and Motor Skills, 75(2)*, 552–554. https://doi.org/10.2466/pms.1992.75.2.552

Clinkinbeard, S. S., Simi, P., Evans, M. K., & Anderson, A. L. (2011). Sleep and Delinquency: Does the Amount of Sleep Matter? *Journal of Youth and Adolescence, 40(7)*, 916–930. https://doi.org/10.1007/s10964-010-9594-6

Curcio, G., Ferrara, M., & De Gennaro, L. (2006). Sleep loss, learning capacity and academic performance. *Sleep Medicine Reviews, 10(5)*, 323–337. Scopus. https://doi.org/10.1016/j.smrv.2005.11.001

Dashpuntsag, K., Chandaga, U., Tserennadmid, N., Bat-Ochir, U., Mukhtar, Y., Altankhuyag, G.-E., Gombodorj, N., Dulamsuren, O., & Jaalkhorol, M. (2021). Awareness and Attitudes of Mongolian Adolescents and Youth toward Alcohol Consumption and Alcohol-related Harm. *Addiction & Health, 13*, 185–193. https://doi.org/10.22122/ahj.v13i3.1250

Demaio, A. R., Otgontuya, D., de Courten, M., Bygbjerg, I. C., Enkhtuya, P., Oyunbileg, J., & Meyrowitsch, D. W. (2013). Exploring knowledge, attitudes and practices related to diabetes in Mongolia: A national population-based survey. *BMC Public Health, 13*, 236. https://doi.org/10.1186/1471-2458-13-236

Dodd, S., Widnall, E., Russell, A. E., Curtin, E. L., Simmonds, R., Limmer, M., & Kidger, J. (2022). School-based peer education interventions to improve health: A global systematic review of effectiveness. *BMC Public Health, 22(1)*, 2247. https://doi.org/10.1186/s12889-022-14688-3

Dominguez-Lara, S. A., Martín-Diaz, A., Ramírez-Colina, S., & Campos-Uscanga, Y. (2019). Análisis estructural de una escala de estilos de vida saludables en estudiantes universitarias mexicanas. *Revista Cubana de Enfermería, 35(3)*, Article 3. https://revenfermeria.sld.cu/index.php/enf/article/view/2221

Erdenebileg, Z., Park, S. H., & Chang, K. J. (2018). Comparison of body image perception, nutrition knowledge, dietary attitudes, and dietary habits between Korean and Mongolian college students. *Nutrition Research and Practice, 12(2),* 61–71. https://doi.org/10.4162/nrp.2018.12.2.149

Field, A. (2013). *Discovering statistics using IBM SPSS statistics (4th ed.).* SAGE Publications Ltd.

Gold, R. S., & Miner, K. R. (2002). Report of the 2000 Joint Committee on Health Education and Promotion Terminology. *Journal of School Health, 72(1)*, 3–7. https://doi.org/10.1111/j.1746-1561.2002.tb06501.x

Greaney, M. L., Less, F. D., White, A. A., Dayton, S. F., Riebe, D., Blissmer, B., Shoff, S., Walsh, J. R., & Greene, G. W. (2009). College Students' Barriers and Enablers for Healthful Weight Management: A Qualitative Study. J*ournal of Nutrition Education and Behavior, 41(4),* 281–286. https://doi.org/10.1016/j.jneb.2008.04.354

Group, T. W. (1998). Development of the World Health Organization WHOQOL-BREF Quality of Life Assessment. *Psychological Medicine, 28(3)*, 551–558. https://doi.org/10.1017/S0033291798006667

Haghdoost, A. A., & Moosazadeh, M. (2013). The prevalence of cigarette smoking among students of Iran's universities: A systematic review and meta-analysis. Journal of Research in Medical Sciences: *The Official Journal of Isfahan University of Medical Sciences, 18(8)*, 717–725.

Hambleton, R. K., Merenda, P. F., & Spielberg, C. D. (2005). *Adapting educational and psychological tests for cross-cultural assessment*. Lawrence Erlbaum Associates.

Hj, W., & C, M. (2009). Change in diet, physical activity, and body weight among young-adults during the transition from high school to college. *Nutrition Journal, 8.* https://doi.org/10.1186/1475-2891-8-32

Hu, F. B., Liu, Y., & Willett, W. C. (2011). Preventing chronic diseases by promoting healthy diet and lifestyle: Public policy implications for China. *Obesity Reviews, 12(7)*, 552–559. https://doi.org/10.1111/j.1467-789X.2011.00863.x

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6(1)*, 1–55. https://doi.org/10.1080/10705519909540118

Irwin, J. D. (2004). Prevalence of university students' sufficient physical activity: A systematic review. *Perceptual and Motor Skills, 98(3 Pt 1)*, 927–943. https://doi.org/10.2466/pms.98.3.927-943

Kang, J., Ciecierski, C. C., Malin, E. L., Carroll, A. J., Gidea, M., Craft, L. L., Spring, B., & Hitsman, B. (2014). A latent class analysis of cancer risk behaviors among U.S. college students. *Preventive Medicine, 64,* 121–125. https://doi.org/10.1016/j.ypmed.2014.03.023

Keating, X. D., Guan, J., Piñero, J. C., & Bridges, D. M. (2005). A Meta-Analysis of College Students' Physical Activity Behaviors. *Journal of American College Health, 54(2)*, 116–126. https://doi.org/10.3200/JACH.54.2.116-126

Keller, S., Maddock, J. E., Hannöver, W., Thyrian, J. R., & Basler, H.-D. (2008). Multiple health risk behaviors in German first year university students. *Preventive Medicine, 46(3)*, 189–195. https://doi.org/10.1016/j.ypmed.2007.09.008

Khan, K. M., Bielko, S. L., & McCullagh, M. C. (2018). Efficacy of hearing conservation education programs for youth and young adults: A systematic review. BMC Public Health, 18(1), 1286. https://doi.org/10.1186/s12889-018-6198-7

Kritsotakis, G., Psarrou, M., Vassilaki, M., Androulaki, Z., & Philalithis, A. E. (2016). Gender differences in the prevalence and clustering of multiple health risk behaviours in young adults. *Journal of Advanced Nursing, 72(9)*, 2098–2113. https://doi.org/10.1111/jan.12981

Kuan, G., Kueh, Y. C., Abdullah, N., & Tai, E. L. M. (2019a). Psychometric properties of the health-promoting lifestyle profile II: Cross-cultural validation of the Malay language version. *BMC Public Health, 19*, 751. https://doi.org/10.1186/s12889-019-7109-2

Kuan, G., Kueh, Y. C., Abdullah, N., & Tai, E. L. M. (2019b). Psychometric properties of the health-promoting lifestyle profile II: Cross-cultural validation of the Malay language version. *BMC Public Health, 19*, 751. https://doi.org/10.1186/s12889-019-7109-2

Landsberg, B., Plachta-Danielzik, S., Lange, D., Johannsen, M., Seiberl, J., & Müller, M. J. (2010). Clustering of lifestyle factors and association with overweight in adolescents of the Kiel Ob*esity Prevention Study. Public Health Nutrition, 13(10A)*, 1708–1715. https://doi.org/10.1017/S1368980010002260

Ln, D., Mr, T., & Td, S. (2006). Systematic review of depression, anxiety, and other indicators of psychological distress among U.S. and Canadian medical students. Academic Medicine: *Journal of the Association of American Medical Colleges, 81(4).* https://doi.org/10.1097/00001888-200604000-00009

Lowry, R., Galuska, D. A., Fulton, J. E., Wechsler, H., Kann, L., & Collins, J. L. (2000). Physical activity, food choice, and weight management goals and practices among US college students. *American Journal of Preventive Medicine, 18(1)*, 18–27. https://doi.org/10.1016/s0749-3797(99)00107-5

Meihan, L., & Chung-Ngok, W. (2011). Validation of the psychometric properties of the health-promoting lifestyle profile in a sample of Taiwanese women. Quality of Life Research: An International Journal of Quality of Life Aspects of Treatment, *Care and Rehabilitation, 20(4),* 523–528. https://doi.org/10.1007/s11136-010-9790-6

Mohamadian, H., Ghannaee, M., Kortdzanganeh, J., & Meihan, L. (2013). Reliability and Construct Validity of the Iranian Version of Health-promoting Lifestyle Profile in a Female Adolescent Population. *International Journal of Preventive Medicine, 4(1)*, 42–49.

Murillo-Llorente, M. T., Brito-Gallego, R., Alcalá-Dávalos, M. L., Legidos-García, M. E., Pérez-Murillo, J., & Perez-Bermejo, M. (2022). The Validity and Reliability of the FANTASTIC Questionnaire for Nutritional and Lifestyle Studies in University Students. *Nutrients, 14(16)*, 3328. https://doi.org/10.3390/nu14163328

Musaiger, A. O., Awadhalla, M. S., Al-Mannai, M., AlSawad, M., & Asokan, G. V. (2017). Dietary habits and sedentary behaviors among health science university students in Bahrain. *International Journal of Adolescent Medicine and Health, 29(2).* https://doi.org/10.1515/ijamh-2015-0038

Nelson, M. C., Story, M., Larson, N. I., Neumark-Sztainer, D., & Lytle, L. A. (2008). Emerging Adulthood and College-aged Youth: An Overlooked Age for Weight-related Behavior Change. *Obesity, 16(10)*, 2205–2211. https://doi.org/10.1038/oby.2008.365

Nöthlings, U., Ford, E. S., Kröger, J., & Boeing, H. (2010). Lifestyle factors and mortality among adults with diabetes: Findings from the European Prospective Investigation into Cancer and Nutrition–Potsdam study*. *Journal of Diabetes, 2(2)*, 112–117. https://doi.org/10.1111/j.1753-0407.2010.00069.x

Pender, N. J., Murdaugh, C., & Parsons, M. A. (2014). *Health promotion in nursing practice (7th ed.).* Pearson.

Pinar, R., Celik, R., & Bahcecik, N. (2009). Reliability and construct validity of the Health-Promoting Lifestyle Profile II in an adult Turkish population. *Nursing Research, 58(3)*, 184–193. https://doi.org/10.1097/NNR.0b013e31819a8248

Pullman, A. W., Masters, R. C., Zalot, L. C., Carde, L. E., Saraiva, M. M., Dam, Y. Y., Randall Simpson, J. A., & Duncan, A. M. (2009). Effect of the transition from high school to university on anthropometric and lifestyle variables in malesPresented in part at the Canadian Society for Nutritional Sciences, Canadian Nutrition Congress, held in Winnipeg, Manitoba, from 18–21 June 2007. *Applied Physiology, Nutrition, and Metabolism, 34(2),* 162–171. https://doi.org/10.1139/H09-007

Reddy, P., Rankins, D., Timoshanko, A., & Dunbar, J. A. (2011). Life! in Australia: Translating prevention research into a large-scale intervention. T*he British Journal of Diabetes & Vascular Disease, 11(4),* 193–197. https://doi.org/10.1177/1474651411410724

Savarese, G., Carpinelli, L., Cavallo, P., & Vitale, M. (2018). Italian Psychometric Validation of the Multidimensional Students' Health-

Promoting Lifestyle Profile Scale. *Health, 10,* 1554–1575. https://doi.org/10.4236/health.2018.1011118

Silva, A. M. M., Brito, I. da S., & Amado, J. M. da C. (2014a). Tradução, adaptação e validação do questionário Fantastic Lifestyle Assessment em estudantes do ensino superior. *Ciência & Saúde Coletiva, 19*, 1901–1909. https://doi.org/10.1590/1413-81232014196.04822013

Silva, A. M. M., Brito, I. da S., & Amado, J. M. da C. (2014b). Tradução, adaptação e validação do questionário Fantastic Lifestyle Assessment em estudantes do ensino superior. *Ciência & Saúde Coletiva, 19,* 1901–1909. https://doi.org/10.1590/1413-81232014196.04822013

Singh, A., & Upadhyay, A. (2008). Age and sex differences in academic stress among college students. S*ocial Science International, 24(1)*, 78–88.

Sogari, G., Velez-Argumedo, C., Gómez, M. I., & Mora, C. (2018). College Students and Eating Habits: A Study Using An Ecological Model for Healthy Behavior. *Nutrients, 10(12)*, Article 12. https://doi.org/10.3390/nu10121823

Sousa, P., Gaspar, P., Fonseca, H., Hendricks, C., & Murdaugh, C. (2015). Health promoting behaviors in adolescence: Validation of the Portuguese version of the Adolescent Lifestyle Profile. *Jornal De Pediatria, 91(4),* 358–365. https://doi.org/10.1016/j.jped.2014.09.005

Sousa, P., Gaspar, P., Vaz, D. C., Gonzaga, S., & Dixe, M. A. (2015). Measuring health-promoting behaviors: Cross-cultural validation of the Health-Promoting Lifestyle Profile-II. *International Journal of Nursing Knowledge, 26(2),* 54–61. https://doi.org/10.1111/2047-3095.12065

Steptoe, A., Wardle, J., Cui, W., Bellisle, F., Zotti, A.-M., Baranyai, R., & Sanderman, R. (2002). Trends in Smoking, Diet, Physical Exercise, and Attitudes toward Health in European University Students from 13 Countries, 1990–2000. *Preventive Medicine, 35(2)*, 97–104. https://doi.org/10.1006/pmed.2002.1048

Talbot, L. S., McGlinchey, E. L., Kaplan, K. A., Dahl, R. E., & Harvey, A. G. (2010). Sleep deprivation in adolescents and adults: Changes in affect. *Emotion, 10(6)*, 831–841. https://doi.org/10.1037/a0020138

Walker, S. N., & Hill-Polerecky, D. M. (1996). Psychometric evaluation of health promoting lifestyle profile II. Unpublished Manuscript, University of Nebraska Medical Center. https://deepblue.lib.umich.edu/bitstream/handle/2027.42/85349/HPLP_IIDimensions.pdf?sequence=2

Walker, S. N., Sechrist, K. R., & Pender, N. J. (1987). The health-promoting lifestyle profile: Development and psychometric characteristics. *Nursing Research, 36(2)*, 76–81.

Wang, D., Li, C., Wang, Y., Wang, S., Wu, S., Zhang, S., & Xu, L. (2021). Health Education Intervention on Hearing Health Risk Behaviors in College Students. *International Journal of Environmental Research and Public Health, 18(4)*, 1560. https://doi.org/10.3390/ijerph18041560

Wang, D., Xing, X.-H., & Wu, X.-B. (2012). The Healthy Lifestyle Scale for University Students: Development and psychometric testing. *Australian Journal of Primary Health, 18(4)*, 339–345. https://doi.org/10.1071/PY11107

Wei, C.-N., Harada, K., Ueda, K., Fukumoto, K., Minamoto, K., & Ueda, A. (2012a). Assessment of health-promoting lifestyle profile in Japanese university students. *Environmental Health and Preventive Medicine, 17(3),* 222–227. Scopus. https://doi.org/10.1007/s12199-011-0244-8

Wei, C.-N., Harada, K., Ueda, K., Fukumoto, K., Minamoto, K., & Ueda, A. (2012b). Assessment of health-promoting lifestyle profile in Japanese university students. *Environmental Health and Preventive Medicine, 17(3)*, 222–227. https://doi.org/10.1007/s12199-011-0244-8

Wilson, D. M. C., Nielsen, E., & Ciliska, D. (1984). Lifestyle Assessment: Testing the FANTASTIC Instrument. *Canadian Family Physician*, 30, 1863–1866.

World Health Organization. (2024). *Deafness and hearing loss*. https://www.who.int/news-room/fact-sheets/detail/deafness-and-hearing-loss

World Health Organization. (2019d). *Harmful use of alcohol.* https://www.who.int/health-topics/alcohol

World Health Organization. (2019b). *Nutrition.* https://www.who.int/health-topics/nutrition

World Health Organization. (2019a). *Physical activity*. https://www.who.int/health-topics/physical-activity

World Health Organization. (2019c). *Tobacco*. https://www.who.int/health-topics/tobacco

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Higher Education Students' Attitudes Towards Artificial Intelligence: A Comparison of SPSS And Machine Learning

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ABSTRACT

The rise of AI (Artificial Intelligence) in education is attracting increasing attention. The integration of AI-based tools and methods in higher education can not only improve the quality of education, but also open new perspectives for students. In addition to the growing interest in AI, an important question is the level of awareness and confidence of students in this technology. While there are many studies on the role of AI in education (Luckin et al., 2016; Holmes et al., 2019), few studies have examined students' knowledge and confidence in AI and the frequency of its use. A questionnaire survey is used to collect the data. The questionnaire survey is conducted through an online platform, targeting different demographic groups in higher education. In addition to traditional statistical methods, AI-based machine learning algorithms are used to analyze the data. Using statistical methods, we explore quantitative relationships between students' AI knowledge and confidence. At the same time, we explore the potential of machine learning in data analysis, because while we initially analyzed their attitudes towards AI, we now explore the opportunities and challenges that machine learning offers for interpreting research findings.

KEYWORDS

artificial intelligence, higher education students, machine learning, ChatGPT, SPSS, ChatGPT Data Analyst

INTRODUCTION

Nowadays, AI (Artificial Intelligence, also known as Machine Learning) and its scope are at the center of discourse, across a very broad spectrum, from its present application to its future usability. Consequently, many disciplines are concerned with their applicability in real life. Whether it is to facilitate human work (as a virtual assistant (Cheng et al., 2023; Pandey et al., 2023) or even as an aid in education (González et al., 2022).

The interest just discussed is not surprising, as it is a relatively new technology, although, if we look deeper, the foundations of machine learning go back further. The first system capable of learning was the McCulloch-Pitts, also known as the Perceptron model, pioneered by Warren McCulloch and Walter Pitts, and the model is credited to them. The model, or idea, was published in 1943 and effectively laid the foundations for the neural networks on which modern machine learning and AI are based (Pickover, 2024; Macukow, 2016; McCulloch, 1943). This recognition reflects the fact that, although the current technological developments are new, the underlying ideas are the result of decades of development.

It is an understanding of this long evolutionary process that highlights that the rise of AI brings not only benefits and opportunities, but also complex challenges that can only be successfully addressed if the application of technology is accompanied by a deep and comprehensive understanding. The aim of this study is to explore the knowledge, use and confidence of higher education students in using AI. Second, we explore the potential of machine learning in data analysis, given that while we initially analyzed students' attitudes towards AI, now we explore the opportunities and challenges that machine learning offers for interpreting research findings alongside traditional statistical methods.

As the above-mentioned developments show, we also need to make progress in the application and use of AI. A thorough understanding of the technology is essential to exploit its potential.

LITERATURE REVIEW

AI and its subject matter are one of the hottest topics of our time. The Web of Science database has published more than 400 articles over the last few years that explore the intersection of keywords between students in higher education and AI. The articles with the highest impact and most relevant to the topic are summarized in this section.

Chen et al. (2023) highlights that AI is bringing a paradigm shift in the field of education. Their study investigates the impact of higher education students' use of ChatGPT on their performance. They argue that the use of ChatGPT in higher education is an emerging area of research, but also an opportunity that can bring innovation and transformation to higher education, thereby promoting educational, social and economic development (Chen et al., 2023). However, this insight also requires practical applications that can demonstrate the effectiveness of AI in real-world settings. Bilquise (2023) reports on this in his paper. He mentions Georgia Tech's chatbot Jill Watson, which is one of the most prominent examples of the use of AI in higher education. He highlights the use of a conversational AI system capable of communicating in natural language while also functioning as a personal assistant. It facilitates teachers' work, allowing them to have more in-depth conversations with students, as the chatbot helps students to search for information, thus taking over many additional tasks from teachers (Bilguise, 2023). However, for AI to be effectively integrated into the learning environment, it is not enough to have an application: a supportive environment is also needed to help students stay motivated while learning new technologies.

According to Wang et al (2023), AI is revolutionizing our daily lives and work, so higher education institutions need to strengthen students' motivation to learn AI. The article emphasizes that students are most interested in learning AI when they are in a supportive environment, believe in the learning opportunity (expectancy) and see its value (value). Therefore, higher education institutions should focus on creating a supportive environment and fostering students' expectancy-value beliefs to prepare them for future jobs (Wang et al, 2023). Nevertheless, as the application of AI progresses, its ethical aspect, which may influence students' attitudes and acceptance of the technology, becomes more and more important. According to technology acceptance theory (TAM), users' attitudes towards new technologies have a significant impact on their adoption (Aljarrah et al., 2016). Students' attitudes towards AI are closely related to how useful and easy to use they feel the technology is.

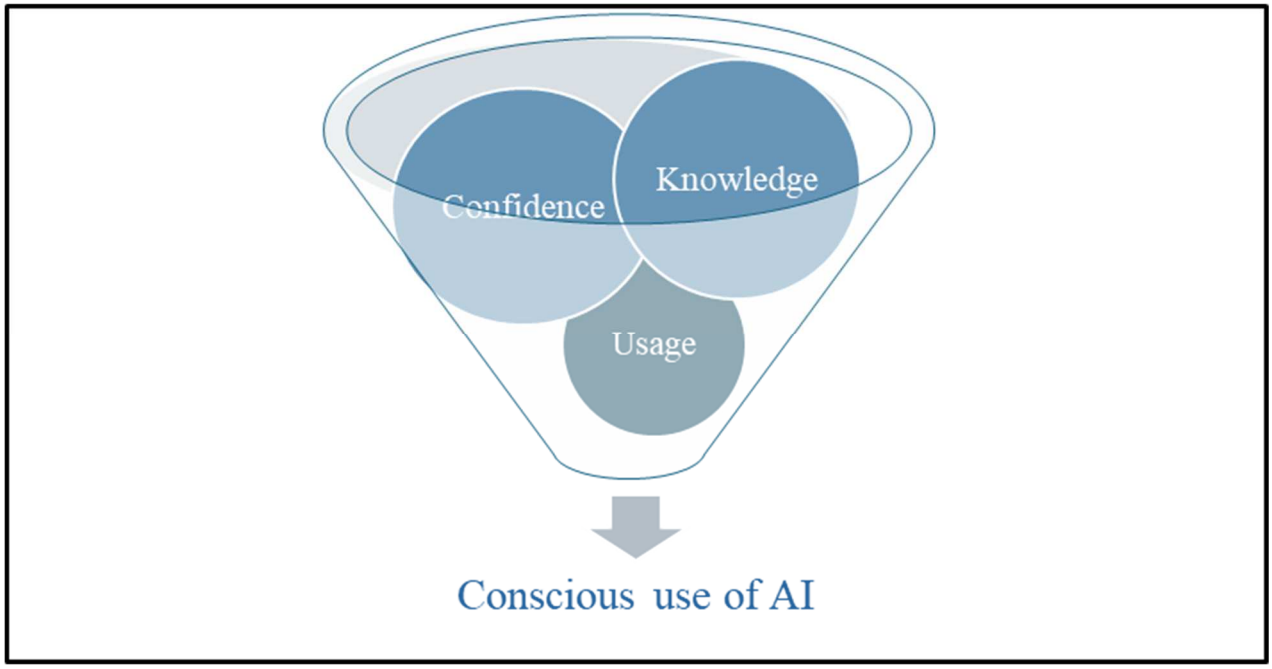
Zhu et al. (2024) explore AI from an ethical perspective, examining the factors that influence university students' tool use behavior analysis and their attitudes towards using generative AI products. Ethical awareness can positively influence tool use behavior. However, it can also increase perceived ethical risks. These findings may help university students to better adapt and use generative AI products more ethically (Zhu et al., 2024). Generative AI systems, such as ChatGPT, raise serious ethical challenges, prominent among which are the spread of pseudo-news and copyright issues. The realistic texts generated by AI make it difficult to distinguish between human and machine content, which increases the risk of pseudo-news spreading (Floridi et al, 2020). In addition, machine learning models often use publicly available data, which raises questions about the copyright protection of the content generated (Watiktinnakorn, 2023). Moreover, the operation of AI systems often transmits biases in the data in an unreflective way, which can lead to further ethical problems (Mehrabi et al., 2019).

As can be seen from the above-mentioned studies, AI is becoming more and more embedded in the everyday life of higher education, making it clear that it is not just a new technological tool, but a force that is fundamentally transforming the process of learning and teaching. AI and chatbots not only simplify access to information, but also create new opportunities for interactions between students and teachers (Xie, 2022).

The impact of AI doesn't stop there: it is also revolutionizing education methodologies and preparing students for the workplace of the future. But the real question is: are we prepared to take advantage of this new opportunity? AI raises not only technological challenges but also ethical dilemmas. It is the responsibility of future education systems to focus not only on use, but also on conscious, critical thinking and ethical application. As we move forward, the key to success will be not only to teach AI, but also to develop “human intelligence" - capable of interacting with AI in a smart, empathetic and responsible way. While AI has enormous potential, the spread of the technology raises issues of privacy, security and ethics, which require global collaboration and responsible development.

Our current research aims to explore the threefold structure outlined above (knowledge, use, trust - see Figure 1), which is one of the fundamental requirements for the growing use of AI. Furthermore, our research aims to emphasize the role of teachers in raising awareness of the importance of these factors in the use of AI.

Figure 1
The three pillars of the research Source: Author's own creation.



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AIMS, RESEARCH QUESTIONS AND HYPOTHESES

Our survey aims to explore the target group's knowledge, confidence and use of AI. Our research questions were:

RQ1: To what extent do students know about AI and what sources do they use to find out about AI?

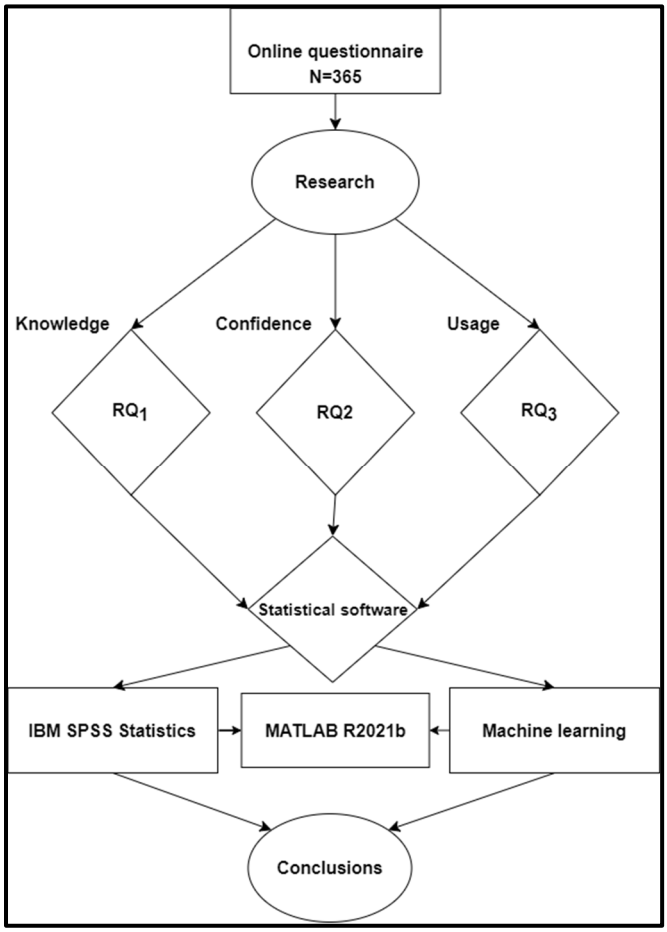
RQ2: To what extent do students trust the answers and results provided by AI?

RQ3: How willing are students to use AI in their studies and how do they see AI in the future?

The aim of the study is to explore in depth the knowledge, confidence level and willingness to use AI among the higher education students mentioned above. Our primary objective was to assess the extent of knowledge of AI technology, as well as its perception and attitudes towards its use in educational settings. It was of particular importance to explore the extent to which students perceive AI as a trustworthy source and their confidence in the responses generated by AI over traditional methods. Furthermore, the research also aimed to determine the extent to which students are willing to incorporate AI into their learning process. In the second phase of the research, we investigated the role of machine learning in data analysis and compared it with traditional methods of analysis to assess the potential benefits of AI in relation to data analysis techniques in education (see Figure 2 for the research design).

METHODS

Figure 2
Research design *(source: author's own creation)*



VALIDATION OF THE QUESTIONNAIRE

Before the research, a pilot study (N=150) was conducted in which we tested the reliability and validity of the questionnaire, as our questionnaire was self-developed and not adapted. Reliability was measured using the Cronbach's alpha coefficient (α=0.806), which showed a value above 0.80, indicating a good level of internal consistency of the questionnaire. In terms of validity, both content validity and construct validity were examined, the results of which confirmed that the questionnaire adequately measures the targeted concepts.

RESEARCH DESIGN AND DATA COLLECTION

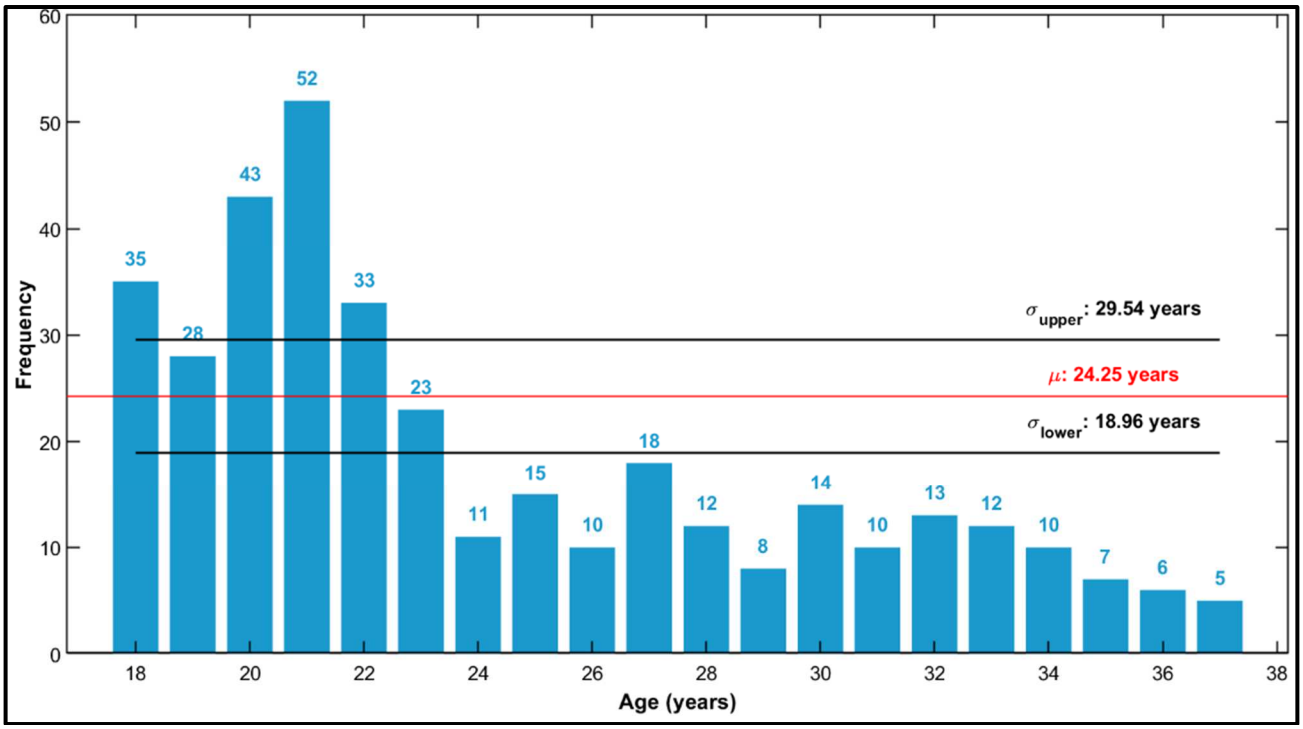
A total of 365 respondents (N=365) participated in the survey. The target group of our research were students in higher education (students of the Budapest University of Technology and Economics and Eötvös Loránd University). 55.34% (N=202) of the respondents were female, 44.66% (N=163) male. They were asked to complete the questionnaire online, with no time limit. The results were conducted using IBM SPSS Statistic (version 20) software, the analyses used were: descriptive statistics, Cronbach's alpha test, correlation analysis, linear regression, VIF test, Breusch-Pagan test, Durbin-Watson statistic, Q-Q plot and Shapiro-Wilk test, and MATLAB was used for data visualization (MATLAB, 2021). Our questionnaire was considered reliable, as Cronbach's alpha (α) was 0.805.

The questionnaire included Likert scale statements, as well as open-ended and multiple option questions (see appendices for questionnaire). The second part of the research was the application of machine learning to data analysis and its comparison with traditional statistical analysis.

In terms of place of residence, the data show the following distribution: 30.41% live in a village (N=111), 22.2% in a small town (under 50,000 inhabitants, N=81), 26.84% in a big city (over 50,000 inhabitants, N=98), 20.55% in the capital (N=75). 56% (N=204) of the respondents were undergraduate students, 44% (N=161) were master's students.

The age distribution of respondents by survey results is illustrated in Figure 3. The chart clearly shows that most participants belong to the age group 18-23 years, while the lowest proportion of participants is the age group 27 years and above (μ=24.25 years (mean), σ upper = 29.54 (upper standard deviation), σ lower = 18.96 years (lower standard deviation)). The distribution between age groups shows that the surveyed group mainly represents the younger generation (Figure 3).

Figure 3
Distribution of age *(source: author's own creation)*



RESULTS

ANALYSIS OF KNOWLEDGE, CONFIDENCE AND ATTITUDES TOWARDS THE USE OF AI

A descriptive statistical analysis was conducted to assess students' knowledge, attitudes and opinions about AI. Table 1 below summarizes the key variables.

Table 1
Descriptive statistics on knowledge, attitudes, opinions *(source: author's own creation)*

	N	Minimum	Maximum	Mean	Std. Deviation
Knowledge of AI	365	1	5	3,47	0,914
The importance of knowing AI in your studies	365	1	5	2,95	1,132
Trust in AI	365	1	5	3,17	0,813
Frequency of use of AI	365	1	5	3,07	1,153
The usefulness of AI	365	1	5	3,66	1,144
Performing creative tasks in the future	365	1	5	4,07	1,023

Respondents' knowledge and attitudes towards AI paint a complex, diverse picture of their understanding of the technology. The average knowledge of AI among respondents (μ = 3.47) suggests that many are under an illusion about their knowledge, as only 21.92% of respondents were able to correctly answer two of our open-ended questions about how AI is defined and how it works. This highlights significant gaps in actual knowledge levels and underlines the need for digital literacy. In education systems, it is essential that students have not only basic knowledge but also the ability to use and critique technology effectively (Eshet-Alkalai et al, 2009). This highlights significant gaps in knowledge and attitudes towards AI. Long and his fellow researchers (2020) have already drawn attention to users' limited knowledge of AI, and in the time since then these gaps have continued to show no signs of improvement (Long et al, 2020). Interactive learning, real-world problem solving and multidisciplinary approaches can help students to become not only users of technology, but also informed and responsible citizens. To prepare for the challenges of the future, it is essential that teachers continuously train themselves and integrate the latest technologies into their teaching. AI is not only a technological innovation, but also brings with it a sea of social and ethical issues that we need to explore together.

However, the importance of respondents' knowledge of AI for their studies (μ = 2.95) shows that they admit that knowledge of AI is not important for their studies. This may stem from their use patterns of AI. In their research, Zawacki-Richter et al. (2019) highlights that while the integration of AI in higher education institutions is limited, students often use AI in home learning aids and platforms (Zawacki-Richter et al., 2019). This is in line with the findings of Legi and colleagues (2023) that modern education cannot keep up with technological advances (Legi et al., 2023).

The data suggest that the respondents' confidence in AI (μ = 3.17) can be considered ambivalent, as they rely

not only on their acquired knowledge but also on their previous experiences. Despite the relatively low prevalence of AI use (μ = 3.07), the overall recognition of the usefulness of the technology (μ = 3.66) indicates that the majority of respondents see AI as a valuable tool. This tendency is supported by the TAM model developed by Davis and his research associates (1989) that we already mentioned, which emphasizes that the key factors for technology adoption are usefulness and ease of use (Davis et al, 1989). Furthermore, the optimism about the future development of AI (μ = 4.07) and the recognition of its ability to perform creative tasks reflects the futuristic mindset of the respondents. This focus on the benefits of new technologies and the belief in their future potential is consistent with Slaughter's (1999) theory, which emphasizes confidence in future technological development (Slaughter, 1999).

Preliminary ANOVA analysis was conducted for several variables, but only for confidence in AI were statistically significant differences between genders found. This finding is supported scientifically by several previous studies that have shown gender differences in trust in technology. In their review study, Glikson and Woolley (2020) highlight that men tend to have higher levels of trust in AI systems than women, which influences their adoption and use of technology. In their research, Ofosu-Ampong (2020) also found that women express greater concern about ethical and privacy issues in AI, which may lead to lower levels of trust (Wooley et al., 2020; Ofosu-Ampong, 2023).

Awareness, Information Sources, and Ethical Concerns of AI Technologies: Their Impact on User Trust and Role in Education

Users' knowledge of AI and their sources of information significantly influence their perception and acceptance of these technologies. According to the survey, chatbots were the most recognized AI technology among respondents, with a 92.5% recognition rate. This high familiarity is attributed to the widespread use of digital communication tools and platforms (Følstad et al., 2017). In contrast, the recognition of autonomous vehicles and robotics was considerably lower, at 11.2% and 6.7%, respectively, suggesting that these technologies are not yet an integral part of daily life, with limited public exposure in these areas (Howard et al., 2014).

The analysis of information sources revealed that 74.6% of respondents identified social media as their primary source of information on AI. This is concerning, as social media platforms are prone to the spread of misinformation, potentially distorting understanding and attitudes toward technology (Allcott et al., 2017). School education (43.3%) and professional articles (40.3%) were less common sources, indicating that formal education frameworks do not fully cover AI knowledge. The low proportion of scientific and academic sources further supports this trend, which may, over time, affect users' critical thinking and information processing skills (Lewandowsky et al., 2012).

Trust levels in AI systems varied significantly across different application areas. Respondents showed greater trust in scientific information (57.7%) and educational materials (75%) and less trust in healthcare (8.7%) and financial advice (6.7%). This differentiation suggests that users are more critical of AI services in areas where decisions involve higher risk (Glikson et al., 2020). Errors and misinformation significantly reduced trust: 56% of participants reported a slight loss of trust, while 32.8% reported a substantial loss. The role of AI in education proved divisive. While 41% of respondents believe AI could bring significant transformations, 14.9% feel it might entirely change the educational system. Nevertheless, the preference for a personal teacher remains strong; 32.8% of respondents prefer traditional teacher-led education, and 30.6% would only use AI for certain subjects. This indicates that while there is openness to innovation, personal interaction and the teacher-student relationship remain crucial in education (Zawacki-Richter et al., 2019).

Ethical considerations also play a significant role in AI acceptance. Privacy concerns were expressed by 57.5% of respondents, while 45.5% voiced concerns about issues with biased algorithms. These ethical dilemmas emphasize the importance of safeguarding user rights and social justice in AI development (Jobin et al., 2019).

Interest in AI education is moderate but significant: 50% of respondents would participate in AI training courses, while 23.1% were uninterested, and 26.9% were unsure. This highlights the need for reliable and accessible educational materials to enhance user competence and trust in AI technologies (Long et al., 2020).

Correlation and Linear Regression

The analysis revealed several factors strongly correlated with perceptions of AI usefulness, user trust, and frequency of use (Table 2). These relationships provide valuable insights into how students evaluate AI and the factors influencing its usage.

Table 2
Correlation *(source: author's own creation)*

Related variables	Correlation coefficient (r)	Level of significance (p)
Frequency of use ↔ Considered useful	0,725**	< 0,01
Knowledge of AI is important in your current studies ↔ Considered useful	0,566**	< 0,01
Trust ↔ Considered useful	0,529**	< 0,01

Results indicate a very strong positive correlation between usage frequency and perceived AI usefulness ($r = 0.725$; $p < 0.01$), suggesting that the more frequently students use AI, the more useful they perceive it to be. This finding aligns with the Technology Acceptance Model (TAM), which posits that frequent use enhances technology acceptance and user experience (Davis, 1989). A moderate positive correlation between the importance students place on AI knowledge and their perception of AI usefulness ($r = 0.566$; $p < 0.01$) indicates that students who value AI knowledge in their studies find the technology more beneficial. This underscores the role of knowledge in the adoption of technological innovations (Venkatesh et al., 2003). The correlation between trust and perceived AI usefulness ($r = 0.529$; $p < 0.01$) is also significant, though weaker than the previous relationships. This suggests that while trust influences the perceived usefulness of AI, its impact is less substantial than that of usage frequency. The relationship between trust and usefulness may be more complex, potentially influenced by factors such as prior experiences or attitudes toward technology.

The linear regression analysis corroborated these correlations, identifying AI knowledge and trust as significant predictors of AI usage frequency (Tables 3 and 4)

Table 3
Coefficients of linear regression for AI usage frequency *(source: author's own creation)*

Coefficients a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	Knowledge of AI	0,194	0,097	0,154	1,999	0,048
	Trust in AI	0,382	0,102	0,270	3,756	0,000

a. Dependent Variable: Frequency of use

Table 4
Summary of the regression model for AI usage frequency *(source: author's own creation)*

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0,677a	0,458	0,444	0,860

a. Predictors: Trust in AI, Knowledge of AI

The model demonstrates strong explanatory power ($R^2 = 0.458$), accounting for 45.8% of the variance attributed to the two independent variables. The regression assumptions were met: residuals followed a normal distribution (Shapiro-Wilk test, $p > 0.05$), homoscedasticity was ensured (Breusch-Pagan test, $p = 0.12$), independence of residuals was confirmed (Durbin-Watson statistic = 1.85), and no multicollinearity was detected (VIF values: AI knowledge = 1.3; trust = 1.2). The findings indicate that students' AI knowledge and trust significantly influence the frequency of AI usage, with AI knowledge exerting the greatest effect. This highlights the complexity of students' attitudes toward technology: usage frequency is strongly associated with perceived usefulness, while knowledge and trust play complementary roles. Together, these factors shape the acceptance and integration of AI in education. Educational institutions and technology developers should consider these relationships when designing AI-based tools and programs to facilitate effective implementation and enhance student acceptance.

AI AS STATISTICAL SOFTWARE

As previously noted, educational institutions and technology developers must consider acceptance and integration aspects when designing AI-based tools and programs in education to facilitate effective implementation and enhance student acceptance. ChatGPT Data Analyst functions as an AI-powered tool for performing data analysis tasks, leveraging natural language processing capabilities to understand requests and generate outputs such as statistical calculations, visualizations, and interpretations. In recent years, AI and machine learning have played an increasingly significant role in the field of data analysis (Goodfellow et al., 2016; James et al., 2013). Numerous studies focus on the use of AI-based tools to improve the efficiency of data analysis processes. GPT-based models, in particular, can be highly useful for processing natural language requests and automating complex data analysis tasks.

OPERATION

The model utilizes deep learning techniques to interpret user inputs, including data and analysis requests, and applies pre-trained statistical knowledge to execute tasks such as descriptive statistics, correlation analysis, regression modeling, and data visualization (OpenAI., 2023). By processing input data and generating responses based on patterns and statistical principles embedded in training data, it can produce insightful results. In the following example, GPT Data Analyst accurately calculated correlations and descriptive statistics, demonstrating the model's accuracy in basic statistical analyses (Figures 4 and 5).

Generally, it performs well for fundamental statistical measures (mean, standard deviation, correlations) and basic regression models (linear, logistic). Compared to standard statistical software, its results typically match within a minimal margin of error caused by rounding or precision differences. Accuracy may decrease in advanced or multi-step analyses, as the model relies on immediate clarity and does not handle nuanced statistical assumptions as rigorously as dedicated software. Nevertheless, continuous development of GPT-based tools holds promise for future applications and could significantly ease data analysis tasks for researchers through automation. In most cases, it provides valid

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interpretations of results, though it may sometimes simplify complex findings or omit certain statistical considerations.

Limitations

The model's accuracy depends on the clarity and specificity of instructions. It does not dynamically verify statistical assumptions (e.g., normality) unless explicitly instructed. For highly complex datasets or specialized statistical tests, it may encounter limitations. GPT Data Analyst is effective for general-purpose data analysis, offering a high degree of accuracy for standard tasks, but complex or specialized statistical procedures require careful oversight.

Comparison with SPSS

SPSS is a widely used statistical software designed specifically for data analysis and statistical modeling. Its advantages include a user-friendly graphical interface, extensive support for statistical tests and procedures, and reliability within the research community (Pallant, 2020). In contrast, GPT Data Analyst relies on natural language processing and AI, allowing users to conduct data analysis through simple, natural-language queries. This can greatly facilitate data analysis for non-experts and accelerate the process. As shown in the example (Figures 4 and 5), GPT Data Analyst provided accurate results for correlation and descriptive statistics. However, SPSS has the advantage of being specifically designed for statistical analysis, providing extensive support for specialized statistical procedures and data management. Currently, GPT Data Analyst does not fully replace SPSS, especially for complex statistical analyses, but it can be a valuable supplementary tool.

Future outlook

The future advancements in AI may enable AI-based tools, like GPT Data Analyst, to further streamline data analysis in scientific research. Through automated data analysis and natural language interactions, researchers could conduct analyses more quickly and efficiently, reducing the need for manual work and minimizing human error (Russell et al., 2020).

Figure 4
Descriptive statistics Source: ChatGPT Data Analyst *(OpenAI, 2023)*

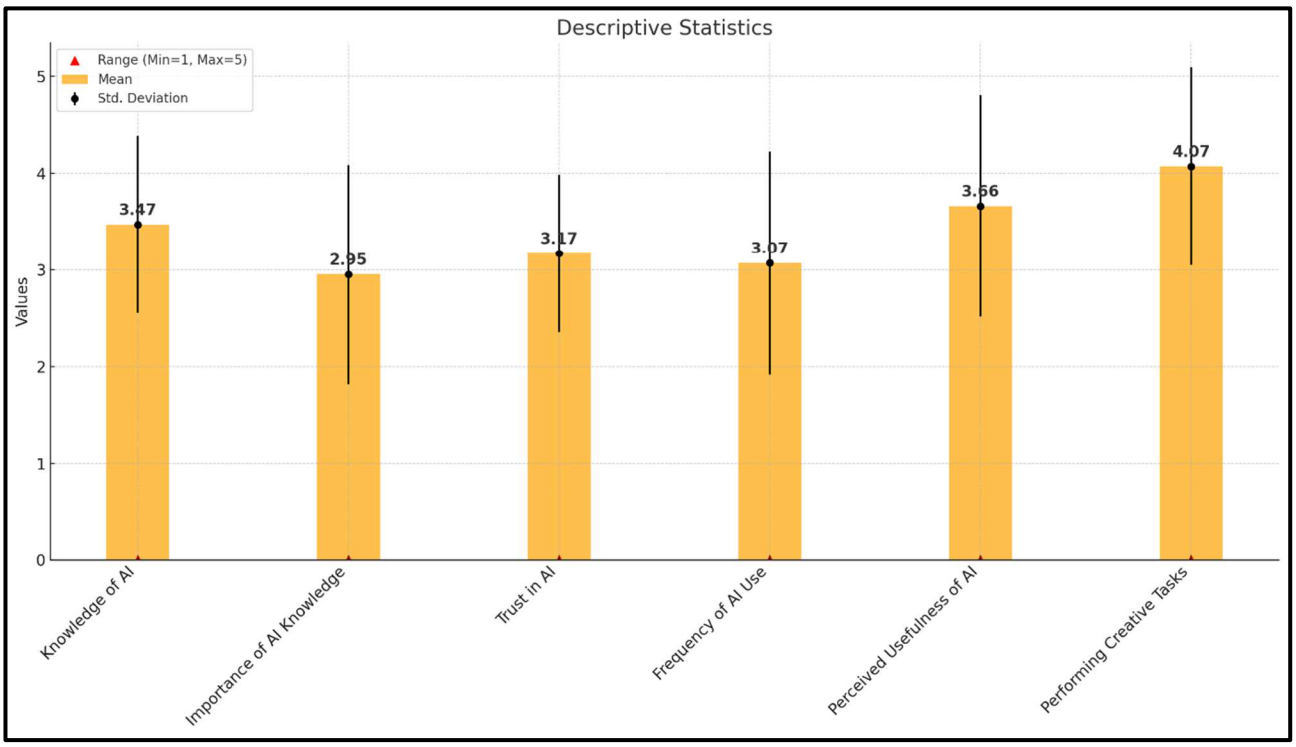

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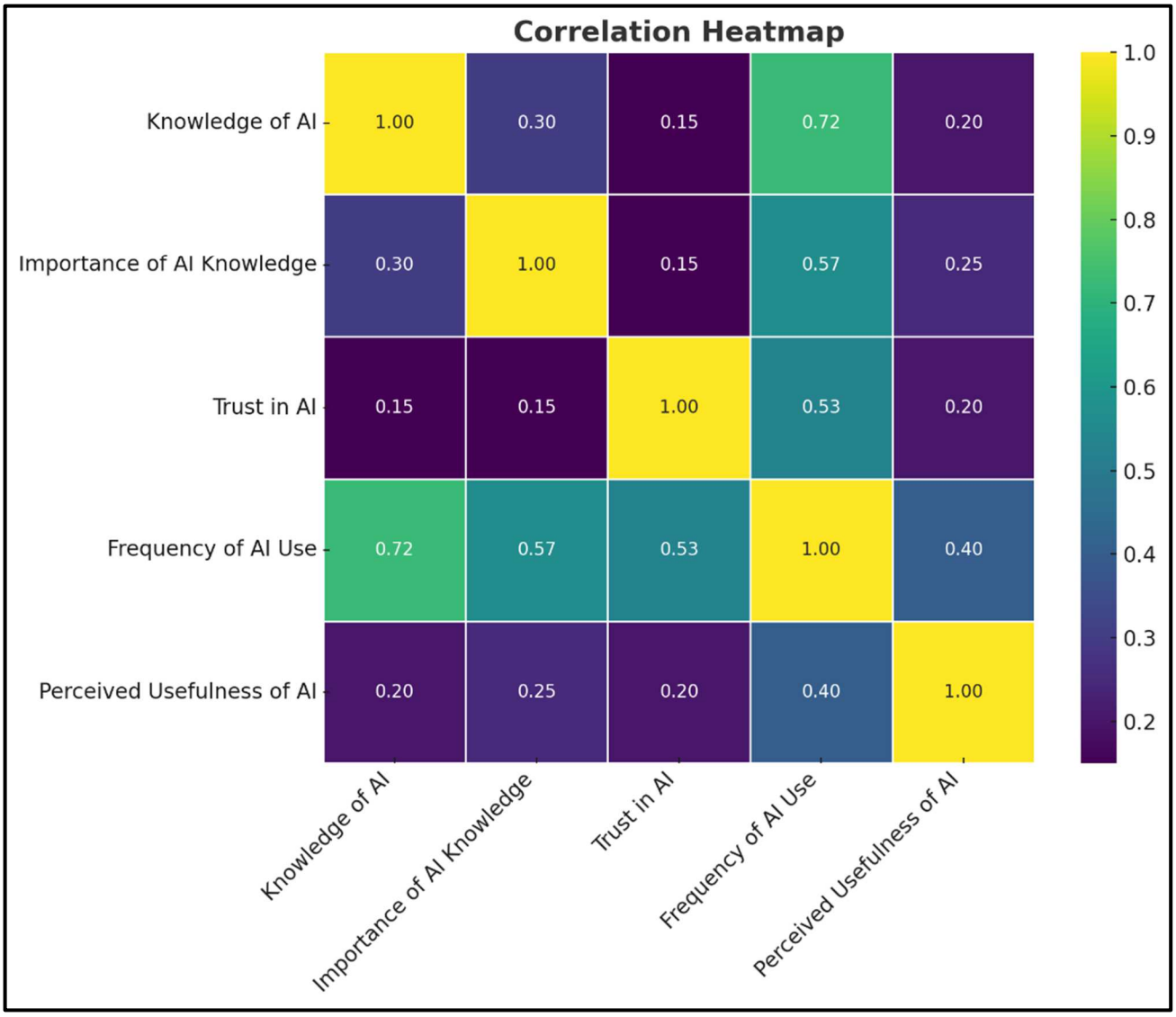
Figure 5
Correlation heatmap Source: ChatGPT Data Analyst *(OpenAI, 2023)*



Discussion

This study provides a comprehensive overview of the role of AI in higher education, with a particular focus on students' knowledge, trust, and usage attitudes toward AI, as well as the potential applications of machine learning in data analysis. The findings indicate that, while students generally possess a moderate level of AI knowledge, they often overestimate their understanding. This phenomenon underscores the need for structured and in-depth AI education in higher education institutions.

In the initial phase of the research, we found that students primarily obtain information about AI from social media, increasing the risk of misinformation and misconceptions. Trust in AI varied: students demonstrated greater trust in scientific and educational applications while showing less confidence in AI used in healthcare and financial advice. Furthermore, significant gender differences in trust were observed, with males showing higher levels of trust. Correlation and regression analyses revealed a strong association between AI usage frequency and perceptions of its usefulness, along with the importance placed on AI knowledge. These results support technology acceptance theories, which suggest that usage frequency and perceptions play key roles in technology integration and acceptance.

In the second phase, we explored the application of machine learning, specifically the GPT Data Analyst tool, in data analysis. Results showed that AI-based tools, like GPT Data Analyst, can effectively perform basic statistical analyses, such as calculating correlations and descriptive statistics. However, limitations were noted in handling more complex analyses and statistical assumptions, indicating that these tools currently serve more as supplements to traditional statistical software rather than complete replacements.

Conclusion

The results highlight that AI integration in education raises not only technological but also pedagogical and ethical considerations. Expanding students' AI knowledge and developing critical thinking skills are essential for responsible and effective technology use. Educational institutions must actively provide reliable information sources and a supportive environment for students. Examining the role of machine learning in data analysis reveals AI's significant potential in automating and simplifying analysis processes. However, given

current limitations, it is crucial that users are aware of both the strengths and weaknesses of these tools.

Recommendations based on study findings

- Develop integrated AI education: Incorporate AI and machine learning into curricula to provide students with deeper, more comprehensive knowledge and to foster critical thinking skills.
- Provide reliable information sources: Educational institutions should make credible and up-to-date resources on AI accessible to reduce the risk of misinformation.
- Emphasize ethical and privacy issues: AI development and application should focus on ethical considerations, including data privacy and minimizing algorithmic biases.
- Advance technological tools: Continue developing machine learning-based data analysis tools to handle more complex analyses and statistical assumptions.
- Encourage collaboration: Educational institutions, technology developers, and researchers should work together to effectively integrate AI-based tools.

AI and machine learning have a significant impact on both higher education and data analysis. Successful integration of technology depends not only on technological advances but also on how well students and educators can adapt to and accept these new tools. Knowledge, trust, and frequency of use are closely interconnected, and enhancing these areas will drive the most substantial progress. The key to future education lies in treating AI not merely as a tool but as an integral part of the learning process, thereby enhancing students' skills and competencies in the digital age.

References

Aljarrah, E., Elrehail, H., & Aababneh, B. (2016). E-voting in Jordan: Assessing readiness and developing a system. *Computers in Human Behavior, 63*, 860–867. https://doi.org/10.1016/j.chb.2016.05.076

Allcott, H., & Gentzkow, M. (2017). Social media and fake news in the 2016 election. *Journal of Economic Perspectives, 31(2),* 211–236. https://doi.org/10.1257/jep.31.2.211

Bilquise, G., Ibrahim, S., & Salhieh, S. M. (2023). Investigating student acceptance of an academic advising chatbot in higher education institutions. *Education and Information Technologies, 29(5),* 6357–6382. https://doi.org/10.1007/s10639-023-12076-x

Chen, J., Zhuo, Z., & Lin, J. (2023). Does ChatGPT play a Double-Edged Sword role in the field of higher Education? An In-Depth exploration of the factors affecting student performance. *Sustainability, 15(24),* 16928. https://doi.org/10.3390/su152416928

Cheng, K., Li, Z., Li, C., Xie, R., Guo, Q., He, Y., & Wu, H. (2023). The potential of GPT-4 as an AI-Powered virtual assistant for surgeons specialized in joint arthroplasty. *Annals of Biomedical Engineering, 51(7),* 1366–1370. https://doi.org/10.1007/s10439-023-03207-z

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13(3),* 319–340. https://doi.org/10.2307/249008

Eshet-Alkalai, Y., & Chajut, E. (2009). Changes over time in digital literacy. *CyberPsychology & Behavior, 12(6),* 713–715. https://doi.org/10.1089/cpb.2008.0264

Floridi, L., & Chiriatti, M. (2020). GPT-3: Its nature, scope, limits, and consequences. *Minds and Machines, 30(4),* 681–694. https://doi.org/10.1007/s11023-020-09548-1

Følstad, A., & Brandtzæg, P. B. (2017). Chatbots and the new world of HCI. *Interactions, 24(4),* 38–42. https://doi.org/10.1145/3085558

Glikson, E., & Woolley, A. W. (2020). Human trust in artificial intelligence: Review of empirical research. *Academy of Management Annals, 14(2)*, 627–660. https://doi.org/10.5465/annals.2018.0057

González, L. A., Neyem, A., Contreras-McKay, I., & Molina, D. (2022). Improving learning experiences in software engineering capstone courses using artificial intelligence virtual assistants. Computer *Applications in Engineering Education, 30(5),* 1370–1389. https://doi.org/10.1002/cae.22526

Goodfellow, I., Bengio, Y., & Courville, A. (2016). *Deep learning*. MIT Press.

Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial intelligence in education: Promise and implications for teaching and learning*. Center for Curriculum Redesign.

Howard, D., & Dai, D. (2014, January). Public perceptions of self-driving cars: The case of Berkeley, California. In *Transportation Research Board 93rd Annual Meeting* (Paper No. 14-4502). Transportation Research Board. https://escholarship.org/uc/item/3mg4s8rx

James, G., Witten, D., Hastie, T., & Tibshirani, R. (2013). *An introduction to statistical learning: With applications in R*. Springer. https://doi.org/10.1007/978-1-4614-7138-7

Jobin, A., Ienca, M., & Vayena, E. (2019). The global landscape of AI ethics guidelines. *Nature Machine Intelligence, 1(9),* 389–399. https://doi.org/10.1038/s42256-019-0088-2

Legi, H., Damanik, D., & Giban, Y. (2023). Transforming education through technological innovation in the face of the era of Society 5.0. *Educenter: Jurnal Ilmiah Pendidikan, 2(2),* 102–108. https://doi.org/10.55904/educenter.v2i2.822

Lewandowsky, S., Ecker, U. K. H., Seifert, C. M., Schwarz, N., & Cook, J. (2012). Misinformation and its correction. *Psychological Science in the Public Interest, 13(3)*, 106–131. https://doi.org/10.1177/1529100612451018

Long, D., & Magerko, B. (2020, April). What is AI literacy? Competencies and design considerations. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems* (pp. 1–16). ACM. https://doi.org/10.1145/3313831.3376727

Luckin, R., & Holmes, W. (2016). *Intelligence unleashed: An argument for AI in education.* Open Ideas at Pearson.

Macukow, B. (2016). Neural networks – state of art, brief history, basic models and architecture. In L. Rutkowski, M. Korytkowski, R. Scherer, W. Pedrycz, R. Tadeusiewicz, & J. M. Zurada (Eds.), *Artificial intelligence and soft computing* (Lecture Notes in Computer Science, Vol. 9692, pp. 3–14). Springer. https://doi.org/10.1007/978-3-319-45378-1_1

McCulloch, W. S., & Pitts, W. (1943). A logical calculus of the ideas immanent in nervous activity. *The Bulletin of Mathematical Biophysics, 5(4),* 115–133. https://doi.org/10.1007/BF02478259

Mehrabi, N., Morstatter, F., Saxena, N., Lerman, K., & Galstyan, A. (2019). *A survey on bias and fairness in machine learning* [Preprint]. arXiv. https://arxiv.org/abs/1908.09635

Ofosu-Ampong, K. (2023). Gender differences in perception of artificial intelligence-based tools. *Journal of Digital Art & Humanities, 4(2)*, 52–56. https://doi.org/10.33847/2712-8149.4.2_6

OpenAI. (2023). Advanced Data Analysis in ChatGPT (Version GPT-4o) [Computer software]. OpenAI. https://www.openai.com

Pallant, J. (2020). *SPSS survival manual: A step-by-step guide to data analysis using IBM SPSS* (7th ed.). Routledge.

Pandey, P., & Rai, A. K. (2023). Consumer adoption of AI-powered virtual assistants (AIVA): An integrated model based on the SEM–ANN approach. *FIIB Business Review*. Advance online publication. https://doi.org/10.1177/23197145231196066

Pickover, C. A. (2024). *Artificial intelligence: An illustrated history.* Union Square & Company.

Russell, S. J., & Norvig, P. (2020). *Artificial intelligence: A modern approach* (4th ed.). Pearson.

Slaughter, R. A. (1999). *Futures for the third millennium: Enabling the forward view.* Prospect Media.

The MathWorks. (2021). MATLAB (Version 9.11.0 R2021b) [Computer software]. https://www.mathworks.com/ .

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly, 27(3)*, 425–478.

Wang, F., King, R. B., Chai, C. S., & Zhou, Y. (2023). University students' intentions to learn artificial intelligence: the roles of supportive environments and expectancy–value beliefs. *International Journal of Educational Technology in Higher Education, 20(1)*. https://doi.org/10.1186/s41239-023-00417-2

Watiktinnakorn, C., Seesai, J., & Kerdvibulvech, C. (2023). Blurring the lines: how AI is redefining artistic ownership and copyright. *Discover Artificial Intelligence, 3(1)*. https://doi.org/10.1007/s44163-023-00088-y

Xie, Y., Huang, Y., Luo, W., Bai, Y., Qiu, Y., & Ouyang, Z. (2022). Design and effects of the teacher-student interaction model in the online learning spaces. *Journal of Computing in Higher Education, 35(1),* 69–90. https://doi.org/10.1007/s12528-022-09348-9

Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education – where are the educators? *International Journal of Educational Technology in Higher Education, 16*, Article 39. https://doi.org/10.1186/s41239-019-0171-0

Zhu, W., Huang, L., Zhou, X., Li, X., Shi, G., Ying, J., & Wang, C. (2024). Could AI ethical anxiety, perceived ethical risks and ethical awareness about AI influence university students' use of generative AI products? An ethical perspective. *International Journal of Human-Computer Interaction, 1–23.* https://doi.org/10.1080/10447318.2024.2323277

APPENDIX

1. Please provide your age.

2. Please indicate your gender.

- Male
- Female

3. Where do you live?

- Capital city
- Large city (over 50,000 people)
- Small town (under 50,000 people)
- Village

4. What is your highest level of education?

- High school
- University/BSc
- University/MSc
- Other

5. How well do you know artificial intelligence (AI)?

1 (Not at all) – 5 (Very knowledgeable)

6. How important is knowledge of AI technologies for your current studies?

1 (Not important at all) – 5 (Essential)

7. How would you briefly define artificial intelligence?

8. Briefly summarize how you think AI works!

9. Which AI technology are you most familiar with? (You may select multiple answers)

- Chatbots (e.g., ChatGPT)
- Image and voice recognition
- Autonomous vehicles
- Robotics
- Recommendation systems (e.g., Netflix, Spotify)

10. From what sources do you gather information about AI? (You may select multiple answers)

- School education
- Online courses
- Professional articles
- Books
- Social media

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11. How much do you trust the answers provided by AI?

1 (Not at all) – 5 (Completely)

12. In which areas do you trust AI's answers more? (You may select multiple answers)

- Scientific information
- Educational materials
- Healthcare-related questions
- Financial advice

13. Has your trust been affected if the information provided by AI was incorrect?

- Yes, it significantly affected my trust.
- Yes, but only slightly.
- I have not experienced this.

14. How often do you use AI-based tools in your studies?

1 (Never) – 5 (Almost always)

15. How useful do you find AI for your studies?

1 (Not useful at all) – 5 (Very useful)

16. What role do you think AI will play in the future of education?

- It will not play a significant role.
- It will bring minimal changes.
- It will introduce important developments.
- It will transform a significant part of education.
- It will completely change the educational system.

17. Do you think AI might one day be capable of performing tasks that require creativity, such as essay writing or creating artwork?

1 (Not at all) – 5 (Fully capable)

18. Could you imagine having an AI-based teacher assist with your studies?

- Yes, it would be interesting.
- Only for certain subjects.
- I would prefer a personal teacher.
- I would not prefer to learn from AI.

19. What ethical issues do you see with the use of AI in education? (You may select multiple answers)

- Data privacy concerns
- Biased algorithms
- Hindrance to students' personal development
- The diminishing role of educators

20. If given the opportunity, would you be interested in taking courses or training on AI?

- Yes
- No
- I'm not sure

Challenges in Social Pedagogy

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Digital Education for Roma Students

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ABSTRACT

This study explores the challenges and opportunities of digital education for Roma youth in Hungary, focusing on the reproduction of social inequalities and the digital divide. Utilizing Bourdieu's (1970) theory of social inequality reproduction and DiMaggio and Hargittai's (2001) concept of digital inequality, the research examines both the barriers and strategies for integrating Roma students into digital education. Data were gathered from a literature review, expert interviews, a focus group study with disadvantaged Roma youth, and quantitative findings from a mentoring program aimed at enhancing psycho-social well-being among marginalized individuals. The mentoring study provided crucial insights into the role of reduced anxiety and improved emotional resilience in facilitating participation in educational programs. Findings indicate that limited access to digital devices and insufficient digital literacy contribute to the perpetuation of social disparities, while psycho-social challenges further hinder engagement. The study highlights the significant role of local institutions, such as the Opályi Teleház, in addressing these challenges by offering targeted digital skills training and emotional support. However, issues such as lack of motivation and cultural differences in technology use persist. Effective digital education strategies should incorporate playful, interactive learning methods using familiar technologies, such as smartphones, while addressing psycho-social barriers through mentoring and support programs. The study concludes that addressing digital inequality requires culturally tailored educational programs and holistic support systems to bridge the digital divide and enhance social inclusion for marginalized communities.

KEYWORDS

digital education, Roma students, cultural inclusion

INTRODUCTION

As a second-year PhD student in Sociology at the University of Debrecen, my research focuses on the critical issue of digital inequalities, with particular emphasis on the digital device usage patterns among Roma communities in Hungary. The topic of my doctoral dissertation is centered on understanding the digital divide and its impact on marginalized populations, especially the Roma. In addition to my academic pursuits, I work at the Directorate-General for Social Inclusion, where I contribute to initiatives aimed at enhancing digital inclusion for Roma communities. This dual perspective (both academic and professional) allows me to approach the subject of digital inequalities from both a theoretical and practical standpoint. The relevance of this study lies in the increasing importance of digital literacy and access in contemporary society. Digital tools and skills are not only essential for educational success but are also vital for social and economic participation. However, Roma communities often face significant barriers to digital access and literacy, perpetuating existing social and economic disparities. Moreover, psycho-social challenges such as high anxiety levels and limited emotional resilience further hinder their ability to engage with digital education programs effectively.

To address these multifaceted barriers, this research integrates findings from both qualitative and quantitative studies, including data from a mentoring program focused on improving psycho-social well-being among marginalized individuals. By examining these intertwined challenges in detail, the study contributes to the broader discourse on digital inequality while offering potential strategies (both technological and psycho-social) for reducing the digital divide and promoting social inclusion in marginalized communities.

LITERATURE REVIEW

THEORETICAL BACKGROUND:

Pierre Bourdieu (1970), a French sociologist, in his influential work The Reproduction of Social Inequalities, explores how social inequalities are perpetuated through societal institutions, particularly the educational system. A central question in Bourdieu's analysis is how schools and cultural institutions maintain and reproduce social hierarchies. His key concept, habitus, refers to the ingrained values, beliefs, and behavioral patterns individuals acquire from their family and environment, shaping their ability to meet societal expectations. Bourdieu identifies three types of capital: economic, cultural, and social. Economic capital refers to material wealth, while cultural capital includes skills, knowledge, and qualifications gained through family or education, providing an advantage in navigating social hierarchies. Social capital encompasses resources accessed through social networks. Bourdieu argues that while the education system appears meritocratic, it actually reproduces the dominance of the upper middle class, as schools transmit norms and values aligned with those of the societal elite. As a result, students with cultural capital from privileged backgrounds fare better, perpetuating existing social inequalities. Bourdieu's theory emphasizes that social mobility is constrained, and these inequalities are deeply embedded in social structures. For marginalized communities like the Roma, psycho-social barriers such as anxiety and low self-efficacy further constrain their ability to leverage digital education opportunities, demonstrating how habitus interacts with digital inequality

Manuel Castells, in his trilogy The Information Age (2005), The Power of Identity (2006), and End of Millennium (2007), explores the rise of the network

society. Castells (2005) argues that information is the key resource in this society, organized through network logic. Information technologies reshape communication, creating new communal spaces for democratic discourse (Castells, 2005). Technological advances drive widespread social and economic changes, including shifts in the workplace, such as the spread of remote work, where employees increasingly manage their own working hours (Castells, 2006). While some view this as democratizing, it can also lead to self-exploitation, as work extends beyond traditional hours (Castells, 2007). Gosta Esping-Andersen (1990) previously warned of the dangers of this shift, which threatens workers' rights. The rise of project-based work, driven by technology, adds administrative burdens and pressure from milestones (Castells, 2005). Communication has significantly evolved, creating a "space of flows" where social and economic interactions occur (Castells, 2006). Geographic distances have become less significant, and time has transformed, with the global economy operating continuously (Castells, 2007). As the network society expands, nation-states lose influence, while globalization increases at regional and supranational levels (e.g., the European Union) (Castells, 2007). Castells (2007) introduces "informationalism," arguing that in a globalized world, time is compressed, and digital communication channels replace traditional mass media with interactive, personalized systems.

Daniel Bell (1976), as early as the 1970s, recognized the significance of the emerging information society and wrote about how knowledge centers form in this new societal structure. These centers play a critical role in directing information flows and shaping global knowledge production networks. According to Bell, these centers are organized not only based on technological innovations but also through the concentration of intellectual resources around which networks are built. In Bell's conception, the knowledge-based society's primary feature is that economic growth and social development are increasingly determined by knowledge and information, rather than traditional industrial production. Thus, Bell laid a significant theoretical foundation for later theories of the information and network society, which emphasize the central role of knowledge and information in modern societies (Bell, 1976).

Paul DiMaggio and Eszter Hargittai (2001), in their study From the 'Digital Divide' to 'Digital Inequality': Studying Internet Use as Penetration Increases, address the issue of digital inequality stemming from technological advancement and differences in internet access. The authors point out that while early discourse focused on the "digital divide" (whether someone had access to the internet or not) attention should instead be placed on digital inequality. This concept not only examines the presence or absence of access but also considers the quality of technical tools, the autonomy of use, user skills, the level of social support, and the various purposes for which the internet is utilized. DiMaggio and Hargittai argue that digital inequality is a complex and multidimensional problem based on various factors. These include the quality of individuals' technological tools, the strength of their internet connection, their freedom to use the internet (e.g., in a home or workplace environment), their internet-related skills, and the level of social support they receive. These factors significantly influence how well people can take advantage of the benefits offered by the internet, such as education or achieving career goals. The authors emphasize that as internet access becomes more widespread, social inequalities take on new forms, shifting the central question to what and how people can achieve online. Digital inequalities do not arise solely from individual resources but are also influenced by political and economic factors. DiMaggio and Hargittai suggest that research on digital inequalities should be expanded to examine differences among online users, and models should be developed to uncover the causes of these inequalities. Furthermore, it is important to investigate how technology use affects individuals' lives and outcomes and to analyze the role of institutional factors in digital access and usage. Finally, the study highlights the crucial task of the social sciences to help understand and predict the societal consequences of technological changes during the digital revolution. As technological and internet development progressed in the 1990s, studies examining its effects received increasing attention, particularly in post-communist countries where the relationship between democratization and technological development garnered special interest. Building on DiMaggio and Hargittai's multidimensional view of digital inequality, this research also examines the intersection of digital access and psycho-social factors. A mentoring program designed to improve emotional resilience among disadvantaged individuals highlights how addressing anxiety and fostering well-being can enhance the ability to engage with digital tools and education.

Pippa Norris (2001), in Digital Divide, thoroughly examines the concept of the digital divide, which refers to the inequalities arising in the information society. Norris highlights that while the 1990s' technological development was met with optimism, by the early 2000s, it became increasingly clear that new technologies were not equally accessible to all segments of society. Thus, the digital divide became not only a technological factor but also a factor dividing social classes. Norris (2001) argues that the differences in access to technological devices and the ways in which these devices are used significantly contribute to the deepening of democratic inequalities. The digital divide does not arise solely from a lack of access but also from individuals' ability to use technological devices for certain purposes and at different levels. This is particularly problematic for social groups that, due to economic and social reasons, cannot fully benefit from the advantages of technological development. As DiMaggio and Hargittai (2001) emphasize, digital inequality is a multidimensional phenomenon, defined not only by access but also by differences in technological skills, the freedom to use technology, and the level of social support. Thus, the digital divide contributes to the reproduction of existing social and economic inequalities (DiMaggio & Hargittai, 2001). Norris (2001) argues that the digital divide is not only a technological challenge but also a political and social issue. Strengthening democratic institutions requires that individuals have equal access to information and the opportunities for online participation. The lack of this access leads to further inequalities, particularly in political participation and educational opportunities (van Dijk, 2005). Therefore, the digital divide is not just a matter of technological infrastructure but a critical issue concerning social justice and equality, which Norris and

other researchers highlight as one of the greatest challenges of the digital age.

Soker (2005) suggests that beyond income (capital) differences, cultural factors also play a significant role in digital inequality. Z. Soker's research indicates that ethnic and gender differences are important factors in digital access and the way technology is used. The study shows that digital inequality is not only based on access but also on cultural differences between various social groups. In this context, mentoring programs that address emotional and cultural dimensions, such as those designed for Roma communities, provide critical insights into how targeted interventions can mitigate the effects of digital inequality.

HUNGARIAN RESEARCH ON DIGITAL INEQUALITIES:

Research by Sinka (2011) examined the objectives of the Hungarian Information Society Strategy, which aimed to promote digital inclusion by increasing access and attempting to reduce the digital divide in Hungary. Sinka (2011) notes that while the Hungarian Information Society Strategy improved access, it overlooked cultural and social differences in technology usage. Digital inequalities are not only manifested in the level of access but also in the quality and methods of use, showing significant differences between various social strata. Research on the information society highlights that the availability of technological tools and their usage are influenced by socioeconomic status, educational level, and cultural capital.

Galán Anita (2015) conducted an in-depth study of digital inequalities among 15–17-year-olds, finding that territorial and income inequalities are closely related to ownership and access to ICT tools. Her research showed that the lack of access to digital devices significantly contributes to the reproduction of social inequalities, as acquiring digital skills increasingly important in education and the labor market presents obstacles. Therefore, the digital divide further exacerbates existing socio-economic disparities, particularly in disadvantaged communities where infrastructure and device shortages deepen social inequalities (Galán, 2015).

In another study, Galán (2021) examined the evolution of digital inequalities during distance learning, especially during the COVID-19 pandemic lockdowns. Measures introduced due to the pandemic, such as working from home and distance learning, posed significant challenges, especially for marginalized groups already disadvantaged in the labor market and education. Based on DiMaggio and Hargittai's (2001) research, digital inequalities can be understood across five key dimensions: disparities in technical equipment and network access quality; the purposes and content of internet usage; differences in skills and abilities; the level of social support; and the autonomy of use. Distance learning particularly disadvantaged young people living in small settlements, especially in Roma communities. Interviews revealed that the lack of access to digital tools and the internet exacerbated educational inequalities. Expert interviews highlighted that these groups often lacked adequate technical tools and a stable internet connection, which significantly hindered their participation in distance learning. Therefore, digital inequalities arise not only from a lack of access to tools but also from differences in digital skills, availability of technical support, and how technology is used. These inequalities can not only conserve social stratification but deepen the disparities between various social groups (Galán, 2021). Building on Galán's findings, this research incorporates data from a mentoring program that addresses not only access-related disparities but also psycho-social barriers. The program demonstrated measurable improvements in emotional resilience, highlighting how psycho-social support can complement digital education initiatives

In her study, Racsko Réka (2020) thoroughly examines the need and methods for developing digital competencies in education, particularly in light of 21st-century technological development. The author emphasizes that technological innovations have triggered significant social and educational transformations, making the digital transition inevitable in public education. Integrating information and communication technologies (ICT) into education requires not only modernizing teaching methods but also developing students' digital competencies. Racsko highlights two successful international examples, comparing Estonia and Finland's national curricula and information strategies, which can serve as models for integrating digital technologies into schools. Based on these analyses, the author makes recommendations for advancing the digital transition in the Hungarian education system, emphasizing that developing digital literacy contributes not only to individuals' labor market competitiveness but also to societal development as a whole. Educational systems must continuously adapt to the new technological environment by integrating digital tools and methods into learning processes to prepare future generations for the challenges of the information society (Racsko, 2020).

The need for developing digital competencies is further supported by various studies. Molnár and Kláris (2016) point out that digital literacy encompasses more than just technical skills; it also involves critical thinking, problem-solving, and the conscious use of technology. Similarly, Voogt and Roblin (2012) emphasize that the core elements of 21st-century competencies include collaboration, communication, creativity, and the use of ICT tools, all of which are essential for modern educational systems.

Rab Árpád and Z. Karvalics László (2013) examine digital poverty and the development of information literacy, especially in relation to improving children's life chances. They argue that the digital divide deepens social inequalities, particularly among disadvantaged groups. The study emphasizes that the key to competitiveness lies not in technology itself, but in human capacity—specifically, individuals' ability to use technology effectively. ICT can significantly address poverty by enhancing the efficiency of individuals and communities. The authors identify three generations of information literacy. The first focuses on basic literacy skills, including computer literacy and application use. The second generation emphasizes the effective use of digital resources, such as searching, network navigation, and content creation. The third generation involves transferring social practices to the digital realm, like online shopping and civic participation. Action-literacies are crucial here, including game literacy (the pedagogical role of games), scientific literacy (knowledge acquisition), health literacy (well-being), and

participatory literacy (organizing online democracy tools and community actions) (Rab & Karvalics, 2013).

Fehérvári Anikó's (2017) study examines the issue of digital inequality in Hungary, with particular attention to the country's position in European comparisons. The study emphasizes that Hungary is among the digitally lagging nations, and inequalities in digital literacy are becoming increasingly evident. However, digital inequality is not only the result of differences in internet access; how individuals use the internet and for what purposes also plays a significant role. According to Fehérvári (2017), the quality of access and the objectives of online activities vary significantly among different social groups, which further exacerbates social inequality. The study finds that, in terms of internet access, Hungary lags behind the European average, although household internet access has increased in recent years. In 2019, approximately 80% of households had internet access, which remains below the European average. Regional disparities are also significant: in smaller settlements, slower and more expensive internet is available, deepening digital inequality further. Fehérvári (2017) also points out that digital inequality stems not only from access but also from differences in usage. Research shows that higher-status social groups make better use of the advantages of the internet, while lower-status groups have fewer opportunities to develop digital competencies. The relationship between digital literacy and educational performance follows similar patterns to traditional educational inequalities. Disadvantaged students have less access to digital devices and the internet, which further exacerbates social disparities. The challenges highlighted by Fehérvári resonate with Szűts' findings on the role of education in addressing ICT disparities, emphasizing the need for comprehensive interventions that combine digital and educational reforms.

Zoltán Szűts' (2014) study examines the theoretical framework and application of digital pedagogy in teaching and learning processes, presenting the findings of a 2014 study conducted at Eszterházy Károly University. The research highlights that inequality in access to information and communication technologies (ICT) is primarily explained by differences in economic resources. According to Szűts (2014), while income level is an important factor, the level of education is an even more significant determinant in the use of ICT tools. The study's findings also reveal that the younger an individual is, the more likely they are to use these tools for productive activities, as indicated by the "Useful Use Index." Szűts (2014) also emphasizes the close relationship between user proficiency and engaging in useful activities. The higher the level of an individual's information and communication knowledge, the more likely they are to use technology for productive and beneficial purposes, such as learning, working, or other creative activities.

In her 2023 study, Dunajeva examines the support provided by Roma Colleges for Advanced Studies to Roma university students during the COVID-19 pandemic, focusing on the unique challenges they faced. The research highlights how these colleges addressed the specific needs of Roma students by adapting to remote learning, providing essential academic and emotional support. Roma Colleges played a key role in helping students who struggled with limited access to digital tools by offering laptops and internet access. Mentors maintained regular contact with students, offering guidance and emotional support, which helped them manage the isolation and stress of the pandemic. The study underscores the importance of personalized mentoring and community support in fostering both academic success and mental well-being among Roma students. Overall, the findings emphasize that the Roma College network was instrumental in supporting Roma students' personal and academic development during a period of great upheaval (Dunajeva, 2023). In line with Dunajeva's emphasis on personalized mentoring, this research demonstrates that targeted mentoring programs can mitigate barriers specific to Roma communities by enhancing both digital and emotional competencies, crucial for engaging with digital education.

Molnár, Námesztovszki, and Glušac (2020) examine the societal and educational responses to the COVID-19 pandemic in Hungary and Serbia. Traditional, in-person education was replaced by online formats, making a wide range of digital content and databases—previously available only through paid services—accessible for free. The study provides a detailed overview of the K-MOOC project, launched in Hungary in 2016 to promote Hungarian-language online education across the Carpathian Basin, and the Webuni platform, which supported less formal, community-based knowledge sharing. In Serbia, the "Moja škola" platform and RTS television channels became the main educational tools during the pandemic. The study also highlights the significant difficulties faced by disadvantaged students in accessing online education, as they often lacked proper technical equipment or internet access. Despite efforts by the Serbian Ministry of Education and other organizations to provide technical devices to these students, many were still unable to participate in online education. The study discusses future plans, including the integration of online platforms such as Moodle and MS Teams, as well as the development of teachers' digital competencies (Molnár, Námesztovszki, & Glušac, 2020).

Fejes and Szűcs (2021) analyze the impact of the digital education measures introduced during the COVID-19 pandemic on disadvantaged students, with a particular focus on students participating in Hungary's After-School Program (ASP). The research aims to uncover the challenges these students faced and identify necessary interventions to overcome them. Data collection was carried out via an online questionnaire completed by 48 ASP teachers who supported more than 1,000 disadvantaged students and their families. The results indicate that numerous barriers to digital education emerged, including a lack of appropriate digital devices and internet access, low levels of digital skills among students and their parents, and difficulties in maintaining continuous communication with teachers. The research also revealed significant disparities between schools and ASPs in terms of the support provided to students and the availability of learning materials. The authors suggest that greater emphasis should be placed on providing digital devices, developing the skills necessary for independent learning, and strengthening cooperation between schools and ASPs to more effectively integrate disadvantaged students into digital education (Fejes & Szűcs, 2021).

This study extends these discussions by presenting findings from a mentoring program tailored for

marginalized groups in Hungary. By addressing psycho-social barriers alongside digital inequalities, the program underscores the importance of integrated approaches to fostering digital inclusion and social mobility among disadvantaged communities, particularly Roma youth.

AIMS, RESEARCH QUESTIONS AND HYPOTHESES

The primary aim of this research is to examine how digital inequalities affect Roma youth's access to education and employment opportunities. The study investigates the barriers to digital literacy, device usage, and psycho-social readiness in disadvantaged Roma communities. By integrating findings from a mentoring program, the research also explores the role of emotional resilience and reduced anxiety in facilitating engagement with digital tools and education. The hypothesis is that limited access to digital tools, inadequate digital skills, and psycho-social challenges significantly perpetuate social and economic inequalities among Roma youth. It is further hypothesized that targeted interventions, such as mentoring programs, can mitigate these barriers by addressing both technical and emotional dimensions of digital inclusion.

METHODS

The research sample consisted of three distinct groups. The first group comprised 15 disadvantaged, unemployed young Roma adults from Szerep, Hungary, who were purposively selected as part of the "Active for Knowledge" project aimed at enhancing digital skills. This group included participants aged 18–36, representing both genders, and encompassing both parents and non-parents to ensure diversity. The second participant was Ilona Erdélyi, the head of the Opályi Teleház, chosen for her extensive two-decade experience in leading digital literacy programs tailored for Roma communities. The third group included participants from a large-scale mentoring program involving over 11,000 individuals from disadvantaged backgrounds, among whom Roma individuals were significantly represented. The program assessed participants' emotional resilience and digital readiness using standardized tools such as the State-Trait Anxiety Inventory (STAI) and the WHO-5 Well-Being Index, offering quantitative insights into the psycho-social dimensions of digital exclusion. Data collection employed both qualitative and quantitative methods. A focus group interview was conducted on June 23, 2023, with the Roma participants, exploring their use of digital devices, including smartphones, computers, and smart TVs, alongside their access to technology and perceptions of digital education. Key themes discussed included internet access, children's technological education, and online administrative tasks. A semi-structured expert interview was conducted with Ilona Erdélyi, delving into her experiences managing a community space dedicated to digital education for Roma youth, the challenges faced by this community, and effective strategies to foster engagement in digital learning. Quantitative data from the mentoring program further enriched the research, with pre- and post-intervention assessments measuring changes in participants' anxiety levels and emotional resilience. These assessments utilized tools such as the STAI and WHO-5, providing valuable insights into the connection between emotional well-being and digital education readiness. The analysis combined thematic and statistical methods to provide a comprehensive understanding of digital exclusion and its broader implications. Thematic analysis was applied to the focus group and interview transcripts to identify recurring themes related to access to digital devices, barriers to digital education, and effective methods for enhancing digital literacy. Statistical analysis of the mentoring program's quantitative data assessed improvements in psycho-social indicators, including reduced anxiety and enhanced emotional well-being. This mixed-methods approach enabled a nuanced exploration of the interplay between social inequalities and psycho-social readiness in the Roma community, contributing to a holistic understanding of digital exclusion.

RESULTS

FOCUS GROUP INTERVIEWS: DIGITAL DEVICE USAGE AND BARRIERS

The focus group interview was conducted in Szerep, Hungary, at the local library on June 23, 2023. The aim of the study was to explore participants' digital device usage habits, access opportunities, and related opinions. The group consisted of disadvantaged, unemployed young Roma adults aged 18–36, who received training as part of the "Active for Knowledge" project. The participants included both parents and non-parents, ensuring diverse perspectives. The discussion covered various aspects of daily digital technology use, including smartphones, computers, smart TVs, internet usage habits, children's education in technology, and online administration and shopping. Smartphones emerged as the dominant device: nearly all participants used them daily, while desktop and laptop usage was less common. Participants highlighted that smartphones were indispensable for tasks such as entertainment, online shopping, bill payments, and applying for family allowances, often facilitated through platforms like Facebook Marketplace. The internet was primarily used for entertainment purposes, including online gaming, video streaming (YouTube, Netflix), and social media engagement. Despite the widespread availability of digital devices in rural areas, the quality of internet access varied significantly, posing challenges for consistent usage. Participants noted that while younger generations quickly adapted to using digital devices, older generations faced difficulties, especially in rural settings with limited connectivity. This generational digital gap impacts education and employment opportunities, perpetuating social inequalities. Younger participants reported developing problem-solving skills independently, often through tutorial videos, underscoring the importance of digital literacy in fostering autonomy.

EXPERT INTERVIEW WITH ILONA ERDÉLYI: CHALLENGES AND OPPORTUNITIES IN DIGITAL EDUCATION

The interview with Ilona Erdélyi, head of the Opályi Teleház, provided valuable insights into the challenges and opportunities in digital education for Roma youth. As the first community space in the village to offer internet access since its establishment in 1999, the Teleház has played a pivotal role in improving digital literacy and revitalizing local community life. Erdélyi emphasized that the community's use of digital devices varied by age group. While younger generations primarily engaged in entertainment-related activities, older individuals used digital tools for job searching and online administration.

However, the lack of access to computers and low levels of digital literacy within the community posed significant barriers to progress. Limited motivation among participants was a recurring challenge, reflecting findings in the literature on digital skill acquisition. The Teleház implemented various strategies to address these barriers, such as integrating playful, game-based learning methods that leveraged familiar devices like smartphones. These approaches were particularly effective, as they reduced intimidation and increased confidence among participants. For instance, grandparents attending courses learned to send emails and share photos, demonstrating the adaptability of these programs. The introduction of the European Computer Driving Licence (ECDL) program and other initiatives aimed to develop essential digital skills, such as document management and internet navigation. However, Erdélyi stressed the importance of tailoring programs to meet participants' specific needs and ensuring ongoing support to keep pace with technological advancements.

Quantitative Insights from the Mentoring Program

The mentoring program analyzed in this study provided a wealth of quantitative data, shedding light on the psycho-social dimensions of digital readiness among disadvantaged individuals, including a significant number of Roma participants. Over the program's duration, which spanned six years and engaged more than 11,000 individuals, various standardized tools, such as the State-Trait Anxiety Inventory (STAI), WHO-5 Well-Being Index, and Psychological Immune Competence Questionnaire (PIK), were employed to assess the participants' mental health, coping mechanisms, and life quality. These tools allowed for a comprehensive evaluation of the program's impact. The results were profound, with measurable reductions in participants' anxiety levels and significant improvements in well-being and coping abilities. At the program's outset, average STAI scores indicated heightened anxiety, particularly among women (43.3) and men (42.2), both of which surpassed clinically significant thresholds. By the program's conclusion, anxiety levels decreased substantially to 38.2 for women and 38.1 for men.

Table 1
Comparing pre- and post-intervention scores for STAI, WHO-5, and PIK (own work)

Metric	Younger Participants (<30)	Older Participants (>30)	Women	Men
STAI Improvement	-10%	-15%	-12%	-10%
WHO-5 Improvement	+25%	+30%	+29%	+26%
PIK Improvement	+8%	+12%	+12%	+11%

These changes, reflecting a return to normative anxiety levels, highlight the effectiveness of mentoring in mitigating emotional distress. The analysis also revealed generational and gender-based nuances. Younger participants demonstrated lower initial anxiety levels and greater adaptability to digital challenges, while older adults experienced higher anxiety but benefited the most from mentoring interventions. Well-being improvements were equally striking. Participants' WHO-5 scores, which assess life satisfaction, rose significantly during the program. For instance, women's scores increased from an initial 54.6 to 70.5, and men's scores from 53.5 to 67.5. These changes signified a transition from moderate satisfaction to strong well-being. Interestingly, improvements in well-being were inversely correlated with age, with younger participants achieving the highest scores but older participants showing the largest relative gains, underscoring the program's ability to address age-related vulnerabilities. The Psychological Immune Competence Questionnaire (PIK) provided additional insights into participants' resilience and coping strategies. At the program's start, PIK scores for both men (200.2) and women (197.9) fell significantly below the national average of 234.7, reflecting limited emotional resources to manage stress and challenges. By the program's conclusion, these scores rose sharply, reaching 221.5 for men and 222.6 for women, nearly closing the gap with the national average. This improvement was particularly pronounced among older participants, whose scores increased by nearly 30 points, highlighting the transformative impact of mentoring on emotional resilience across life stages. Key social factors, including family status and education level, further contextualized these results. Married individuals displayed the highest anxiety levels initially, while single participants reported the lowest. By the end of the program, married participants still exhibited higher levels of stress compared to their single counterparts, albeit with notable reductions. Similarly, educational background strongly influenced outcomes. Participants with a high school diploma achieved the highest well-being and resilience scores, while those with only vocational qualifications consistently scored lower across all measures, emphasizing the interplay between education and psycho-social readiness.

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Table 2
Comparison of outcomes by age and gender (own work)

Metric	Initial Score (Men)	Final Score (Men)	% Change (Men)	Initial Score (Women)	Final Score (Women)	% Change (Women)
STAI (Anxiety)	42.2	38.1	-9.7%	43.3	38.2	-11.8%
WHO-5 (Well-being)	53.5	67.5	+26.2%	54.6	70.5	+29.2%
PIK (Resilience)	200.2	221.5	+10.7%	197.9	222.6	+12.5%

The program's structured mentoring approach played a pivotal role in these outcomes. Initial sessions focused on building trust and identifying emotional barriers, laying the groundwork for participants to engage with digital tools confidently. Later phases emphasized skill development tailored to individual needs, from basic digital literacy to advanced job-related competencies. These phases culminated in group sessions fostering peer support and community cohesion, which were particularly effective in Roma communities where social networks are vital for engagement. These quantitative results align closely with qualitative findings from the focus group interviews and expert discussions. Participants with enhanced emotional resilience demonstrated greater confidence in engaging with digital education and administrative tasks. This alignment underscores the importance of integrating psycho-social and technical support in digital inclusion programs. The mentoring program also revealed the critical role of culturally relevant approaches, such as leveraging familiar devices like smartphones, which reduced intimidation and increased participation. Overall, the findings illustrate that addressing emotional barriers is as crucial as providing technical training for fostering digital readiness. Programs combining psycho-social support with skill development offer a scalable and impactful model for bridging digital divides. The mentoring program not only improved participants' emotional well-being and coping mechanisms but also equipped them to navigate digital environments more effectively, paving the way for greater social and economic integration.

Synthesis of Findings

The results from the focus group, expert interview, and mentoring program collectively highlight that while digital devices like smartphones have become integral to daily life, significant disparities remain in digital literacy and access quality. Younger generations are more adept at integrating into the digital world, whereas older and rural populations face persistent challenges. Addressing these barriers requires a dual approach that combines technical skill development with psycho-social support. Programs such as the mentoring initiative and the tailored educational strategies of the Opályi Teleház provide effective models for bridging the digital divide, fostering both social inclusion and digital competency.

Discussion

This study explored the digital device usage patterns of Roma youth, the challenges associated with digital education, and potential responses to these challenges, drawing on a literature review, expert interviews, and focus group discussions. Two main theoretical frameworks guided the analysis: Bourdieu's (1970) theory of the reproduction of social inequalities and DiMaggio and Hargittai's (2001) concept of the digital divide. These frameworks provided a lens through which to understand the persistent disparities in access to and effective use of digital tools among Roma communities. A key finding from the study is that limited access to digital devices, coupled with insufficient digital skills, significantly contributes to the reproduction of social inequalities. This aligns with existing literature (e.g., Norris, 2001), which emphasizes that digital inequality extends beyond mere access to include disparities in skills, usage patterns, and opportunities for meaningful engagement with technology. For Roma youth, these challenges are exacerbated by structural barriers such as poverty, low levels of literacy, and inadequate educational support. Insights from the expert interview with Ilona Erdélyi highlighted the substantial contributions of the Opályi Teleház to the digital development of local communities. The Teleház has played a crucial role in providing access to digital tools and training programs for Roma youth. However, the dominance of smartphones as the primary device for digital engagement poses a limitation. While smartphones are widely used for entertainment, their potential for educational purposes remains underutilized. Programs offered by the Teleház, such as email communication, document management, and internet navigation training, have made progress in enhancing digital skills. Yet, challenges such as low motivation and limited resources continue to hinder sustained development. Complementing these findings, data from the mentoring program shed light on the psycho-social dimensions of digital exclusion. Participants in the mentoring program demonstrated significant improvements in emotional resilience and reduced anxiety, as evidenced by decreases in STAI scores and increases in WHO-5 well-being scores. These outcomes highlight the critical role of emotional readiness in fostering digital engagement. Participants who exhibited lower anxiety and greater emotional stability were more confident in learning and applying digital skills. This suggests that addressing psycho-social barriers, alongside technical training, is essential for achieving meaningful digital inclusion. Moreover, the findings underscore the importance of tailored and culturally sensitive approaches to digital education. The use of familiar devices, such as smartphones, in interactive and game-based learning programs has proven particularly effective in engaging Roma youth. This method not only reduces intimidation but also aligns with participants' existing habits and preferences, making the learning process more accessible. In conclusion, while programs like the Teleház have made strides in bridging the digital divide, a multifaceted approach is needed to address the root causes of digital exclusion. This includes expanding access to digital tools, developing targeted digital literacy programs, and

integrating psycho-social support mechanisms. The mentoring program's success in improving emotional resilience provides a model for how these elements can work together to foster social integration and labor market participation for Roma youth. Addressing digital inequality requires a holistic framework that considers both technical and emotional dimensions, ultimately promoting greater equity and inclusion in the digital era.

Conclusion

The findings from this study, supported by both interviews and literature, highlight that one of the most effective methods for digital education among Roma youth involves the use of playful, interactive learning tasks, particularly when delivered through familiar devices such as smartphones. These methods not only increase interest and motivation but also make learning less intimidating and more accessible. This aligns with international experiences, which demonstrate that integrating technology into education enhances learning outcomes and fosters greater engagement. A critical takeaway from the interviews is that developing digital competencies is essential for the social and economic integration of Roma communities. However, it is equally important to address cultural and social differences in the design and delivery of digital education programs. Both the literature and qualitative data from this study emphasize the significance of culturally tailored approaches that leverage the devices and tools already familiar to the community. Programs that adapt to the unique characteristics and interests of Roma youth are more likely to succeed in bridging the digital divide. Insights from the mentoring program add another crucial dimension to these findings. The program demonstrated that psycho-social support, including efforts to reduce anxiety and build emotional resilience, is integral to fostering digital literacy. Participants with greater emotional readiness were more confident and capable of acquiring digital skills. This underscores the need for a holistic approach to digital education that not only addresses technical barriers but also incorporates psycho-social elements to enhance learning outcomes. At the same time, providing adequate motivation, access to necessary tools, and support for older generations and other disadvantaged groups is critical. Without such measures, digital inequalities risk deepening, particularly in rural and marginalized communities. Effective strategies should focus on building inclusive educational frameworks that address the diverse needs of these groups, ensuring that all members of the community can engage with digital technologies for education, employment, and social integration. In conclusion, addressing digital inequality requires a multifaceted approach that combines technical training, culturally sensitive program design, and psycho-social support. The integration of these elements will not only improve digital literacy among Roma youth but also promote their broader social and economic inclusion, contributing to the reduction of systemic inequalities in the digital age.

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References

Bell, D. (1976). The coming of post-industrial society: *A venture in social forecasting.* Basic Books.

Bourdieu, P. (1970). Reproduction in Education, *Society and Culture*. SAGE Publications.

Castells, M. (2005). *The rise of the network society*. Wiley-Blackwell.

Castells, M. (2006). *The power of identity*. Wiley-Blackwell.

Castells, M. (2007). *End of millennium*. Wiley-Blackwell.

DiMaggio, P., & Hargittai, E. (2001). *From the 'Digital Divide' to 'Digital Inequality': Studying internet use as penetration increases*. Center for Arts and Cultural Policy Studies, Princeton University.

Dunajeva, J. (2023). *University mentoring programs during the pandemic: Case study of Hungarian Roma university students*. Social Sciences.

Fehérvári, A. (2017). Digitális egyenlőtlenségek Magyarországon: Regionális és társadalmi különbségek az internet használatában. In *Társadalmi mobilitás és digitális kompetenciák* (pp. 45-67). MTA Társadalomtudományi Kutatóközpont.

Fejes, J. B., & Szűcs, N. (2021). Digital learning for disadvantaged students during Covid-19: Perceptions of teachers in Hungary's after-school programmes. Intersections. *East European Journal of Society and Politics.*

Galán, A. (2015). Digitális egyenlőtlenségek a 15–17 éves fiatalok körében. *Metszetek: Társadalomtudományi folyóirat, 4(4),* 45-62.

Galán, A. (2021). A digitális egyenlőtlenségek alakulása a távoktatás idején. *Oktatási és Szociális Tanulmányok, 15(3),* 55-72.

Molnár, G., & Kláris, Á. (2016). A digitális írástudás fejlesztése a közoktatásban. *Oktatáskutatás, 14(2),* 27-38.

Molnár, G., Námesztovszki, Z., & Glušac, D. (2020). *Solutions, experiences in online education in Hungary and Serbia related to the situation caused by Covid-19*. IEEE.

Norris, P. (2001*). Digital divide: Civic engagement, information poverty, and the internet worldwide*. Cambridge University Press.

Rab, Á., & Karvalics, L. Z. (2013). Harmadik generációs információs írástudás-fejlesztés a gyermeki életesélyek javításáért. In *Társadalmi informatika és infokommunikációs fejlesztések.* Akadémiai Kiadó.

Racsko, R. (2020). Digitális átállás az oktatásban: A XXI. századi kompetenciák fejlesztésének lehetőségei. *Magyar Pedagógia, 120(3),* 145-162.

Sinka, G. (2011). A Magyar Információs Társadalom Stratégia és a digitális felzárkózás. *Információs Társadalom, 11(1),* 42-55.

Soker, Z. (2005). Age, gender, ethnicity and the digital divide: University students' use of web-based instruction. *Electronic Journal of Sociology*.

Szűts, Z. (2014). *A digitális pedagógia egységes elméleti kerete és alkalmazása a tanítás és tanulás folyamatában*. Eszterházy Károly Egyetem.

Szarvák, T. (2020). *Adalékok a társadalmi felzárkózás szociológiájának értelmezéséhez.* Debreceni Egyetem

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The Impact of Sociodemographic and Socioeconomic Variables on Students' International Mobility Decisions

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ABSTRACT

This research was inspired by the increasing importance of international experience in today's job market and the need to understand the factors influencing university students' mobility decisions. Researchers from Debrecen University studied the mobility inclination of students to determine whether sociodemographic and socioeconomic variables influence students' motivation to study or move abroad. Our research question focused on the revelation of significant correlations between students' willingness to move abroad and various social background variables. We aimed to uncover how factors such as gender, type of settlement, parental education, and financial situation shape students' motivations and decisions regarding their international mobility proclivity. The research methodology involved a quantitative approach, utilizing a structured questionnaire. The first part explored the respondents' sociodemographic and socioeconomic characteristics, followed by a block of questions about the respondents' attitudes towards mobility. Descriptive statistical analyses using the chi-square test were carried out, and seventeen significant correlations were found. The social variables examined include gender, type of settlement, parents' educational level and foreign language skills, subjective financial situation of the family and previous schooling abroad. The findings provide valuable insights into the factors that influence student mobility, which can help to understand students' motivation, so that universities can develop tailored international programmes, and ensure an inclusive and supportive educational environment that fosters international engagement among students. The findings align with existing literature, which suggests that factors such as gender, prior schooling abroad, and financial status play essential roles in shaping students' decisions to move abroad.

KEYWORDS

mobility, studying abroad, working abroad, sociodemographic and socioeconomic variables, descriptive statistical analysis

INTRODUCTION

Apart from the required qualifications, the performance and competitiveness of recent graduates are strongly influenced by their employability competencies, such as adaptability, collaboration, tolerance, foreign language command and intercultural skills (Hajdu & Czellér, 2016). Mobility is important for individuals' personal and professional development, as the experience of training or working abroad contributes to developing skills and competencies required by the labour market. These assets can later help them obtain a job or achieve professional success, and the career development potential they gain is beneficial for well-being, achieving higher living standards and self-fulfilment. Our study explores some of the aspects that can influence students' mobility decisions.

LITERATURE REVIEW

The literature review aims to provide a comprehensive picture by examining studies on the factors influencing student mobility. Firstly, gender differences are worth mentioning. The study by Cordua and Netz (2022) offers insights into the potential for gender differences in the intention to study abroad. The findings indicate that women may be more inclined to consider studying abroad for several reasons; one of them is that gender-specific interest profiles develop at an early age, such as a greater interest in languages and culture. Women's better educational performance and tendency to choose fields of study favouring international experience may also contribute to the gender difference.

Some authors studied the potential influence of students' financial backgrounds on their decision to pursue mobility opportunities. Research indicates that students' social class and family background significantly influence their decision to study abroad. Students from affluent backgrounds are more likely to participate in mobility programmes since they often have access to better financial resources and social support (Brooks & Waters, 2020). This is supported by Di Pietro (2020), who suggests that the benefits of studying abroad are more likely to be enjoyed by those with a stable financial background.

A student's socioeconomic background seems to be the most significant factor in determining whether they will have the opportunity to study abroad. It is observed that students from affluent backgrounds with more significant cultural capital are more likely to participate in study abroad programmes. It would be remiss not to mention another influencing factor: students' academic performance, especially in English, can influence whether they study abroad (Huebner et al., 2021). Lewis (2016) also offers a similar perspective, suggesting that socioeconomic status may play a significant role in mobility, with students from higher-income families being more likely to pursue studies abroad. Cost is undoubtedly a significant factor, and students from lower-income backgrounds may encounter financial challenges. A better economic situation generates further benefits: Hovdhaugen and Wiers-Jenssen (2023) suggest that students from advantageous socioeconomic backgrounds may be more likely to study abroad due to their more outstanding mobility capital, including previous international experience and language skills.

Regarding the social background, it is worth noting that upper-middle-class families often have networks that

can contribute to studying abroad, which could be seen as an advantage. On the other hand, students from low-income backgrounds and ethnic minorities may not have the same access to networks, which could potentially limit their opportunities. Students from higher socioeconomic backgrounds may be more likely to have the cultural capital that aligns with study abroad programmes, which could give them an advantage (Simon & Ainsworth, 2012). Naffziger and colleagues (2008) suggest that a number of factors, including financial constraints, family responsibilities, and curricular issues, may contribute to the relatively low participation in study abroad programmes.

A further set of factors to consider is the role of parents as an influence on students' mobility decisions. Donnelly and Gamsu (2018) emphasise that the educational attainment of students' parents (especially mothers) could influence their decision to take advantage of mobility opportunities, such as studying abroad or relocating for education. A similar perspective is presented by Kim and Lum (2018), who state that family opinion may play an important role in students' decisions to pursue studies or employment abroad. According to Kiss (2014), students whose parents have a high education level may be more likely to participate in international mobility programmes. In a recent study, Van Mol (2022) explored the influence of family background on Dutch students' participation in international mobility programmes. The main findings suggest that parental influence, particularly maternal education, may be a significant encouraging factor in the decision to study abroad for both male and female students. Serediak and Helland (2023) conducted research in Norway and found that family background plays a significant role in determining the likelihood of studying abroad. It would appear that the parents of students who study abroad tend to have higher incomes and higher educational attainment. Zhou et al. (2019) explored parents' potential influence on Chinese students' educational decisions. They found that students from families with higher levels of education are more likely to study abroad. Monthly income may seem to impact mobility, although perhaps not as significantly as parental education or social status. Netz and Grüttner (2021) who conducted research in Germany, revealed that regarding wages students from higher social backgrounds benefit more from international student mobility. This finding supports the theory of cumulative benefits, suggesting that studying abroad may contribute to maintaining social inequality.

Another crucial element in this context, as Wu (2020) suggests, is the experience of social life abroad, which encompasses the acculturation process – that is, adapting to a new culture and way of living. Such experiences may significantly impact career choices, as students' exposure to different cultural norms and values could potentially change their career aspirations and expectations.

Aims, Research Questions and Hypotheses

The present study's objective was to explore students' proclivity towards mobility and determine whether social background variables influence students' motivation to pursue academic studies, gain employment, or undertake international relocation. Apart from these objectives, the following research questions were addressed:

Research question 1: Is there a significant relationship between students' international mobility and different social background variables?

Research question 2: Which social variable has the most significant impact on students' willingness to relocate abroad?

Methods

Student mobility was investigated using a questionnaire methodology during the autumn of 2023. This paper presents certain findings of the questionnaire survey.

The anonymous questionnaire was completed by the students voluntarily under the supervision of a lecturer and in person, in compliance with the relevant research ethics regulations. The questionnaire was designed in accordance with the methodological criteria proposed by Hunyadi et al. (2000). It should be noted that the sampling is relatively broad, yet the study is not representative; consequently, the results are primarily pertinent to the sample under study.

The gender distribution of respondents is as follows: 39% male (156), 59.8% female (239), while 1.3% of students (5) did not disclose their gender. These five respondents were, therefore, excluded from the gender analysis. The latter group of students was excluded from the subsequent analysis due to the insufficient number of respondents. The initial section of the questionnaire comprised a series of sociodemographic inquiries, including questions on gender, year of birth, country of origin, type of municipality, mother tongue, experience with studying abroad, work status while studying, proficiency in working with a foreign language, presence of a family member with economic education, educational background of the mother or primary caregiver, educational background of the father or primary caregiver, and language skills of the mother and father. Additionally, the questionnaire inquired about the students' subjective financial situation and requested that they evaluate the financial standing of their families on a three-point scale. A notable proportion of respondents indicated that their families reside above the average standard of living. In terms of percentages, 56.8% of families can meet their needs and can afford significant expenses, while 38.4% can meet their needs but cannot afford major expenses.

The remainder of the questionnaire assessed the students' attitudes towards mobility. It was achieved using a series of 21 statements, which are presented in Table 1. The statements addressed the students' mindset and the factors that could be considered in assessing their willingness to be mobile.

The statistical analysis of the data was conducted using the statistical software SPSS for Windows version 23.0. After examining the responses provided, findings were made regarding the relationship between student mobility and different social variables. The motives behind students' mobility decisions were initially analysed using descriptive statistical univariate analyses, namely percentage frequency distribution. Subsequently, a bivariate cross-tabulation analysis was conducted, incorporating gender as a socio-demographic variable. Pearson's Chi-squared test was employed to ascertain the correlation between the investigated variables. The

adjusted residuals were also examined in the cross-tabulation analyses to ascertain whether a cell contained an over-represented value relative to the expected distribution. In accordance with the methodology proposed by Lázár (2009), if the value of the corrected residuals exceeded ±2, the value in the corresponding cell was highlighted, indicating the presence of a statistically significant relationship between the two categories.

RESULTS

Our research has identified several correlations between student attitudes towards mobility and certain social background variables. One aim of the research was to determine the relationship between the mobility decision inclination and the demographic and socio-demographic background of the surveyed students. In the initial phase of our investigation, we analysed the male-female proportion of the respondents with regard to 21 mobility-related statements (Table 1). The objective was to investigate the plans and motivations of young people concerning studying and working abroad and to ascertain the underlying trends and motivations behind their responses. The percentage distributions demonstrate that a considerable proportion of students exhibit a proclivity towards mobility abroad. Specifically, 86.6% of students expressed a desire to work in Europe, 72.7% aspire to work abroad, 62.3% intend to pursue employment abroad, and 80% aim to undertake studies in Europe. A mere 27.3% of students who completed the questionnaire indicated a desire to relocate permanently to another country. Only 36.3% of students have a precise idea of the country where they intend to pursue their studies or employment. 22.8% of students indicated that they intend to pursue their studies abroad as part of a full-time course, while 36.2% stated that they plan to do so as part of a part-time course. Among the mobility variables pertaining to the purpose of working, the highest percentages were observed for the following responses: "I plan to work abroad to become more independent and confident" (65.6%), "I plan to work abroad to improve my language skills" (66.8%), and "I plan to work abroad to improve my professional skills" (60.5%). The item "My purpose of working abroad would be to learn about another culture" yielded the lowest level of response (49.4%). The questionnaire results indicated that only 25.6% of students would like to pursue professional programmes or conferences abroad, while 27.5% would prefer to travel abroad solely to meet friends and relatives. Additionally, only 30.5% of respondents demonstrated a desire to complete their professional training abroad. This trend indicates that the majority of young people are seeking short-term experiences abroad rather than a long-term commitment.

Table 1
Percentage distribution of mobility variables by gender

	I would like to work abroad		**I would go and work abroad to be more confident and independent ($\chi2=5.20$, $p<0.05$)**		**I would only like to work abroad in professional programmes or conferences**		**I want to study outside Europe**	
	Yes	No	Yes	No	Yes	No	Yes	No
Female	72.8%	27.2%	70.1%	29.9%	27.6%	72.4%	21.3%	78.7%
Male	72.4%	27.6%	58.8%	41.2%	22.4%	77.6%	25.0%	75.0%
Σ/ %	72.7%	27.3%	65.6%	34.4%	25.6%	74.4%	22.8%	77.2%
	I am planning to work abroad		I would like to do my internship abroad ($\chi2=4.69$, $p<0.05$)		I specifically know in which country I would like to study/work		I am planning further (full programme) studies abroad	
	Yes	No	Yes	No	Yes	No	Yes	No
Female	63.2%	36.8%	26.5%	73.5%	36.7%	63.3%	22.2%	77.8%
Male	60.9%	39.1%	36.8%	63.2%	35.7%	64.3%	23.7%	76.3%
Σ /%	62.3%	37.7%	30.5%	69.5%	36.3%	63.7%	22.8%	77.2%
	I would work abroad to improve my professional knowledge		I intend to settle down abroad permanently		I want to work in Europe		I am planning further (partial programme) studies abroad	
	Yes	No	Yes	No	Yes	No	Yes	No
Female	57.1%	42.9%	28.5%	71.5%	84.5%	15.5%	37.7%	62.3%
Male	65.6%	34.4%	25.6%	74.4%	89.7%	10.3%	34.0%	66.0%
Σ /%	60.5%	39.5%	27.3%	72.7%	86.6%	13.4%	36.2%	63.8%
	I would work abroad to improve my foreign language skills		I have no wish to work or study abroad. I only travel abroad to meet friends and relatives		I want to work outside Europe		I have already participated in full-time training abroad	
	Yes	No	Yes	No	Yes	No	Yes	No
Female	67.5%	32.5%	29.4%	70.6%	31.0%	69.0%	4.2%	95.8%
Male	65.8%	34.2%	24.5%	75.5%	30.8%	69.2%	3.8%	96.2%
Σ /%	66.8%	33.2%	27.5%	72.5%	30.9%	69.1%	4.1%	95.9%
	I would work abroad so that I can learn another culture ($\chi2=4.73$, $p<0.05$)		I wish to travel abroad for tourism purposes only		I want to study in Europe		I have participated in part-time training abroad	
	Yes	No	Yes	No	Yes	No	Yes	No
Female	53.8%	46.2%	39.3%	60.7%	79.9%	20.1%	5.0%	95.0%
Male	42.6%	57.4%	32.7%	67.3%	80.1%	19.9%	7.7%	92.3%
Σ /%	49.4%	50.6%	36.7%	63.3%	80.0%	20.0%	6.1%	93.9%
	I would enjoy studying abroad							
	Yes	No						
Female	60.3%	39.7%						
Male	60.3%	39,7%						
Σ /%	60.3%	39.c7%						

Source: Authors' own contribution, 2024 (N=395)

Of the twenty-one variables, three exhibited notable gender differences, which are likely not mere coincidence. The three variables are: "I would like to work abroad to learn about another culture", "I plan to work abroad to become more independent and confident" and "I would like to do a professional internship abroad" (Table 2). The cross-tabulation analysis revealed that female students exhibited a significantly higher level of interest in learning about another culture than male students with regard to pursuing work opportunities abroad (X^2=4.73, p<0.05). A noteworthy outcome was observed concerning the variable "I plan to work abroad to become more independent and confident". The data revealed a significant gender difference in the purpose of pursuing work abroad, with women being more likely than men to indicate that their objective was to gain greater independence and confidence (X^2=5.20, p<0.05). The third significant result was observed about the objective of undertaking an internship abroad. A significant difference was found in the intention to undertake an internship abroad, with a more significant proportion of male students expressing this intention compared to their female counterparts (χ2=4.69, p<0.05).

Table 2
Significant correlations between gender and mobility variables

	YES	NO
I would work abroad so that I can learn another culture (χ2=4.73. p<0.05)		
FEMALE	**126**	108
	2.2	-2.2
MALE	66	**89**
	-2.2	**2.2**
I would go and work abroad to be more confident and independent (χ2=5.20. p<0.05)		
FEMALE	**164**	70
	2.3	-2.3
MALE	90	**63**
	-2.3	**2.3**
I would like to do my internship abroad (χ2=4.69, p<0.05)		
FEMALE	63	**175**
	-2.2	**2.2**
MALE	**57**	98
	2.4	-2.4

Source: Authors' own contribution, 2024 (N=400)
Note: Values in bold indicate that there are many more cells in the table than would have been expected in a random arrangement (Adj. Stand. Res.: ≥2.0)

In the subsequent phase of the investigation, we examined the correlation between another dichotomous variable, namely the decision to pursue studies abroad and mobility variables. Our findings yielded intriguing statistical insights pertaining to students' mobility intentions. A total of 33 students (8.3%) had attended school abroad, while 367 students (91.8%) had not. A significant correlation was identified between the variables under investigation in five cases. Consequently, the results presented demonstrate that studying abroad has a significant impact on students' mobility aspirations. Students who have attended school abroad exhibit a significantly stronger preference for studying abroad (χ^2=5.03, p<0.05), with a greater inclination to pursue this in an entire course (χ^2=5.88, p<0). Furthermore, the students who had studied abroad expressed a greater propensity to work abroad (χ2=4.69, p<0.05), undertake an internship (χ2=6.31, p<0.05), and move abroad permanently (χ2=5.62, p<0.05) than those who had not studied abroad (Table 3.)

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Table 3
Significant correlations between studies abroad and mobility variables

	YES	NO
I would enjoy studying abroad (χ2= 5.03, p<0.05)		
Attended school abroad	**26**	7
	2.2	-2.2
Did not attend school abroad	216	**151**
	-2.2	**2.2**
I am planning further (full programme) studies abroad (χ2= 5.88, p<0.05)		
Attended school abroad	**13**	20
	2.4	-2.4
Did not attend school abroad	77	**290**
	-2.4	**2.4**
I am planning to work abroad (χ2= 4.69, p<0.05)		
Attended school abroad	**26**	7
	2.0	-2.0
Did not attend school abroad	224	**143**
	-2.0	**2.0**
I would like to do my internship abroad (χ2= 6.31, p<0.05)		
Attended school abroad	**16**	16
	2.5	-2.5
Did not attend school abroad	105	**261**
	-2.5	**2.5**
I intend to settle down abroad permanently (χ2= 5.62, p<0.05)		
Attended school abroad	**15**	18
	2.4	-2.4
Did not attend school abroad	96	**271**
	-2.4	**2.4**

Source: Authors' own contribution, 2024 (N=400)
Note: Values in bold indicate that there are many more cells in the table than would have been expected in a random arrangement (Adj. Stand. Res.: ≥2.0).

In the subsequent section of our analysis, we examined the dichotomous background variable of working while studying (Table 4) in relation to our mobility attitude variables. Of the students surveyed, 39% (156 students) were engaged in concurrent employment and academic pursuits, while 61% (244 students) were not. A significant correlation was identified in two cases. Students who worked while studying were found to be significantly more likely to pursue their studies abroad than those who were not employed while studying ($\chi2=5.93$, $p<0.05$). Additionally, a significant correlation was observed between the variable of working while studying and the intention to relocate permanently to another country. The results indicate that students who are currently engaged in employment while pursuing their studies are more likely to establish a permanent residence abroad than those who are solely pursuing their studies without employment ($\chi2=8.46$, $p<0.05$).

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Table 4
Significant correlations between working while studying and mobility variables

	YES	NO
I would enjoy studying abroad (χ2=5.93, p<0.05)		
Working alongside current studies	**106**	50
	2.4	-2.4
Not working alongside current studies	136	**108**
	-2.4	**2.4**
I intend to settle down abroad permanently (χ2=8.46, p<0.05)		
Working alongside current studies	**56**	100
	2.9	-2.9
Not working alongside current studies	55	**189**
	-2.9	**2.9**

Source: Authors' own contribution, 2024 (N=400)
Note: Values in bold indicate that there are many more cells in the table than would have been expected in a random arrangement (Adj. Stand. Res.: ≥2.0).

The objective of the subsequent phase was to examine whether the use of a foreign language at work exerts an influence on the mobility aspirations of students. Upon inquiry as to whether they utilise a foreign language in their professional tasks, 22.8% of students (91) responded in the affirmative, while 29.5% (118) indicated a negative response. Significant correlations were identified between the willingness to study abroad and foreign language use at work. The results indicated that students who utilise their language abilities in the workplace are significantly more likely to pursue studies abroad than those who do not employ their language skills (χ2=7.85, p<0.05). A similar observation can be made about the students who intend to pursue their studies abroad on a full-time or part-time basis. Students who utilise their foreign language abilities in professional activities are markedly more inclined to contemplate pursuing further studies abroad, full-time (χ2=4.09, p<0.05,) or part-time (χ2=9.17, p<0.05), than those who do not employ their foreign language skills (Table 5).

Table 5
Significant correlations between language use at work and students' mobility aspirations

	YES	NO
I would enjoy studying abroad (χ2=7.85, p<0.05)		
Using foreign language at work	**70**	21
	2.8	-2,8
Not using foreign language at work	69	**49**
	-2.8	**2,8**
I am planning further (full programme) studies abroad (χ2=4.09, p<0.05)		
Using foreign language at work	**27**	64
	2.0	-2.0
Not using foreign language at work	21	**97**
	-2.0	**2.0**
I am planning further (partial programme) studies abroad (χ2=9.17, p<0.05)		
Using foreign language at work	44	47
	3.0	-3.0
Not using foreign language at work	33	85
	-3.0	3.0

Source: Authors' own contribution, 2024 (N=400)
Note: Values in bold indicate that there are many more cells in the table than would have been expected in a random arrangement (Adj. Stand. Res.: ≥2.0).

In addition, our research examined the extent to which parental education, as a social background variable, influences students' motivational decisions to pursue studies abroad.

The chi-square test did not reveal a statistically significant correlation between the educational levels of the mother/guardian and father/guardian in any of the cases within the triad. The majority of students' mothers/guardians have completed secondary education (47%) or tertiary education (46%), with a relatively low

percentage having received primary education (8%). The highest level of education attained by the students' fathers or guardians is predominantly secondary (56%), with 36% having obtained a tertiary qualification and a very low percentage (8%) having completed only primary education.

Our research also intended to determine whether parental economic education plays a significant role in their children's willingness to pursue employment opportunities abroad. The chi-square test did not reveal significant associations between the mobility attitude variables and parents' economic education. A lower proportion of parents of students surveyed reported having economic education (45%) than those without (55%).

Additionally, the present study aimed to ascertain whether parental knowledge of foreign languages affects their children's motivational attitudes towards working or studying abroad. Surprisingly, the analyses did not yield a statistically significant correlation in this case. A total of 56% of mothers and carers of respondents indicated that they do not speak a foreign language, compared to 44% who reported that they do speak a language other than their mother tongue. A similar pattern emerges with regard to the respondents' fathers/guardians' knowledge of foreign languages, with 41% responding in the negative and 59% in the affirmative.

In our final cross-tabulation analysis, we incorporated the subjective financial situation of the family as a social background variable (Table 6). More than half (57%) of the students surveyed chose the response "We have everything we need, and our financial situation allows us to afford major expenses (e.g. holidays)", whereas 35% selected the answer "We have sufficient resources, yet we lack the financial capacity to undertake significant expenditures". Concerning the third and fourth options, namely, "Sometimes we cannot cover our everyday expenses" and "It often happens that we do not have money to cover our everyday expenses", the percentage of affirmative answers is notably low, less than 1% in both cases. Furthermore, 8% of respondents did not provide a response to this question. Four notable correlations were identified between the subjective financial situation and the mobility attitude variables. Students whose family has the financial means to afford major expenses are significantly less likely to desire to work abroad than those from a family with everything but without funds for major expenses (X^2=10.33, $p<0.05$). A similar result was provided regarding the variable "I plan to work abroad". Students from more affluent families have significantly fewer intentions to pursue employment opportunities abroad than students from families who have the financial resources for everyday expenses but lack the capacity to spend further ($\chi2$=8.44, $p<0.05$). Furthermore, a significant correlation was identified between the mobility variable, which enquired about the intention to undertake studies abroad, and the subjective financial situation of the respondents. Students from families with sufficient resources and the capacity to cover significant expenses are markedly less inclined to pursue studies abroad than those from similar backgrounds but with less financial flexibility ($\chi2$=11.47, $p<0.05$).

The final significant correlation refers to settling down abroad. Students whose family has sufficient resources but cannot finance significant expenses demonstrate a proclivity towards establishing a permanent residence abroad, as opposed to students whose family can finance both everyday and significant expenses ($\chi2$=14.84, $p<0.05$).

Table 6
Significant correlations between subjective financial situation and students' mobility aspirations

I would like to work abroad ($\chi2$= 10.33, $p<0.05$)		
	YES	NO
We have everything we need and can afford major expenses (e.g. holidays)	152 -3.0	**75** **3.0**
We have everything, but we cannot afford major expenses	**112** **2.7**	27 -2.7
Sometimes, we cannot cover our daily expenses	5 1.4	0 -1.4
It often happens that we have no money to cover everyday expenses	1 0.6	0 -0.6
I would enjoy studying abroad ($\chi2$= 11.47, $p<0.05$)		
We have everything we need and can afford major expenses (e.g. holidays)	124 -3.0	**103** **3.0**
We have everything, but we cannot afford major expenses	**96** **2.5**	43 -2.5
Sometimes, we cannot cover our daily expenses	5 1.8	0 -1.8
It often happens that we have no money to cover everyday expenses	1 0.8	0 -0.8

I am planning to work abroad (χ2= 8.44, p<0.05)		
	YES	**NO**
We have everything we need and can afford major expenses (e.g. holidays)	128 -2.4	99 2.4
We have everything, but we cannot afford major expenses	94 1.9	45 -1.9
Sometimes, we cannot cover our daily expenses	5 1.8	0 -1.8
It often happens that we have no money to cover everyday expenses	1 0.8	0 -0.8
I intend to settle down abroad permanently (χ2= 14.84, p<0.05)		
We have everything we need and can afford major expenses (e.g. holidays)	46 -3.3	**181** **3.3**
We have everything, but we cannot afford major expenses	**48** **2.8**	91 -2.8
Sometimes, we cannot cover our daily expenses	3 1.7	2 -1.7
It often happens that we have no money to cover everyday expenses	1 1.7	0 -1.7

Source: Authors' own contribution, 2024 (N=400)
Note: Values in bold indicate that there are many more cells in the table than would have been expected in a random arrangement (Adj. Stand. Res.: ≥2.0).

DISCUSSION

In response to the initial research question, seventeen significant correlations were identified between students' international mobility and various social background variables. Three significant relationships were identified for gender, five for previous studies abroad, two for working while studying, three for language use while working, and four for subjective financial situation. The second research question referred to the strength of the mobility attitude variables. In terms of significant correlations, most correlations were found between previous studies abroad and mobility attitude variables. Thus, studying abroad showed the greatest impact on the willingness to be mobile abroad. One potential explanation for this phenomenon is that students who have previously studied abroad have had the opportunity to gain first-hand experience with a new culture, language, and people at an early age. If they have had a positive experience, they may be more inclined to make subsequent mobility decisions based on the positive attitudes, effectively overcoming mobility-related fears and barriers.

Significant gender differences may be attributed to several factors, including disparate motivations between the genders, demographic discrepancies, and cultural and social influences, which may influence students' decisions. With regard to the willingness to be mobile abroad, female students experience a stronger desire for autonomy and self-confidence, as well as a desire to experience another culture. In contrast, male students tend to view working or studying abroad as a means of developing their professional skills. The experience of studying abroad at an educational institution has been found to reinforce students' commitment to pursuing international studies, influence their professional aspirations and increase their desire to work, thereby reinforcing their plans for professional practice.

The decision to study abroad is significantly influenced by the opportunity to work while studying. Student employment provides a source of financial resources that can be used to cover the costs associated with studying or settling in another country. Using foreign languages in the workplace also exerts a considerable influence on students' decisions regarding international mobility. Such experiences facilitate the development of students' foreign language command and social and communication skills, which are also instrumental in ensuring successful studies and settlement abroad.

The subjective financial situation of students is also a significant factor in their decisions regarding mobility abroad. As 92% of the students surveyed have no financial difficulties and very few belong to the category of not having sufficient financial resources, our results cannot be related to the findings of previous literature stating that well-to-do students are more inclined to participate in mobility programs. However, differences have been noticed between the highly affluent and moderately affluent categories. The reasons why a student from a highly affluent family background may be less inclined to pursue studies or employment opportunities abroad can be attributed to several factors. One reason may be a stronger attachment to financial security or status, which they are less willing to risk due to the inherent uncertainty associated with working abroad. Another reason may be that wealthy students are less inclined to relinquish the financial "comforts" provided by their families.

CONCLUSION

The aspiration to work abroad can be attributed to a complex interplay of economic, social and personal motivations. The present study aimed to examine the relationship between university students' social background variables and their willingness to study or

work abroad. Our research results provided the answer to our first research question, and we can establish that there is a significant relationship between students' international mobility inclination and certain social background variables. We have also revealed that previous schooling abroad has the strongest impact on students mobility proclivity, since this social variable provided the highest number of correlations with mobility intentions. Altogether we have identified seventeen significant correlations.

In the next phase of the research we are planning to explore the mobility intentions of foreign students studying in Hungary and prepare a comparative study. Further research plans involve investigating the benefits and challenges of international student mobility, with particular attention to the acquired competencies that can enhance employment opportunities. Identifying the type of students who benefit most from mobility programs is also a further research plan.

References

Brooks, R. & Waters, J. (2020). Decision-making: Spatio-temporal contexts of decision-making in education abroad. In Ogden, A., Streitwieser, B. & C. Van Mol, (Eds.), *Education abroad* (pp. 15–27). Routledge.

Cordua, F. & Netz, N. (2022). Why do women more often intend to study abroad than men?. *Higher Education*, *83*(5), 1079–1101.

Donnelly, M. & Gamsu, S. (2018). *'Home and away': Social, Ethnic and Spatial Inequalities in Student Mobility.* https://purehost.bath.ac.uk/ws/portalfiles/portal/242349773/Home_and_away_FINAL.pdf

Hajdu, Z. & Czellér, M. (2016). Adapting foreign language education to the expectations of the labour market. In: Gajšt, N., Plos, A. & Vičič, P. (Eds.), *The ninth international language conference on the importance of learning professional foreign languages for communication between cultures* (pp. 63-67). University of Maribor Press.

Hovdhaugen, E. & Wiers-Jenssen, J. (2023). Motivation for full degree mobility: analysing sociodemographic factors, mobility capital and field of study. *Educational Review*, *75*(2), 195–216.

Huebner, N., Trautwein, U. & Nagengast, B. (2021). Should I stay or should I go? Predictors and effects of studying abroad during high school. *Learning and Instruction*, *71*, 101398.

Hunyadi, L., Mundruczó, Gy. & Vita, l. (2000). *Statisztika*. Aula Kiadó.

Kim, E. & Lum, M. (2018). Motivations for Study and Work Abroad. *Advances in Global Education and Research*, 198.

Kiss, L. (2014). A nemzetközi hallgatói mobilitás strukturális és társadalmi-gazdasági háttértényezőiről. *A felsőoktatás szociális dimenziója*. Az Eurostudent V magyarországi eredményei. EUROSTUDENT V. Kutatási zárótanulmány. 27–37. https://www.felvi.hu/pub_bin/dload/eurostudent/eurostudent_studies_hu_web_ISBN_nelkul.pdf#page=28

Lázár, E. (2009). *Kutatásmódszertan a gyakorlatban az SPSS program használatával*. Scientia Kiadó.

Lewis, W. (2016). Study abroad influencing factors: An investigation of socio-economic status, social, cultural, and personal factors. *Ursidae: The Undergraduate Research Journal at the University of Northern Colorado*, *5*(3), 6. Study Abroad Influencing Factors: An Investigation of Socio-Economic Status, Social, Cultural, and Personal Factors

Naffziger, D. W., Bott, J. P. & Mueller, C. B. (2008). Factors influencing study abroad decisions among college of business students. *International Business: Research, Teaching and Practice*, *2*(1), 39–52. https://www.researchgate.net/publication/237299705

Netz, N. & Grüttner, M. (2021). Does the effect of studying abroad on labour income vary by graduates' social origin? Evidence from Germany. *Higher Education*, *82*(6), 1195–1217.

Serediak, O. & Helland, H. (2023). Family background and the likelihood of pursuing a university degree abroad: heterogeneity in educational fields. *British Journal of sociology of Education*, *44*(1), 123–143.

Simon, J. & Ainsworth, J. W. (2012). Race and socioeconomic status differences in study abroad participation: The role of habitus, social networks, and cultural capital. *International Scholarly Research Notices*, *1*, 413896. https://onlinelibrary.wiley.com/doi/epdf/10.5402/2012/413896

Van Mol, C. (2022). Exploring explanations for the gender gap in study abroad: A case study of the Netherlands. *Higher Education*, *83*(2), 441–459.

Wu, Y. (2020). Study abroad experience and career decision-making: A qualitative study of Chinese students. *Frontiers of Education in China*, *15*(2), 313–331.

Zhou, X., Li, J. & Jordan, L. P. (2019). Parental intent for children to study abroad: The role of educational aspiration and children's characteristics. *Cambridge Journal of Education*, *49*(6), 789–807.

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Relationships Between School Performance Variables of Students at Risk of Early School Leaving

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ABSTRACT

Abstract text in maximum 250 words. As highlighted by Schmitsek, Early School Leaving (ESL) emerged as a critical societal issue in numerous EU countries during the 1980s and 1990s. Mazrekaj and De Witte (2020) contend that early school leaving leads to various negative social outcomes, including increased crime rates, unemployment, and early pregnancies. Consequently, it is crucial to explore the factors that contribute to this phenomenon. Russell Rumberger (1995) identified three levels of influence on early school leaving: (1) family, (2) school, and (3) the community surrounding the students. This research aimed to provide a comprehensive understanding of the factors contributing to early school leaving from the students' perspectives, focusing on three primary areas: parental support, teacher-student relationships, and classroom community. The questionnaire, developed by Hanna Tomaszewska-Pekala and her colleagues (2017), consisted of 40 items and closely aligned with the research objectives. The results demonstrated that students who openly communicate their challenges with teachers tend to perform better academically (0.657**). Furthermore, the study found a significant correlation between parental involvement and academic success (0.586**), as well as a notable link between students' future aspirations and parental support (0.407**). Overall, these findings emphasize the necessity of enhancing family support, improving school environments, and fostering positive community influences to effectively combat early school leaving.

KEYWORDS

early school leaving, academic achievement, variables, student

INTRODUCTION

Early school leaving is one of the biggest problems in the worldwide and it affects all education systems, even if not in equal proportions. In developing countries, the proportion of those with a primary education or no primary education at all is much higher (Szverle, 2021). According to Schmitsek Early School Leaving (ESL) emerged as an important societal issue in most EU countries in the 1980s and 1990s. OECD (2012) in the last thirty years the early school leaving one of the major problems of education system. Research over the past few decades has highlighted that early school leaving should be seen as a long - term process and not as an event, as early school leaving as an end result of academic failure begins in early childhood, often before a child enters school. So, early school leaving one of the biggest problem in the world not only Hungary. According to UNESCO report, there are 26 million people in world, who only primary school completed. This number is very worrying, because it causes many undesirable consequences - both economically and socially.

Early school leaving is not a simple problem; it cannot be approached from one side. We are facing a complex and multidimensional phenomenon, the solution of which is not just the task of schools or care systems. This is why early school leaving we cannot approach it from only one part. It is very important that students who are at risk of early school leaving (low socioeconomic status, one or both parents have a low level of education can be identified in time and assisted in appropriate ways. The present study would like to presents the results of at risk of early school leaving primary school students.

LITERATURE REVIEW

DEFINITIONS OF EARLY SCHOOL LEAVING

Gaustad (1991) pointed out that it is hard to define early school leaving or school dropout. Dekkers and Driessen (1997) found two main perspectives were distinguished: social inequality and educational qualification. However, the authors define early school leaving in terms of what employers see as acceptable minimal levels of education and training for young people. Rumberger (1987) there is no consensus definition of high school dropout. The difference between the US and European definitions is school completion. In the US, early school leavers are those who do not finish high school. The American literature uses the concept of dropout, in contrast, in Europe; the term early school leaver is used. In the European countries, too, various definitions currently used for the concept of early school leaving. The definition also differs because the upper age limit for compulsory schooling is different in each country.

According to Eurostat; young people aged 18-24 can be considered as early school leavers without a qualification, who have not yet completed secondary education (ISCED level 3) and do not participate in education or training. This definition used officially by the European Union.

European Commission (2017): Early school leavers are those who have not completed primary school or have completed it and received less than 2 years of secondary education.

THEORETICAL BACKGROUND

The economic background of the family is important in education (Szverle, 2021). Sokunrith et al (2022) think socioeconomic status and parent education as a strong predictor for school dropout. According to Mazrekaj – De Witte (2020), early school leaving has various undesirable

social consequences, such as crime, unemployment, early childbirth, which is why it is necessary to investigate the causes of early school leaving. Understanding why students leave school without qualifications is very important. Russel Rumberger (1995) pointed to 3 levels of early school leaving, which are (1) family, (2) school, and (3) the community in which students live. Empirical research on early school leaving has identified a number of factors in students 'families, schools, and communities that may predict early school leaving. School and the family are the most important places to learn social skills and to be a productive member of society.

FAMILY BACKGROUND

The relationship between family background and early school leaving attributed to Rumberger's name. Rumberger (1983; 1995; 2020) found that the economic and social situation of the family and the educational level of the parents could predict both school achievement and early school leaving. We need to know that these families not only have low incomes but also fewer social and cultural resources related to school, and students growing up in low-income families may experience disruption in school, which can also lead to alienation from school as they are unable to adopt comprehensive economic and social values (Szverle, 2020)

In their work, Tárraga García et al. (2017) concluded that school outcomes and school successes cannot be caused by school alone. The family also plays a very important role in a child's school life. Tárraga García et al. (2017) divided school success into two subgroups. Groups contain structural and dynamic variables. The work of the authors classified the following variables into two groups. The group of structural variables includes parents 'educational attainment, their occupation, and the social level at which the family is located. In contrast, the group of dynamic variables includes the home environment, communication, participation in the child's education, and parental expectations (Tárraga García et al., 2017). The variables are interdependent, so dynamic variables cannot be separated from structural variables or examined separately. According to Jung-A Oh &Young-Joo Lee (2018) school and the family are the most important places to learn social skills and to be a productive member of society. The family, from birth, represents the central developmental environment (Goulet et al., 2020). Family background as a key contributor to school success is already widely known acknowledged.

According to McDermott et al. (2018), the economic level and relationships with family, friends and school, which are components of the microsystem in the ecological approach, directly related to early school leaving. Further research has also shown that students from single-parent and foster families may be much more likely to drop out of school than students from two-parent families (Rumberger, 1983; Rumberger, 1995; Teachman et al., 1996 cited by Rumberger, 2001). Although students in the adolescence stage tend to distance themselves from their families under the influence of their peers, the influence of family experiences at this stage remains significant (Goulet et al., 2020; Kim et al., 2015). Negative family experiences in adolescence, such as compulsive parental behavior, social isolation, and parental depressive symptoms, are associated with early school leaving and the risk of drug dependence.

SCHOOL ENVIRONMENT

It is a well-known fact that schools have a strong influence on student achievement, including early school leaving. The cultural structure and opportunities of schools may also be related to early school leaving (Koc et al., 2020). This is especially true when the rules and norms in the school are not clear and the school becomes a negative socialization environment (Koc et al., 2020). Adolescents spend most of their time in school, a much larger and more formal community than the family (Jámbori et al., 2019). A number of other factors also play a role, such as mental health, social relationships, school social atmosphere, teacher-student relationships, classroom atmosphere, punishment and fair rewards, and attachment to school (Jámbori et al., 2019). School engagement can be a way to prevent low academic achievement, boredom, dissatisfaction with school, and early school leaving (Tomás et al., 2019). Tomás et al. (2019) in their work, formulated school engagement in a formulated as a three-dimensional construct. The first construct is emotional commitment, which is the lack of interest and positive emotions that arise during learning, as well as the lack of perception of stress, anxiety, and negative emotions. The second is behavioral commitment, which refers to the activities that learners perform and the perseverance and effort they use to achieve that goal. Cognitive engagement is the third, which are the mental operations and learning strategies that students use to understand and solve a task (Tomás et al., 2019). Socio-contextual factors can influence it cognitive engagement. These factors include, such as the teacher's teaching style, the classroom environment and relationship with classmates (Tomás et al., 2019). Koc et al. (2020) found that this is overwhelmingly true when the rules and norms in the school are not clear to the learner or when the school becomes a negative medium of socialization. Students spend most of their time in the institutional system of the school, which is a much larger and more formal community than the family (Jámbori et al., 2019).

In his work, Rumberger (2020) also related the composition of students to early school leaving without education. It is a well-known fact that schools have a strong influence on student achievement, including early school leaving. The biggest challenge is to separate the school factors of the students' family background as well. Rumberger's (2020) work distinguished four types of school factors that influence students 'school performance and thus early school leaving. (1) student composition, (2) school resources, (3) structural characteristics, (4) processes and practices.

(1) Composition of students

Student composition influences student performance not only on an individual but also on a complex and societal level (Rumberger, 2020). That is, the social composition of students in a school can affect performance.

(2) School resources

Several studies (Mac Iver & Mac Iver, 2009; Tarabini et al., 2019; Rumberger, 2020) suggest that sources influence early school leaving. It was found that the proportion of students and teachers has a positive and significant effect on the rate of early school leaving in schools, even when we consider a number of individual and group factors that may also influence early school leaving (Rumberger, 2001).

(3) The structure of the school

For the third characteristic, the type of school comes to the fore, (public, private, church) Rumberger (2020) found that the rate of early school leaving without education is lower in church schools than in public or private schools.

(4) School exercises

In the latter type, school practices come to the fore. According to Rumberger (2020), in particular, the social and school climate, educational attainment, and the number of students in further education can estimate the rate of school dropouts. Rumberger (2020) believes that schools can contribute to student early school leaving without education in two ways. (1) One method is to create conditions in the school that the student voluntarily chooses to drop out of school, (2) the other method is based on the explicit decisions of the school staff. These may apply to rules and actions e.g. a lot of absenteeism, bad behavior.

Nouwen and Clycq (2019) pointed to the fact that support provided by teachers can be one of the preventive and preventive tools for early school leaving. A positive and strong teacher-student relationship, with the help of educators, can strengthen a learner's commitment to school, thereby preventing early school leaving.

COMMUNITY

Outside the family and school, community and peer groups influence early school leaving. Thus, early school leaving is not limited to school processes, non-school experiences are also involved in the school leaving process (Gao et al., 2019). In poor communities, lack of resources and peers negatively affect the development of children and adolescents (Rumberger, 2020). Young people living in these communities are more likely to affected by early school leaving if those living in their company are also school dropouts (Rumberger, 2001). Rumberger (2020) found that in areas where neighbors 'unemployment was high, higher rates led to early school leaving. Outside the family and school, community and peer groups influence early school leaving. So early school leaving is not limited to school processes, non-school experiences are also involved in the school leaving process (Gao et al., 2019). Rumberger (2020) found that in areas where high neighbourhood unemployment was high contributed to higher rates led to of early school leaving.

In their study, Koc et al. (2020) wrote that young people who have already dropped out of school are at pose a risk for students with whom they live in the same an environment. In adolescence, the young persons are likely to follow the behavior of their peers in order to belong to the peer group and to form the "we" consciousness. This is why young people in the company of those who use drugs in the same their environment can be a danger are at risk as they lower their expectations of their own academic progress and their plans.

AIMS, RESEARCH QUESTIONS AND HYPOTHESES

The aim of the research was to obtain a comprehensive picture from the perspective of students' relationships that can lead to early school leaving.

- parental assistance
- the relationship with teachers
- the class community.

The study conducted among those who already affected by early school leaving. In order to be able to draw conclusions about the psychometric characteristics of the questionnaire, it was necessary to formulate hypotheses.

- We hypothesize that a positive relationship with teachers results in a strong school performance.
- We hypothesize that there is a positive correlation between parental expectations parents' expectations regarding educational attainment and parental control.
- We hypothesize that there is a strong relationship between student's future and parental support.

METHODS

The questionnaire took about 40-50 minutes to complete and done online. Completion was voluntary and anonymous. The questionnaire contained 39 statements that could be answered on a 5-point Likert scale, according to whether 1 - strongly disagreed or 5 - strongly agreed with the statement. In addition to the 39 statements, the questionnaire also included general background questions. The study of the current sample of 741 primary school students most of all disadvantages. The questionnaire developed by Hanna Tomaszewska-Pekala (2017) et al.

The questionnaire developed by Hanna Tomaszewska-Pekala (2017) and her colleagues was most consistent with the goals of the research. The original questionnaire developed by Tomaszewska-Pekala contained 40 items. The questionnaire previously measured on a sample of 120 people.

The questionnaire developed by Tomaszewska-Pekala et al. (2017) included the following. It focused on future plans, parental control, and parents' expectations, as well as on the school environment, the relationship with teachers, and the relationship with peers.

The items we use can be divided into two groups. In the first group, it examined the level of social and emotional support of parents, as well as parental involvement related to educational processes. The family environment plays an important role in student outcomes, it is important to involve parents, as students who experience positive interaction are more likely to participate in education and be more successful. (Tomaszewska-Pekala et al., 2017) Educational success can also be influenced by various characteristics of the school environment. In the second group of the questionnaire, statements that related to the extent to which the given respondent was able to participate in school life, how much he was able to help his peers, and how much support he could expect from the teachers. 3 items map the disturbing learning environment. Disturbing learning environments do not provide comfortable conditions for learning, in such cases teachers feel overwhelmed and are unable to provide appropriate individual support for all students. (Tomaszewska-Pekala, 2017)

SAMPLE

Elementary school students in 5-8 filled out the questionnaire. Most of all disadvantaged students. We do not have any information about the ethnic background of the students. 741 students from 16 schools completed the questionnaire.

Boys accounted for the majority of the sample (N=411).

Most of participants were in 5th grade (N=246). There was an equal distribution between the 6th, 7th and 8th graders.

Table 1
Numbers of participants

Classes	Number of participants
5th graders	N=246
6th graders	N=166
7th graders	N=165
8th graders	N=164

Before filling out the questionnaire, the heads of the institutions and the class teachers viewed the questionnaire and the survey was conducted with their consent. This was necessary due to the sensitivity of the topic.

RESULTS

The reliability of the instrument used in this study confirmed to be satisfactory, with a Cronbach-alpha coefficient of 0.612, indicating acceptable internal consistency for the questionnaire. This study presents the results in terms of correlations between key variables that align with the aims of the research. Through data analysis, we identified significant correlations among various factors related to student performance, teacher-student relationships, classroom environment, and parental involvement.

TEACHER-STUDENT RELATIONSHIPS AND ACADEMIC PERFORMANCE

We analysed the correlation between certain statements that align with the objectives of this research. Specifically, our focus was on the connection between students' interactions with teachers and their academic outcomes.

Table 2
Correlation of teacher-student relationships and academic performance

Scales	Poor performance in tests	Easy follow-up of lessons
Relationship with teachers	,657**	,570**

**Remark: *p < 0.05; **p < 0.01*

The correlation analysis reveals that students who feel comfortable sharing their problems with teachers find it easier to follow lessons. Additionally, when there is a positive teacher-student relationship, teachers are more aware of the underlying reasons why a student might perform poorly in tests. Thus, fostering trust and communication between students and teachers can promote both better academic engagement and a deeper understanding of student challenges.

IMPACT OF CLASSROOM ENVIRONMENT ON TEST PERFORMANCE

Figure 1. As highlighted earlier, a disruptive classroom environment plays a critical role in students' academic outcomes. This study confirmed a statistically significant relationship between the disturbance level in the classroom and poor test performance among students.

Table 3
Correlation of impact of classroom environment on test performance

Scales	Poor performance in tests
Disturbing classroom environment	,618**

**Remark: *p < 0.05; **p < 0.01*

A disruptive classroom atmosphere makes it difficult for students to concentrate, leading to diminished test performance. These findings emphasize the importance of creating structured and calm learning environments to support academic success.

PARENTAL INVOLVEMENT AND STUDENT SUCCESS

Parental involvement, especially in the form of praise and encouragement, emerged as a significant factor influencing various aspects of student outcomes. It affects not only academic performance but also students' relationships with teachers and their ability to follow lessons effectively.

Table 4
Correlation of parental involvement and student success

Scales	Easy follow-up of lessons	Relationship with teachers	Trust in parents
Parental praise	,586**	,657**	,538**

**Remark: *p < 0.05; **p < 0.01*

The results demonstrate that parental praise positively correlates with students' ability to engage in lessons, foster relationships with teachers, and build trust with their parents. This underscores the importance of parents' emotional support, particularly for children from disadvantaged backgrounds, who may rely heavily on such encouragement. For these students, parental involvement not only supports better academic performance but also fosters positive relationships within the school setting (Fejes, 2013).

FUTURE ASPIRATIONS AND PARENTAL SUPPORT

The study also identifies a moderate to strong correlation between students' future aspirations and parental support

Table 5
Correlation of future aspirations and parental support

Scales	Parental support for academic achievement
Future vision	,407**

Remark: *p < 0.05;p < 0.01*

According to Fejes (2013), students who have a clear vision for their future and receive motivational support from their parents are more likely to excel academically and pursue higher education. In contrast, students whose parents lack involvement or discourage future aspirations often experience lower motivation and academic performance.

In many cases, parents from disadvantaged backgrounds may communicate negative attitudes toward the education system due to their own past experiences. This distrust toward schools may influence their children's attitudes toward education, reducing both parental engagement and the student's academic motivation. Promoting positive

parental involvement and addressing these negative perceptions could significantly improve students' academic outcomes and long-term aspirations.

These findings highlight the importance of teacher-student relationships, classroom environment, and parental involvement in shaping students' academic success. Fostering better communication between students, parents, and teachers, as well as maintaining an orderly learning environment, are essential steps toward improving student performance and engagement.

Discussion

Family Background: The research highlights that a family's economic and social status significantly affects educational outcomes. Rumberger's findings indicate that low-income families often lack essential resources, leading to potential alienation from the school environment. Furthermore, parental involvement and expectations are crucial for students, particularly those from disadvantaged backgrounds. Positive relationships with teachers and parental support correlate strongly with students' academic performance and motivation.

School Environment: Schools play a pivotal role in student achievement and early school leaving. A negative classroom environment and unclear rules can hinder students' learning experiences. The study found significant correlations between effective teacher-student relationships and better academic performance. Student engagement, which includes emotional, behavioural, and cognitive components, is essential for preventing early school leaving.

Community Influence: The influence of community and peer groups is also critical. Young individuals from low-resource communities are at higher risk of dropping out, particularly if they are surrounded by peers who have also left school. Social interactions during adolescence can shape students' academic ambitions and overall attitudes toward education.

Validation of Hypotheses

Hypothesis 1: A positive relationship with teachers results in strong school performance. Validation: Correlation analysis supports this hypothesis, showing that students who share their problems with teachers tend to perform better academically (Correlation with Relationship with Teachers: 0.657**).

Hypothesis 2: There is a positive correlation between parental expectations regarding educational attainment and parental control. Validation: The study indicates a significant relationship between parental involvement and students' academic success (Correlation with Parental Praise: 0.586**).

Hypothesis 3: There is a strong relationship between students' future aspirations and parental support. Validation: The correlation analysis confirms this hypothesis, as a moderate to strong relationship was found (Correlation with Future Vision: 0.407**).

Conclusion

Overall, the findings suggest that strengthening family support, improving school environments, and fostering positive community influences are crucial in addressing early school leaving.

References

Balkis, M. (2018). Academic amotivation and intention to school dropout: the mediation role of academic achievement and absenteeism. *Asia Pacific Journal of Education, 38(2),* 257-270. https://doi.org/10.1080/02188791.2018.1460258

Boualaphet, K., & Goto, H. (2020). Determinants of School Dropout in Lao People's Democratic Republic: A Survival Analysis. *Journal of International Development.*

Dupéré, V., Dion, E., Leventhal, T., Archambault, I., Crosnoe, R., & Janosz, M. (2018). High school dropout in proximal context: The triggering role of stressful life events. *Child Development, 89*, e107–e122. https://dx.doi.org/10.1111/cdev.12792

Gao, S., Yang, M., Wang, X., Min, W., & Rozelle, S. (2019). Peer relations and dropout behavior: Evidence from junior high school students in northwest rural China. *International journal of educational development, (65)* 134-143.

Goulet, M., Clément, M. E., Helie, S., & Villatte, A. (2020). Longitudinal Association Between Risk Profiles, School Dropout Risk, and Substance Abuse in Adolescence. In *Child & Youth Care Forum*. One New York Plaza, Suite 4600, New York, Ny, United States: Springer.

Henry, K. L., Knight, K. E., & Thornberry, T. P. (2012). School disengagement as a predictor of dropout, delinquency, and problem substance use during adolescence and early adulthood. *Journal of Youth and Adolescence, 41(2)*, 156–166. https://doi.org/10.1007/s10964-011-9665-3

Ingels, S. J., Pratt, D. J., Wilson, D., Burns, L. J., Currivan, D., Rogers, J. E., & Hubbard-Bednasz, S. (2007). *Education Longitudinal Study of 2002 (ELS): Base-Year to Second Follow-Up Data File Documentation*. NCES 2008-347. ERIC Clearing house.

Jámbori, S., Kőrössy, J., & Szabó, É. (2019). A reziliencia, az énhatékonyság és az iskolai kötődés szerepe a szándékos önszabályozás folyamatában. *Magyar Pedagógia, 119(1),* 75-94.

Jasińska-Maciążek, A. & Tomaszewska-Pękała, H. (2017). Reducing early school leaving: toolkit for schools. *How to identify and monitor students and schools in need of additional care and support.* Warsaw Faculty of Education, University of Warsaw.

Kim, B. K. E., Oesterle, S., Catalano, R. F., & Hawkins, J. D. (2015). Change in protective factors across adolescent development. *Journal of Applied Developmental Psychology,40*, 26–37. https://doi.org/10.1016/j.appdev.2015.04.006

Koc, M., Zorbaz, O., & Demirtas-Zorbaz, S. (2020). Has the ship sailed? The causes and consequences of school dropout from an ecological viewpoint. *Social Psychology of Education*, 1-23.

Mac Iver, M. A. & Mac Iver, D. J. (2009). *Beyond the indicators: An integrated school-level approach to dropout prevention*. Arlington, VA: The George Washington University Center for Equity and Excellence in Education.

Mazrekaj, D., & De Witte, K. (2020). The effect of modular education on school dropout. *British Educational Research Journal, 46(1),* 92-121.

McDermott, E. R., Anderson, S., & Zaff, J. F. (2018). Dropout typologies: Relating profiles of risk and support to later educational re-engagement. Applied Developmental Science,22(3), 217–232.

Oh, J. A., & Lee, Y. J. (2018). Effect of Family Function, Social Support and Self-Efficacy on Readiness for Independent Living of Dropout Adolescents. *International Journal of Pure and Applied Mathematics, 118(19),* 489-502.

Rumberger, R. W. (2020). The economics of high school dropouts. In *The Economics of Education* (pp. 149-158). Academic Press.

Rumberger, R.W. & Thomas, S.L. (2000). The distribution of dropout and turnover rates among urban and suburban high schools. *Sociology of Education,73*, 39-67.

Rumberger, R.W. (1983). Dropping out of high school: The influence of race, sex, and family background. *American Educational Research Journal,20*, 199-220.

Rumberger, R.W. (1995). Dropping out of middle school: A multilevel analysis of students and schools. *American Educational Research Journal,32*, 583-625.

Rumberger, R.W. (1995). Dropping out of middle school: A multilevel analysis of students and schools. *American Educational Research Journal,32,* 583-625.

Samuel, R., & Burger, K. (2020). Negative life events, self-efficacy, and social support: Risk and protective factors for school dropout intentions and dropout. *Journal of Educational Psychology*.

Schmitsek, S. (2022). 'Who are you to know who I am?'Comparing the experiences of youth at risk of dropping out in England, Denmark and Hungary. Compare*: A Journal of Comparative and International Education, 52(2),* 173-191.

Szandra Sz. (2021). A végzettség nélküli korai iskolaelhagyás okainak vizsgálata a pedagógusok szemszögéből – egy interjús adatfelvétel eredményei - *Gypsy Studies – Cigány Tanulmányok*, 8 – 9 – 10. Romológus konferencia Tanulmánykötet. Pécsi Tudományegyetem

Tomás JM, Gutiérrez M, Georgieva S, Hernández M. (2019). The effects of self-efficacy, hope, and engagement on the academic achievement of secondary education in the Dominican Republic. *Psychol Schs. 2019;*1–13. https://doi.org/10.1002/pits.22321

UNESCO database: http://data.uis.unesco.org/

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The relationship between school and students in a cross-sector comparison. Focus on the Kolping secondary schools.

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ABSTRACT

Kolping pedagogy – rooting in religion, family, profession and community building - aims for developing students' personality. The subject of our study is a section of the Hungarian secondary school system which is also a part of a world-wide uniform pedagogy.

According to some of the theories about the relationship between religiosity and social mobility, religiosity can support the mobility of low SES students. Kolping schools want to help the mobility of underprivileged young people with a four-pillar pedagogy (1. Be a good father/mother, 2. Be a good Christian, 3. Be a good professional, 4. Be a good part of the community). Kolping schools are considered to be „the schools of the last after the last chance" which means that they contribute reducing drop-out rates (half of the Hungarian average).

Our research is built up on qualitative and quantitative studies. The results show that Kolping students are extremely different from the student of other sectors: not only according to their families and social-financial-cultural background but to their abilities and future plans.

KEYWORDS

Kolping, Kolping pedagogy, school community, secondary education, low SES students

INTRODUCTION

The foundation of the holistic pedagogical model in Kolping schools is education for family life, fostering a religious, Christian worldview, and emphasizing professional skills and community involvement (Szilágyiné, 2011). According to the maintainer, effective education for disadvantaged youth is achieved by centering the role of educators, cooperating with spiritual leaders, and actively and continuously involving parents (Dukai, 1996). The Kolping Pedagogical Program, which prepares institution leaders and teachers with methods for working with students requiring special attention, prioritizes education as a nurturing process over traditional academic instruction (KOSZISZ15, 2022).

Kolping institutions represent a unique segment of denominational schools, and their operations have not yet been researched. The relevance of this topic is further supported by the fact that the popularity of church schools and the success of their students in terms of further education have, in recent years, led to a type of selection process. This process has increasingly left students from lower social backgrounds outside the walls of church schools (Jennings, 2004; Harel & Berger, 2018; Fejes & Szűcs, 2019). Kolping secondary schools focus on segregated and disadvantaged families, undertaking the responsibility of compensating for disadvantages and creating opportunities. The holistic pedagogy practiced in these schools is community-based (London, 2022), which, in the case of Kolping institutions, means both religious and school communities, guided by the spiritual leader and homeroom teacher. As stated by international studies, parental involvement is influenced also by mainly the teachers who are important actors of shaping school community (Pusztai et al, 2024).

Our research is built up on qualitative and quantitative studies that let us have quantifiable results for the accurate examination (Király et al., 2014). Mixed methods were applied in our research such as pedagogical ethnography, document analysis and survey research. Pedagogical ethnography – according to Creswell - allows us to sink into the world we are exploring, whereas the most important tool is the reflective observation (Gobo, 2011). The second phase of our research is document analysis, after that we recorded interviews with founders and decision makers. Finally, online questionnaires with the students (Kolping students and the students of other types of school /state schools and other types of church-based schools/) were filled out.

In this paper, we want to highlight the results of our survey study, hereby, the Kolping students' most important characters according to their relationship to school community and to teachers together with the students' opinion on the bond between teachers and parents.

LITERATURE REVIEW

Religious schools' academic success has already been examined by many studies (Horwitz, 2021, Jeynes, 2002, Regnerus, 2000, Baron, 1998, Cuyck & Dronkers, 1990, Pusztai, 2004, 2014, Bacskai et al., 2012, Inántsy, 2017), nevertheless, Kolping schools' success cannot be defined by grades, more by factors such as low SES students' personality development, religious education, family life education and community building.

Community has a great effect on school success and can support low SES students in learning and personality development. Besides, it has a spill-over effect that creates chances for future life (Pusztai, 2004, Bacskai, 2015, Jeynes, 2002, Dijkstra & Veenstra, 2001, Felderhof, 2002, Kodácsy-Simon & Seres-Busi, 2022).

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AIMS, RESEARCH QUESTIONS AND HYPOTHESES

In our paper, school community and parental involvement are in focus.

1. Students at Kolping schools feel a stronger connection to their school community than students at other institutions under different management.

2. There is a higher interest in family planning and further education among students at Kolping schools compared to those at other managed schools.

3. The relationship between the school and parents is stronger in Kolping institutions than in other schools under different management.

METHODS

To effectively examine the performance of the schools, it was necessary to ensure that we also analyse the operations of Kolping institutions in comparison with others. For this purpose, we assigned control groups to the Kolping institutions, selected from the database created during the 2021 National Competency Assessment, based on school types, settlement types, and student family background indices. We aimed to find institutions with similar regional, educational, and student characteristics to ensure the validity of our measurements (Csíkos, 2020).

Table 1
Schools by settlements and counties

	School	City	County
1	Kaposvári SZC Barcsi Szakképző Iskola	Barcs	Somogy
2	Kolping Nagyváthy János Technikum, Szakgimnázium, Szakképző Iskola és Kollégium	Csurgó	Somogy
3	Esztergomi Kolping Katolikus Szakképző Iskola	Esztergom	Komárom-Esztergom
4	Árpád-házi Szent Erzsébet Gimnázium, Óvoda és Általános Iskola	Esztergom	Komárom-Esztergom
5	Gyöngyösi Kolping Katolikus Szakképző Iskola és Szakiskola	Gyöngyös	Heves
6	Északi ASzC Pétervásárai Mezőgazdasági Technikum, Szakképző Iskola és Kollégium	Pétervására	Heves
7	Eötvös József Református Oktatási Központ - Óvoda, Általános Iskola, Gimnázium, Technikum, Szakképző Iskola és Alapfokú Művészeti Iskola	Heves	Heves
8	Karcagi SZC Nagy László Gimnázium, Technikum és Szakképző Iskola	Kunhegyes	Jász-Nagykun-Szolnok
9	Terplán Zénó Kolping Technikum, Gimnázium és Szakképző Iskola	Jászberény	Jász-Nagykun-Szolnok
10	Nagykun Baptista Oktatási Központ Általános Iskola, Gimnázium, Technikum, Szakképző Iskola és Kollégium Illéssy Sándor Technikum és Szakképző Iskola Tagintézménye	Kisújszállás	Jász-Nagykun-Szolnok
11	Bercsényi Miklós Katolikus Gimnázium	Törökszentmiklós	Jász-Nagykun-Szolnok
12	Kolping Katolikus Technikum, Szakképző Iskola és Szakgimnázium	Miskolc	Borsod-Abaúj-Zemplén
13	Széchenyi István Katolikus Technikum és Gimnázium	Ózd	Borsod-Abaúj-Zemplén
14	Pétfürdői Kolping Katolikus Szakképző Iskola, Szakiskola, Általános Iskola és Kollégium	Pétfürdő	Veszprém
15	Ajkai Gimnázium, Technikum, Szakképző Iskola, Általános Iskola, Sportiskola és Kollégium	Ajka	Veszprém
16	Magyar Máltai Szeretetszolgálat Devecseri Szakképző Iskola	Devecser	Veszprém
17	Szekszárdi Kolping Katolikus Szakképző Iskola, Gimnázium és Alapfokú Művészeti Iskola	Szekszárd	Tolna
18	KOSZISZ Szent István Gimnázium	Újfehértó	Szabolcs-Szatmár-Bereg
19	Ibrányi Református Óvoda, Általános Iskola, Gimnázium és Kollégium	Ibrány	Szabolcs-Szatmár-Bereg
20	Tiszavasvári Váci Mihály Gimnázium	Tiszavasvári	Szabolcs-Szatmár-Bereg

Source: own editing

Regarding the size of the schools, it can be stated that out of the 20 institutions, nine operate as small schools (Gyöngyös, Kunhegyes, Jászberény, Kisújszállás, Pétfürdő, Ajka, Devecser, Szekszárd, Törökszentmiklós), nine as medium-sized schools (Barcs, Csurgó, Pétervására, Miskolc, Szekszárd, Újfehértó, Ibrány, Tiszavasvári), and two as large schools (Heves and Esztergom). In terms of institution types, our database includes 2 vocational schools, 1 secondary vocational school, 3 four-year high schools, and 14 mixed-profile schools.

During the systematic sampling, we applied concentrated selection, sending online (evasys) questionnaires to the eleventh-grade students of the secondary schools (Babbie, 2002). We conducted a cross-sectional study, collecting data simultaneously over several variables from December 2023 to September 2024 (1. School/Studies/Further Education, 2. Work Attitude, 3. Community Engagement, Religious Life, Family Life, Parental Involvement). In planning the research, we aimed to carefully consider the possibilities, utilizing the experiences from studies that examined the effectiveness of various pedagogical methods in intersectoral comparisons (Pusztai & Bacskai, 2015; Pusztai et al., 2016; Major et al., 2022; Bocsi & Ceglédi, 2021).

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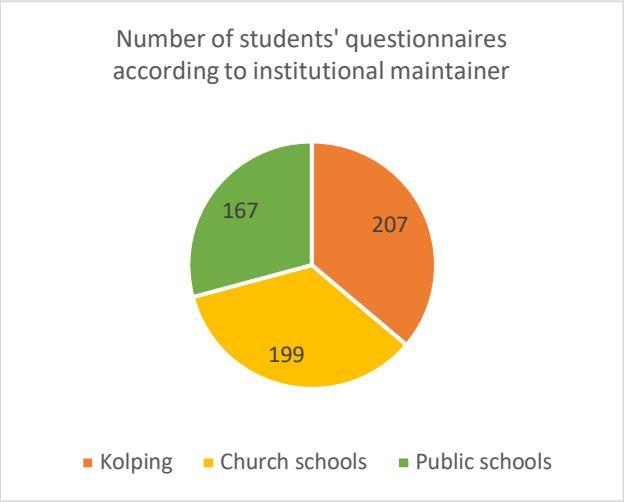
Among the 573 students in the database, there are both public and church institution attendees. Among the denominational schools, there are Catholic, Reformed, and Baptist high schools, secondary vocational schools, vocational schools, and technical schools.

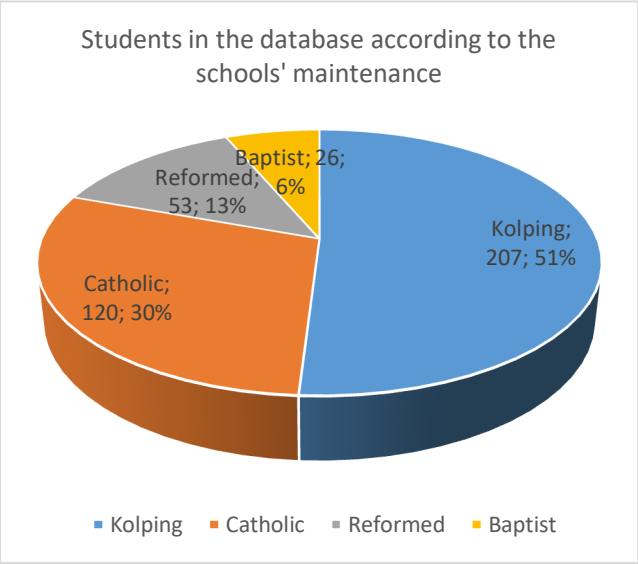
Figure 1
Distribution of students



Source: own editing

Based on Figure 1, 29.14% of the institutions listed in the database are public schools, 34.72% are church schools, and 36.12% operate under Kolping management.

Figure 2
Distribution of schools according to maintenance



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Most of the students live with their parents and their siblings (41,4%), with their parents (24,2%), with their mother (10%), with foster parents (8,6%), with grandparents (11,1%) and and with their father (3,6%).

The students assess their family's economic status as good (44,3%), 33,6% as average, 10,3% as worse than the average and 11,9% consider it as bad.

In case of the fathers' schooling level, 29,3% attended primary school, 27,9% vocational school, 19,6% high school, 16,7% high school and vocational school, 6,2% has a university or college diploma. In case of the mothers, 33,8% finished vocational school, 30,1% high school, 18,5% primary school, 8,9% has high school degree with vocation and 8,7% owns a university or college diploma.

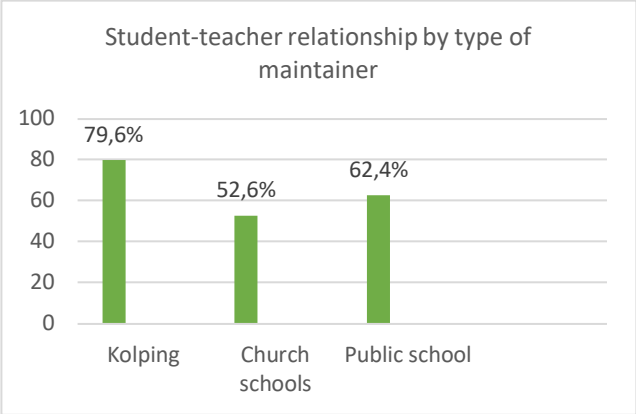
Results

School-student relationship

To examine our hypotheses, we conducted cross-tabulation analyses. According to the results, students at Kolping institutions have the strongest connection to their school community. 53.8% of respondents rate their relationship with the school community as very good, while the same is true for 41.4% of students from church schools, and 37.7% of students from public schools.

We also examined the students' relationships with their classmates, and it turned out that Kolping students have the weakest bond with their classmates. Only 52.8% of them consider their relationship with their classmates to be good, while this figure is 82.2% for students in church schools and 62.9% for students in public schools. 79.6% of Kolping students consider their relationship with teachers to be good, compared to 52.6% of students in church schools and 62.4% of students in public schools.

Figure 3
Students' view on student-teacher relationship



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Future plans

Concerning students answers on future plans, we can see that only a few of the Kolping students want to get married and start a family with children. Compared with other sectors, the students of public schools and other types of church schools are more likely to live in a marriage and have children in the future.

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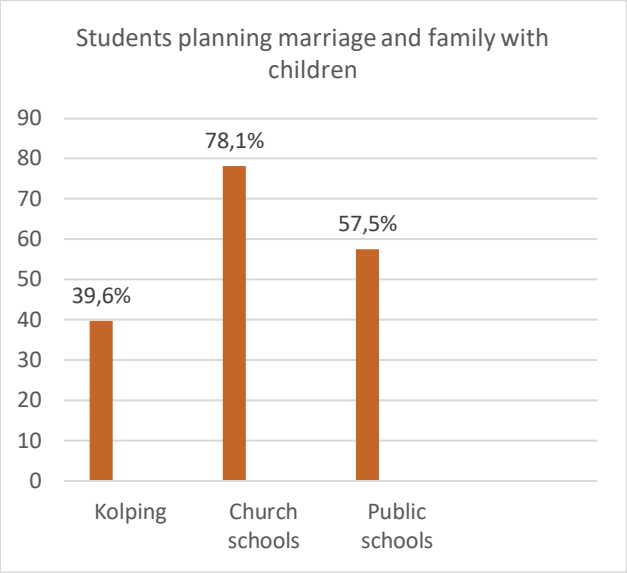
Figure 4
Students' view on having a family in the future



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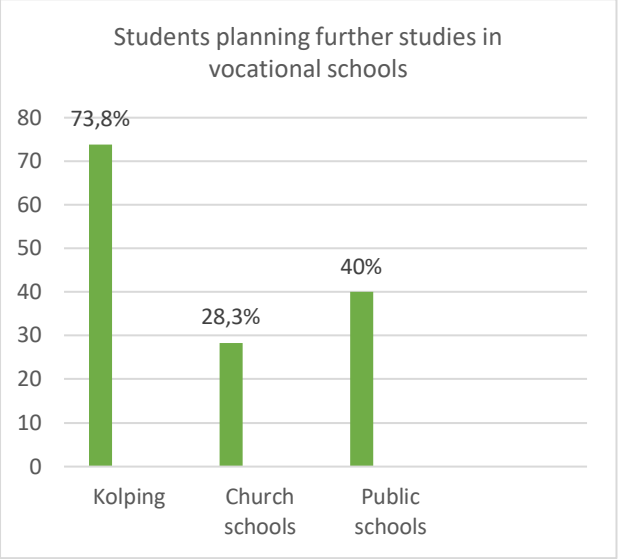
As for career plans, according to our results, Kolping students do not want to finish their studies but - instead of higher education - they plan to study in vocational schools. The reason for it may be the financial background of their family and the lack of motivation for learning.

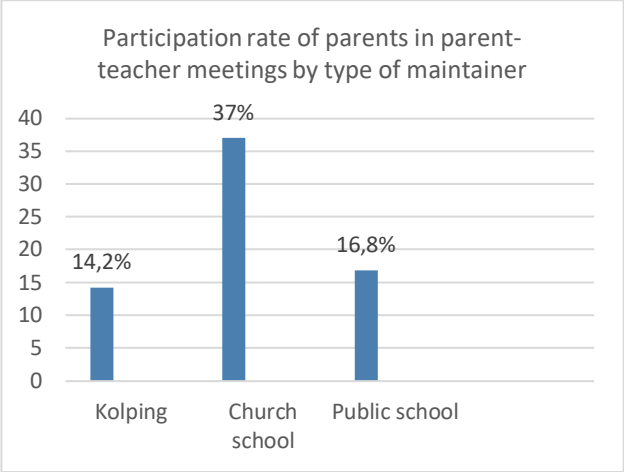
Figure 5
Students' view on further studies



Parental involvement

Figure 2. In case of the parental involvement, we examined the relationship between teachers and parents and the participation at parent-teacher meetings. We analysed the relationship between the school and parents from the students' perspective, which revealed that 42.9% of Kolping students consider it to be good, while 42.5% of students in church schools and 64% of students in public schools feel the same way. In terms of participation in parent-teacher meetings, 14.2% of parents at Kolping schools attend regularly, while 37% of parents in church schools and 16.8% of parents in public schools do so.

Figure 6
Students' view on student-teacher relationship



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Discussion

In the relationship between the school and the student (H1), it is also clearly evident that the perception of the school community (classmates, teachers) is significantly more positive from the perspective of students in church-affiliated institutions than from that of students in public institutions. Kolping students have a strong bond to their school community and to their teachers, stronger than the students of state schools and church schools. Nevertheless, they do not consider their relationship with their classmates as good. The reason for it may be the specificity of vocational schools whereas strong relationship among classmates cannot be built out because of the ongoing training periods.

According to our results on family and career plans (H2), church school students have a very strong motivation for starting a family and having children. Although, only some of the Kolping students plan to live in a marriage and raise children. As for further studies after graduation, Kolping students plan vocational education. Only a few of them want to apply for a university.

Regarding the parental involvement (H3), we can see that Kolping students' view on the teacher-parent relationship is not satisfying. In contrast, students of church-based schools consider the relationship for good, just like state schools' students (which scored the most percentage). In case of the parent-teacher meetings, Kolping parents attend parent-teacher meetings the least, in contrast to parents from other sectors. We believe that the parents of disadvantaged students do not necessarily attend parent-teacher meetings; instead, they tend to maintain a different type of relationship with the teachers. In this context, they focus more on building a personal connection with the form teacher.

Conclusion

The results of the student questionnaires show that Kolping students have not stronger relationship to their schools than the students of other (state and church-based) schools. In spite of that, they consider the form teachers' role really important who can support them in their studies, personal development and future plans. To sum it up, Kolping students are extremely different from

the students of other types of schools: not only according to their families and social-financial-cultural background but to their abilities and future plans. We can see that Kolping schools are lack of parental involvement that means mainly home-based parental involvement: conversations, eating, family events, etc. Kolping students differ from students in other types of institutions so, we need further investigation to discover the essence of Kolping pedagogy.

REFERENCES

Babbie, E. (2017). *A társadalomtudományi kutatás gyakorlata*.

Bacskai, K. (2015). Iskolák a társadalom peremén: Alacsony státusú diákokat tanító eredményes tanárok. Belvedere Meridionale, Szeged. ISBN 978-615-5372-37-7

Bacskai, K. (2012). Egyházi iskolák eredményessége a PISA 2009-ben három közép-európai országban. Földvári Mónika–Nagy Gábor Dániel (szerk.): *Vallás a „keresztény társadalom" után. Tanulmányok Tomka Miklós emlékére,* Szeged, Belvedere Meridionale, 253-270.

Bacskai, K. (2020). Egy szakmai közösség: a pedagógusok. In Pusztai Gabriella (Szerk.): *Nevelésszociológia. Elméletek, közösségek, kontextusok*. Debrecen: Debreceni Egyetemi Kiadó. 303- 330.

Bocsi, V., & Ceglédi, T. (2021). Is the glass ceiling inaccessible? The educational situation of Roma youth in Hungary. In *Balkanistic Forum 21: 3* pp (pp. 329-343).

Creswell, J. W., & Poth, C. N. (2016*). Qualitative inquiry and research design: Choosing among five approaches*. Sage publications. pp414.

Csíkos, Cs. (2020). *A neveléstudomány kutatásmódszertanának alapjai*.

Dijkstra, A., & Veenstra, R. (2001). Do religious schools matter? Beliefs and life-styles of students in faith-based secondary schools. International *Journal of Education and Religion, 2(1),* 182-206.

Dobosné Földi, B. (2021). Kiemelt figyelmet igénylő tanulók méltányos fejlesztése. In*: A gyakorlótól a szakmai fejlesztő iskoláig*. Eger, Eszterházy Károly Katolikus Egyetem Líceum Kiadó. pp. 251-287.

Dukai, K. (1996). A Kolping-iskola mozgalom: Kolping munkássága. *Iskolakultúra Vol6/3.* 104-109.

Felderhof, M. C. (2002). Religious schools and discipline. *Journal of Beliefs and Values, 23(1),* 69-81.

Gobo, G. (2011). Ethnography. In *Qualitative research.* 15-36.

Hörich, B., & Bacskai, K. (2018). Az iskolai lemorzsolódás intézményi jellemzői. *Magyar pedagógia, 118(2)*, 133-156.

Horwitz, I. M. (2021). Religion and academic achievement: a research review spanning secondary school and higher education. *Review of Religious Research, 63(1)*, 107-154.

Jeynes, W. (2002). Why religious schools positively impact the academic achievement of children. *International Journal of Education and Religion, 3(1)*, 16-32.

Jeynes, W. H. (2012). A Meta-Analysis on the Effects and Contributions of Public, Public Charter, and Religious Schools on Student Outcomes. *Peabody Journal of Education, 87(3),* 305–335. http://www.jstor.org/stable/41725437.

Király, G., Dén-Nagy, I., Gering, Zs., Nagy, B. (2014). Kevert módszertani megközelítések. Elméletek és módszertani alapok. *Kultúra és közösség.* 95-104.

Kodácsy-Simon, E., & Seres-Busi, E. (2022). A sokféleség mint rejtett dimenzió egyházi iskolás diákok narratíváiban. *Educatio, 31(3),* 445-460.

KOSZISZ 15. *A Kolping Oktatási és Szociális Intézményfenntartó Szervezet jubileumi évkönyve* 2007-2022. Budapest. pp80.

London, R. (2022). Pedagogy consistent with a holistic approach: Ten key principles. *Holistic Education Review, 2(1).*

Major, E., Bacskai, K., & Engler, Á. (2022). Nevelési értékpreferenciák az állami és egyházi iskolákban. *Educatio, 31(3),* 479-488.

Pusztai, G., Demeter-Karászi, Z., Csonka, É., Bencze, Á., Major, E., Szilágyi, E., & Bacskai, K. (2024). Patterns of parental involvement in schools of religious communities. A systematic review. *British Journal of Religious Education*, 1-20.

Pusztai, G., & Bacskai, K. (2015). A PISA és a fenntartói sokszínűség. *Educatio, 2*, 39-49.

Pusztai, G. (2016). Pedagógusok erőforrásai a felekezeti szektor egy speciális szegmensében. Fehérvári Anikó, Juhász Erika, Kiss Virág Ágnes és Kozma Tamás (szerk.): *Oktatás és fenntarthatóság*, Budapest, MNOE, 385-401.

Sinclair, K. (1983). The Motivation of Students in Disadvantaged Areas. *The South Pacific Journal of Teacher Education, 11(2),* 12-22.

Radó, P. (2007). Oktatási egyenlőtlenségek Magyarországon. *Esély 2007/4.* p25-36

Regnerus, M. D. (2000). Shaping schooling success: Religious socialization and educational outcomes in metropolitan public schools. *Journal for the scientific study of religion, 39(3),* 363-370.

Szilágyiné Szemkeő, J. (2005). Kolping nevelési-oktatási intézmények Magyarországon. *Mester és Tanítvány*. PPKE-BTK. 2005/5. p96-102.

Szilágyiné Szemkeő, J. (2007). *Életvilágok és a nevelés. Kísérlet az intézményes nevelés modellezésére*. Debreceni Egyetem-BTK. pp262.

Tóvári, J., & Lengyelné Molnár, T. (2001). *Kutatásmódszertan*. pp141.

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The Role of Higher Education in Integrate International Students Through Mentoring Program

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ABSTRACT

Institutions of higher learning are essential to students' assimilation into academic and larger social environments. The effect of higher education on student integration is examined in this abstract. When compared to their lecturers, students may perceive their increased interactions with peers both inside and outside of the institution as a result of their integration into the peer group. Strong integration may account for students' eager focus on their university assignments when they feel supported and integrated by others (Reindl, Auer & Gniewosz, 2022). Encouraging the formation of social networks and a sense of belonging through participation in student mentoring programs and events is vital for students' general well-being and academic achievement. The study will discuss how higher education affects students, emphasizing the importance of mentoring program and social integration theories in assisting students in overcoming the obstacles of their higher education. These services support students' overall integration into the academic community in addition to helping them achieve academic success. The purpose of this study is to investigate how mentoring programs can support acceptance and understanding of other cultures within the university community that they attend. This abstract's research question is: How can mentoring programs support students in overcoming obstacles in the university and aid in their overall academic community integration? What are the essential components of a mentoring program that are crucial to a student's success in integrating into higher education? This study used a qualitative methodology. The data will be gathered through semi-structured interviews with six students who took part in a mentorship program. The data from the interviews will be analyzed with the aid of Atlas.ti software. The discussion of the mentorship and social integration program will then benefit from the literature review. With an emphasis on social integration for students in higher education, this study is expected to discover and identify the ways in which mentoring programs assist international students in participating in more activities within the higher education system. In addition, to find out the important keys to help effective social integration strategy is crucial in encouraging students to take an active role in their university experience to lower the quantity of students who drop out. In summary, this abstract highlights the holistic function of postsecondary education in fostering student integration and stresses the ongoing need to develop mentorship programs in order to promote inclusive, encouraging, and stimulating learning environments. Higher education institutions contribute to the creation of more inclusive and cohesive societies in addition to improving the academic and social experiences of its students.

KEYWORDS

academic community, higher education, integration, international student, mentoring program

INTRODUCTION

An institution is deemed successful if it consistently enhances the quality of its resources, staff, and overall student assistance. Higher education institutions typically strive to enhance the quality of their programs. Investigating the quality of education is crucial for attracting more students to these universities for further studies. Establishing an environment that enables students to amalgamate their experiences within and beyond the institution is crucial for enhancing educational quality. This comprehensive strategy enhances the institution's reputation and attracts more students by facilitating academic and social success for students. Higher education institutions are crucial for students' integration into academic and broader social contexts. This abstract examines the impact of higher education on student integration. Students may feel their interactions with peers, both within and outside the school, heightened compared to those with their professors due to their absorption into the peer group. Robust integration may explain students' enthusiastic concentration on university tasks when they perceive peer support and cohesion (Reindl et al., 2022). Considering prior degrees of aim and institutional commitment, personal choices regarding college continuation may be affected by an individual's integration into the institution's social framework. Like academic integration, social integration is characterized by the interaction between an individual with specific attributes (such as backgrounds, values, and commitments) and others with differing attributes within the collegiate environment. It includes concepts of the extent of congruence between the individual and their social environment and the degrees of integration. Academic integration, especially regarding grade achievement, is essential for a student's capacity to persist in college. Peer interactions and friendships can facilitate and hinder a student's educational persistence.

Nevertheless, such research has often overlooked the potential that differences in the types of students admitted (i.e., student inputs) contribute to variations in dropout rates among institutions, as well as neglecting other institutional characteristics (i.e., beyond those examined) that may also influence dropout rates (Tinto, 1975). Moreover, Gehreke et al. (2024) propose that subsequent research should investigate the implementation of peer coaching throughout the initial stages of students' academic journeys and evaluate its effectiveness in that context. Therefore, it is essential to examine mentoring programs that assist students in acclimating to university life, as fostering social networks and a sense of belonging through participation in these programs and events is critical for students' overall well-being and academic success. This study examines how mentoring programs

facilitate accepting and comprehending diverse cultures within the university community.

LITERATURE REVIEW

STUDENTS' INTEGRATION

Universities are tasked with devising methods to incorporate students who exhibit isolation or peer deprivation. This will enhance the probability that these students establish a connection to the university and, as a result, sustain a high degree of intrinsic motivation (Reindl et al., 2022). Tinto (1975) posits that academic integration and goal commitment are more essential for college persistence than social integration and institutional commitment. Social integration is positively associated with emotional stability and openness. Openness exhibits no significant correlation with social integration among peers and is the least consequential personality trait regarding social integration with faculty members. Open-minded individuals are curious and enthusiastic about acquiring new knowledge. Open communication is advantageous for relationships with teaching staff in an academic environment, particularly in the classroom. Educators tend to choose students who demonstrate engagement (Jusri & Lechner, 2024).

Several factors determine student integration, particularly during the initial academic year. Students' perceived social integration is predominantly influenced by their personality, with significant contributions from familial characteristics, individual attributes, prior learning experiences, and expectations regarding future academic performance. These elements are associated with intellectual development and academic achievement, yet they appear to vary between genders and in cases of voluntary withdrawals and academic dismissals. Although academic achievement and intellectual growth are perceived as separate facets of an individual's assimilation into the academic system, the analysis of grading metrics indicates that individuals with elevated grades are more inclined to exhibit significant intellectual growth, especially in alignment with the prevailing intellectual environment of the institution. Ultimately, the sociodemographic or cultural background constitutes one of these determinants. Cultural and linguistic differences may impede social integration. The acknowledgement that many students engage with their academic pursuits differently was noted (Jusri & Lechner, 2024; Penn-Edwards & Donnison, 2011; Reindl et al., 2022; Tinto, 1975).

Understanding the characteristics of students who enrol in university is crucial to preventing academic disengagement, which leads to dropout rates among tertiary students, particularly in their first year of study (Penn-Edwards & Donnison, 2011). Penn-Edwards and Donnison (2011) found that certain students engage in transition processes early in the academic year by identifying their literacy needs within the initial weeks of college. Consequently, Penn-Edwards and Donnison (2011) developed a model of student interaction with institutional support: Pre-engagement, which aims to create an engaged university learning experience through pre-orientation and active post-enrollment;

Crisis engagement: only engaged in last-minute responses to deadlines.

Early engagement that students active following orientation

Late engagement is when students are only active in response to initial comments and grades.

Untrue engagement is where a phase of acknowledging that a prior interaction was not entirely active

Non-achieving involvement is where the student is active yet falls short of goals

Non-engagement or those who are not active

Reaction engagement or those who act in response to the final course grade, etc.

All students concurred that the adjustment period extended beyond the initial six weeks of the semester. Furthermore, they recognized that, although distinct from the first semester, the second semester represented a transformation phase and expected additional challenges in the forthcoming years (Penn-Edwards & Donnison, 2011).

MENTORING PROGRAM

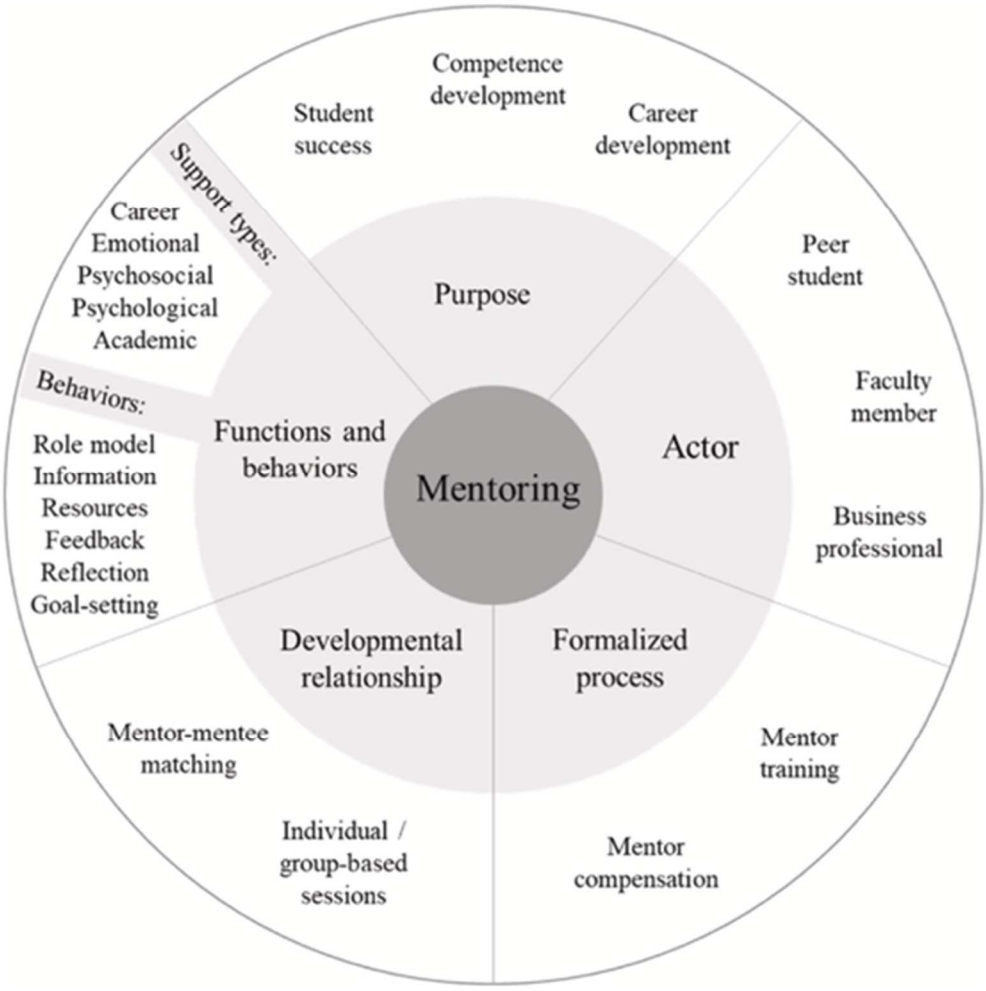
The term "mentor" was initially introduced to denote a supportive role model who continues to be revered and imitated across diverse domains (Freedman, 2009). The engagement among participants in the mentoring process aims to assist mentees in developing identities that facilitate their integration into university life. The mentoring process is a social construct (Christie, 2014). Peer mentoring programs can be tailored to address mentees' specific social, intellectual, and personal needs. It is essential to consider that gender, digital implementation, and format (group versus individual mentoring) may influence the design of peer mentoring programs to ensure they are need-based and beneficial for a broad range of students. Therefore, while developing peer mentorship programs, it is essential to include these factors (Gehreke et al., 2024). The mentor and mentee in peer mentoring are generally of similar age. However, mentoring is a supportive profession, so mentors must be situated to assist another student effectively. This is feasible only if the mentors are familiar with the university system. The effectiveness of a mentor in fulfilling both peer mentoring responsibilities, especially the career-related aspect, is diminished without the requisite experience. Student peer mentors should possess a foundational grasp of the university environment, which can be acquired by completing a portion of their coursework (Terrion & Leonard, 2007). A mentor providing psychosocial assistance serves as a valuable resource to alleviate the stress experienced by younger, less experienced students. Facilitating student stress reduction via peer mentoring relationships can aid the institution in achieving its objective of decreasing student attrition, provided that this is the program's aim (Terrion & Leonard, 2007). In a competency-based framework, mentoring and coaching are effective pedagogical tools for transforming students into responsible, engaged learners (Nuis et al., 2023).

The objective of the existing mentorship programs is to achieve a certain aim. These objectives encompass advancing students' careers, enhancing their competencies, and promoting student success. Secondly, according to fundamental learning theories, a faculty

mentor, a business professional, or a more experienced peer could fulfil the mentor role. Analysis indicated that (1) peer mentoring most frequently boosted student success; (2) both faculty and peer mentors promoted students' competence development; and (3) students' career development was primarily fostered by faculty and peer mentors. Thirdly, most mentoring programs were formalized, evidenced by the training and remuneration offered to mentors. Fourth, a developing relationship was established between the mentor and mentee through individual or group mentoring sessions.

Moreover, in one-third of the experiments, particular attributes were employed to pair the mentor with the mentee. The findings indicated that the mentor's principal function was to offer support (career, emotional, psychological, etc.) through certain behaviours (e.g., role modelling, providing resources, information, and feedback, encouraging introspection, assisting with goal planning, and presenting challenges). Focusing on delivering consistent and personalized student feedback to promote their reflection aligns well with foundational learning theories (Nuis et al., 2023). The mentoring was proposed as illustrated in Figure 1.

Figure 1.
Mentoring



As seen in Figure 1. The initial set of objectives was focused on growth and encompassed student achievement, competency enhancement, and career advancement. Secondly, the research findings confirmed that various individuals can assume the mentor role, including academic mentors, industry professionals, and peer mentors. This assessment also indicated that the mentoring objectives should be aligned with the type of mentor chosen. The study examined several methods of compensating different participants and highlighted the need to account for the duration and frequency of mentor training when formalizing the mentoring process. The review further elucidated the progressive nature of the mentoring relationship while emphasizing the importance of mentor-mentee pairing. Fifth, specific categories of mentoring and supportive behaviours were identified and elucidated. Emotional, interpersonal, psychological, and academic help were identified as the most essential aid forms. Furthermore, the predominant mentor behaviours identified encompassed exemplifying conduct, providing resources and expertise, delivering feedback, encouraging introspection, and assisting with goal-setting.

Furthermore, other forms of mentoring existed. Non-digital peer mentoring forms remain preferred and more effective, while digital peer mentoring formats are a viable alternative. The combined utilization of peer mentoring formats, wherein digital platforms such as WhatsApp groups augment face-to-face mentoring

meetings, is a prevalent subject of discourse. None of the listed studies expressly compared the individual and group-based formats. Consequently, it is unfeasible to ascertain that one format is more advantageous than the other.

Nevertheless, peer mentorship programs have employed both approaches and demonstrated success with both formats (Gehreke et al., 2024). Moreover, mentoring connections encompassed two models: the transmission and interdependence models (Storrs et al., 2008). Transfer denotes the presumption that mentors serve as custodians of professional and academic knowledge imparted to protégés, possessing predominant authority due to their superior social status as senior undergraduates, faculty, or staff, which is evident in the defining traits of this mentoring style. Another facet of the interdependent paradigm is that interdependency entails relational or emotional expectations within mentoring relationships. Despite the fluctuating roles of the mentee and mentor, both were regarded as vital to the effectiveness of the relationship.

Moreover, mentoring offers several benefits for organizations. These benefits encompass enhanced leadership, reduced employee turnover, expedited onboarding of recruits, and support concerning organizational expectations (Freedman, 2009). Peer mentoring has demonstrated considerable efficacy as a support program for first-year university students in various aspects. The mode of implementation, whether individually or in a group, does not influence the program's efficacy (Gehreke et al., 2024). they range from individual advantages to cultivating a sense of community among students on campus. Upon analyzing responses by gender, women's replies were characterized as relationship-centered and focused on the benefits of having a companion and a support network.

In contrast, males indicated that the primary benefit was the enhanced learning derived from obtaining support from a peer or equal, for example, content-centered responses (Colvin & Ashman, 2010). According to mentee feedback, the program enhanced faculty engagement and fostered a positive faculty perception of the institution. The mentees perceived the organization as committed to advancing their career and professional development. Furthermore, the mentees reported an increase in self-awareness and confidence. Upon concluding the mentorship program, the mentees indicated increased job satisfaction (Gupta, 2020, p. 347).

However, the efficacy of mentoring programs is contingent upon the mentor and mentee's experiences, which can be either positive or negative. For instance, Storrs et al. (2008) demonstrate in their study that when the respondent, Lucy, was interviewed at the semester's end, she described her initial and sole encounter as "strained" and expressed disappointment with her mentoring experience. Despite occurring at an informal coffee shop, Lucy regarded the interaction as akin to a typical teacher-student exchange. She could not answer numerous inquiries from her mentor concerning her academic and professional ambitions. He subsequently guided her on alternative career choices and directed her to research several professions that were pertinent to her major online. Lucy was disappointed as she had expected a polite discourse on shared interests, but the exchange did not meet her expectations. Perceiving his request as an assignment, she did not complete it due to her already rigorous academic schedule.

Consequently, Lucy never reestablished contact with her tutor. She deduced that he was disinterested in meeting her due to his lack of further communication attempts. This is merely one instance from the mentoring program.

Consequently, feedback serves as a potent instrument for learning and an essential technique in cultivating mentoring relationships. Various forms of mentoring may be required for support and the exchange of feedback at different phases (Freedman, 2009). Mentee feedback was a vital element in evaluating the overall efficacy of the coaching and mentoring program (p. 347; Gupta, 2020). The mentor-mentee relationship exhibits hierarchical ordering. Consequently, resources, authority, and support often circulate unidirectionally, increasing the likelihood of misallocation or misinterpretation of these assets and creating barriers and opposition (Colvin & Ashman, 2010). Assumptions on the understanding of roles, dangers, and advantages, as well as their implications for power dynamics and resistance within the university's student success program, which is characterized by ongoing and established training, cannot be made. Concerning the function of a mentor and its application in various relationships, students, teachers, and mentors possess varied perspectives. Enhanced clarification for all stakeholders may provide a more precise delineation of duties and diminish ambiguity. This is especially true if mentorship programs focus on only one or two roles rather than including all five. Clarifying the instructor's and students' duties may prove advantageous, particularly in a first-year experience course (Colvin & Ashman, 2010). Observations and audio, video, and video recordings can provide valuable insights into the mentoring relationship and potential feedback interactions between mentor and mentee. While these assessments complicate sharing private and sensitive information, often seen in mentoring sessions, they may yield more insights into current and mostly neglected aspects of mentoring (Nuis et al., 2023).

AIMS, RESEARCH QUESTIONS AND/OR HYPOTHESES

The research questions in this study were:

1. How might mentorship programs assist students in surmounting challenges at the university and facilitate their overall integration into the academic community?

2. What are the fundamental elements of a mentorship program are vital for a student's successful integration into higher education?

METHODS

This study employed a qualitative research methodology. Data collected via semi-structured interviews with six students in a mentorship program at the University of Debrecen. The interview data was evaluated using Atlas. Ti software. The literature evaluation enhanced the discourse on the mentorship and social integration program. This study also had limitations regarding participants; they must be current semester students, enrolled in any major, and participants in the mentorship program given by the institution for award recipients. This study has potential drawbacks,

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namely, with participants enrolled in the Stipendium Hungaricum Mentor Network. They originated from several programs intended to assist with campus life at the University of Debrecen. They choose their mentor either before they arrive at the university or shortly after that.

Table 1.
Participants

Anynomous participant	Gender	Year of joined mentoring program	Level of education
Participant 1	Female	2022	Ph.D.
Participant 2	Female	2023	Ph.D.
Participant 3	Female	2022	Ph.D.
Participant 4	Female	2023	Ph.D.
Participant 5	Female	2021	Ph.D.
Participant 6	Female	2023	Master

The researcher created interview questions. It consisted of four sections. The first section was about understanding the challenges students face in university, the second was about the role of mentoring in academic and social integration, the third was about essential components of a successful mentoring program, and the last was about the impact and sustainability of mentoring programs.

Furthermore, after creating interview guides, the participants were selected by snowball sampling or, according to the participants' recommendations, whoever joined the mentoring program. Firstly, the first participant who matched the criteria was found. After the participant agreed to conduct an interview, the researcher arranged a schedule based on the participant's agreement. Then, an interview was conducted, and the participant recommended another mentee from the same program. Next, the interview is also done with another mentee, and this process is repeated. The duration of the interview was about thirty minutes.

After interviewing the participants, the interview was transcribed. Then, the data were analyzed the data. In order to analyze the data, the researcher used thematic analysis. First, familiarize yourself with the data, generate the initial code, search themes, review potential themes, define name themes and report.

RESULTS

After doing a thematic analysis, there were eight themes found. They were challenges as newcomers, the benefits of mentoring, the drawbacks of mentoring, the integration of academics, key elements, and the mentoring process, which were solved by mentoring and suggestions. Additionally, sub-themes are also listed in Table 2.

Table 2
Themes

Themes	Sub-themes
Challenges as newcomers	Time management Academic pressure Socialization Immigration and all of the offices Market Communication because staff are not English speakers Public transport Student card, registration Digital stuff Bureaucracy process Accustomed to the culture and environment.
Benefits of mentoring	Bonding among peers This mentoring program could build a good relationship between peers and university staff Welcoming picnic, small seminar or workshop, introduce poetry about the history of the country and the holidays It helped a lot with emotional building, emotional wellness and social Understand the school culture Mentor mentee program could extend the international network Supporting each other, meeting friends and peers, hanging out, and visiting the town New friends Having a picnic within a group or with mates Having a field trip Helping anything Communication until now It is helpful and useful.
Drawbacks of mentoring	The events have limitations (participants) for the students This mentoring did not address or introduce to school culture There is no closing of mentorship Some mentees had never contacted their mentors Mentors were not well trained. Less engagement between mentor and mentee The high number of mentees for one mentor

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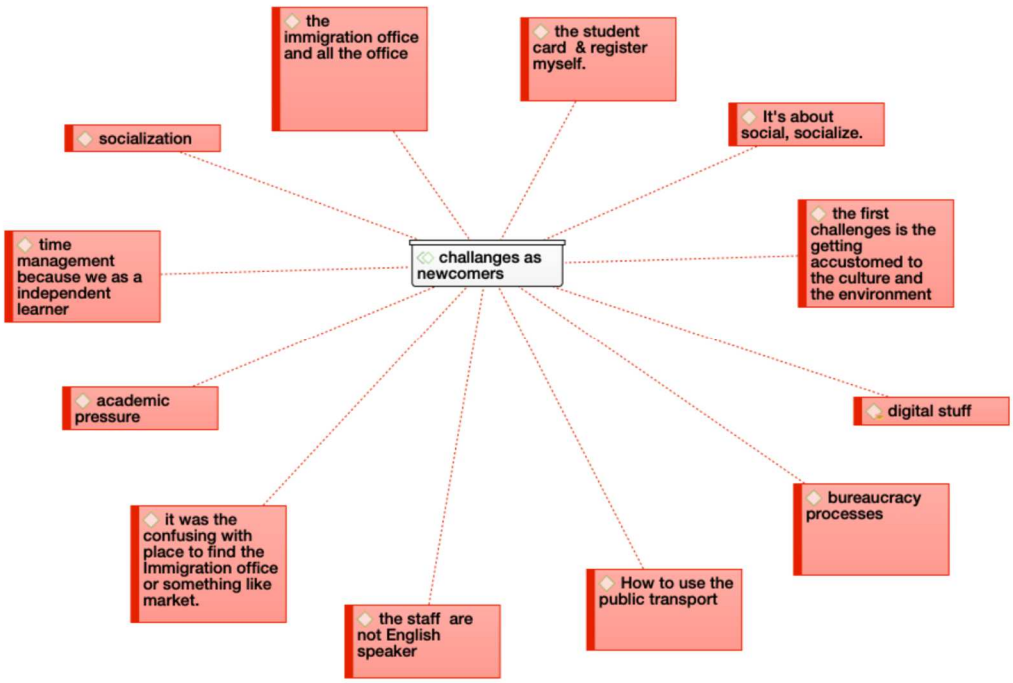
Academic integration	There is no connection between faculty Academic was not much Mentor could answer the questions related to where got the learning materials, the Neptune, register and the function of Neptune Mentors were different faculty It was not that helpful
Key elements	The goal of the new students and mentoring had Communication Clear program, objective, how mentor and mentee build communication
Process of mentoring	It was not mandatory; it was just optional; you could apply for it After being awarded the scholarship, they offered a mentor and mentee program Awardee received an e-mail, and you can apply; you just need to go to the link We could read about mentors, such as their names, where they come from, their majors, and their interests. Normally, we could choose one international and one Hungarian mentor. We had a contact on WhatsApp, or we can meet in person. After registering, they had a first gathering in the main building and shared about our first week.
Solved by mentoring	Confusing about university places Asking the mentor where to get the student card, registration, classes, and read the timetable
Suggestions	Differentiate the program into bachelor, master, or Ph.D. More training for mentors and more activities between mentors and mentees Allowing pick mentors from the same field. They could give orientation about the program, how to register, and how to join the conference/write a paper It needed feedback from everyone Regular meetings, communication, and more mentors Having joined the university program together Good management, like mentees and also the program Good schedule Having a program or association for students could meet every week or every month Financial support from the institution Having modules, worksheets, and reflections for students Making a session where can choose directly, not only through an online application The effective to evaluate the program is an interview Satisfaction of the mentees The last meeting, a mentoring program can celebrate with a project, poster or performance Sharing information Mentors should be trained to help with academic, social and cultural needs. Reflection, other academic journey More communication, programs, and weekly or monthly university meetings are needed in the first months. The mentor should organize meetings for all students and meet personally in the first week.

Table 2. shows some themes that were found. Each theme had sub-themes that related to the mentoring program. However, to answer the research questions, only three of them were shown in detail in the study.

ASSISTING STUDENTS IN SURMOUNTING CHALLENGES

Figure 2
Challenges as newcomers



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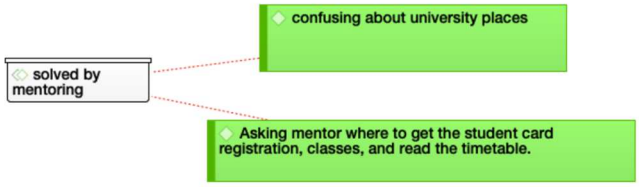
Based on the findings, the challenge for students when they arrived in Hungary were immigration office, administration or bureaucracy stuff, language, culture, environment, time management, academic pressure, public transport and socialization. Those challenges that they encounter as newcomers that they needed help from mentoring program. According to the result, mentee who enroll in the mentoring program they asked question regarding these obstacles. From all of mentee, they stated that they asked the mentor about the university places and ask mentor regarding bureaucracy process as seen in the Figure 3.

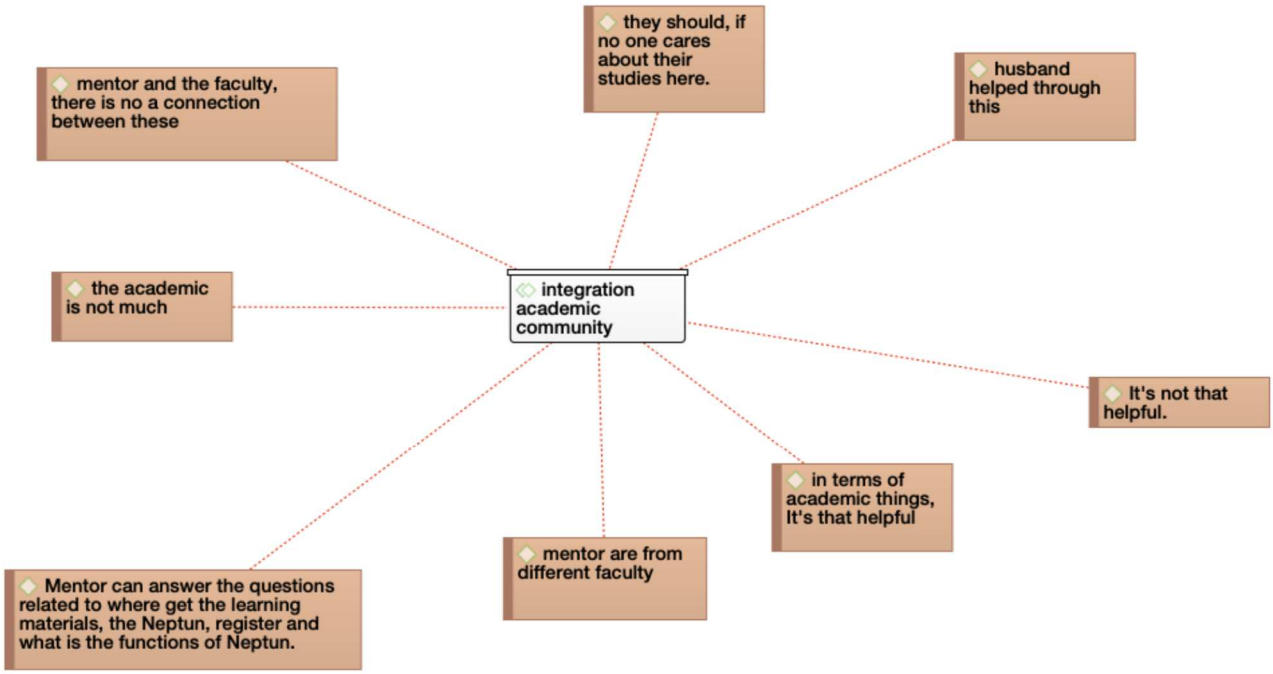
Figure 3
Problem solved by Mentor



There were many mentees confused regarding the place to register themselves, the place to take their student's cards, and, most importantly, they did not know where is the immigration. Since they joined the mentoring program, they might ask their mentors those questions.

INTEGRATION INTO THE ACADEMIC COMMUNITY

Figure 4
Integrationinto the academic community



From the interview, the researcher found out that the mentoring program did not help students to integrate into the academic community. It was found out that the mentee and mentor were in different faculties. In general, the mentors can only answer questions related to Neptun, read schedules and locations of classes, and search for learning material.

Meanwhile, mentees wanted mentor help when they had orientation, faculty, and any requirements from faculty. Unfortunately, mentors could not help them with this.

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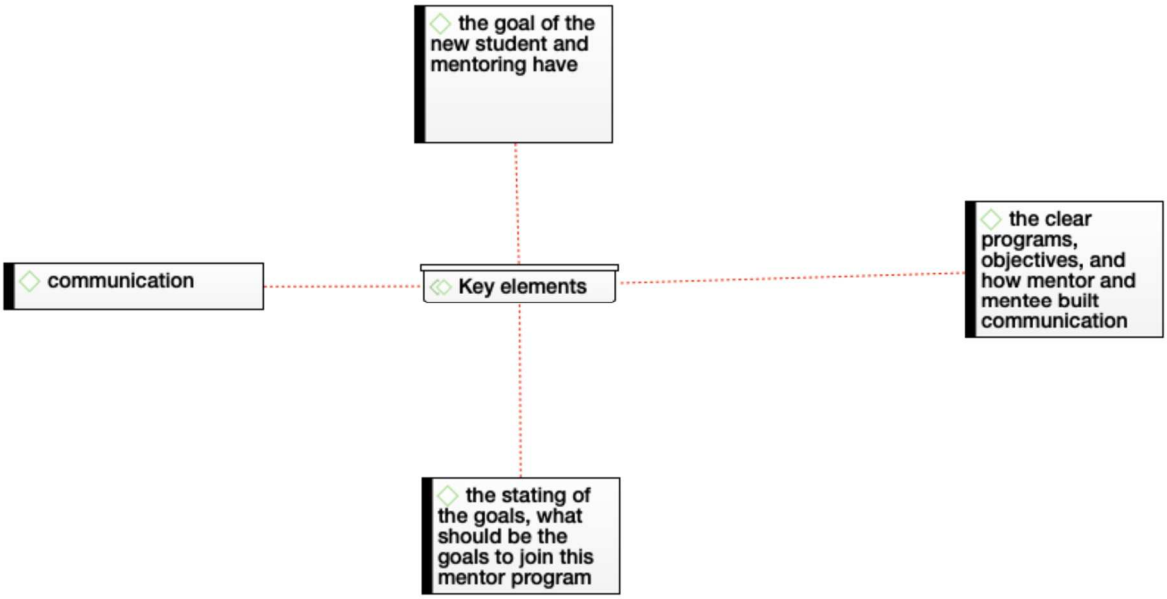
Figure 5
Key elements in mentoring program



It was found that mentees believed that the crucial key to the mentoring program was communication, and they had frequent meetings with their mentor; they also wanted to see the clear goal of the mentoring program and match with them. Unfortunately, the mentoring they joined did not clearly state their goals or objectives, so the communication between the mentor and mentee was not comprehensive to all the mentees. It depended on the mentor itself. Even the mentees did not know when the mentoring program was finished; they only knew it had started when they arrived in Hungary. However, they did not know when it finished.

DISCUSSION

According to the study's result, all mentees wanted that mentoring program. They had clear goals and objectives. This finding was also supported by Tinto (1975), who said that academic integration and goal commitment are slightly more essential for college persistence than social integration and institutional commitment. Moreover, communication became an important key in the mentoring program since the mentee needed communication with a mentor. They needed mentors to help them with their challenges as newcomers in Hungary. As Jusri and Lechner (2024) stated, open communication benefits relationships. Mentees also expected that the program could be tailored well to address their problem, which were all of the statements mentioned in the interview because they wanted to ensure they could solve the problem. In line with Gehrke et al. (2024), peer mentoring programs can be tailored to address mentees' specific social, intellectual, and personal needs. The design of peer mentoring programs to ensure they are need-based and beneficial for a broad range of students.

In addition, mentees also stated that they had obstacles to school culture and environment. All of the mentees are confused with school offices. As Terrion and Leonard (2007), Student peer mentors should possess a foundational grasp of the university environment, which can be acquired by completing a portion of their coursework (Terrion & Leonard, 2007). Hence, the mentee asked the mentor for assistance regarding academic issues that made the mentee, as a newcomer, feel pressured. This finding is also made by Terrion and Leonard (2007), who state that a mentor should provide psychosocial assistance and serve as a valuable resource to alleviate the stress experienced by younger, less experienced students. Facilitating student stress reduction via peer mentoring relationships can aid the institution in achieving its objective of decreasing student attrition, provided that this is the program's aim.

Furthermore, this mentoring program also should have an evaluation in the form of feedback. The mentee gave many evaluations in the interview, stating they needed evaluation to improve this program. This statement also aligns with Gehreke et al. (2024), who mentioned that peer mentoring has demonstrated considerable efficacy as a support program for first-year university students. Importantly, the mentee's feedback and the program enhanced faculty engagement and fostered a positive faculty perception of the institution (Gupta, 2020, p. 347). It could provide valuable insights into the mentoring relationship and potential feedback interactions between mentor and mentee. They may yield more insights into current and mostly neglected aspects of mentoring (Nuis & associates, 2023).

CONCLUSION

Higher education institutions contributed to creating more inclusive and cohesive societies and improving their students' academic and social experiences through mentoring programs. Mentorship programs were to promote inclusive, encouraging, and stimulating learning

environments for new students. This study found out that new students face many challenges, such as difficulty in finding the immigration office, administration or bureaucracy stuff, language, culture, environment, time management, academic pressure, public transport and socialization. The result showed that the mentoring program did not help students integrate into the academic community because the mentee and mentor were in different faculty. In general, the mentors can only answer questions related to Neptun, read schedules and locations of classes, and search learning material. Moreover, the crucial key of the mentoring program was communication, in which they had frequent meetings with the mentor; they also wanted to see the clear goal of the mentoring program and match with them.

In sum, the mentoring program was good for building students' socialization among their peers. It helped students to make new friends, build networking, and obtain support from each other while staying in Hungary. This program had benefits and drawbacks itself. This mentoring program could not help students integrate into the academic community at the university. It is also important to state the program and objective of this mentoring program clearly so that the mentor and mentee can do well to reach it. According to the study, this finding indicated that the mentoring program was good for helping students build their social lives rather than academic lives. This study suggests that the programs should improve. The University of Debrecen may use this finding to build more cultural or academic programs to help students integrate into university life. They created clear goals, objectives, programs, and schedules to improve this program.

REFERENCES

Christie, H. (2014). Peer mentoring in higher education: issues of power and control. *Teaching in Higher Education, 19(8)*, 955–965. https://doi.org/10.1080/13562517.2014.934355

Colvin, J. W., & Ashman, M. (2010). Roles, risks, and benefits of peer mentoring relationships in higher education. *Mentoring and Tutoring: Partnership in Learning, 18(2),* 121–134. https://doi.org/10.1080/13611261003678879

Freedman, S. (2009). Effective mentoring. *IFLA Journal, 35(2),* 171-182. https://doi.org/10.1177/0340035209105672

Gehreke, L., Schilling, H., & Kauffeld, S. (2024). Effectiveness of peer mentoring in the study entry phase: A systematic review. In *Review of Education 12(1)*, 1–32. https://doi.org/10.1002/rev3.3462

Gupta, A. (2020). Mentoring faculty for quality enhancement in Indian higher education. In B. J. Irby, J. N. Boswell, L. J. Searby, F. Kochan, R. Garza, & N. Abdelrahman (Eds.), *The Wiley International Handbook of Mentoring* (pp. 327–352). https://doi.org/http://dx.doi.org/10.1002/9781119142973.ch20

Jusri, R., & Lechner, C. (2024). The level and development of university students' social integration: personality traits and person-environment fit predict integration with fellow students and teaching staff. *Higher Education, 1–20*. https://doi.org/10.1007/s10734-024-01240-y

Nuis, W., Segers, M., & Beausaert, S. (2023). Conceptualizing mentoring in higher education: A systematic literature review. In *Educational Research Review (Vol. 41).* Elsevier Ltd. https://doi.org/10.1016/j.edurev.2023.100565

Penn-Edwards, S., & Donnison, S. (2011). Engaging with Higher Education Academic Support: a first year student teacher transition modele jed_1501 566..580. *European Journal of Education, 46(4),* 566–580. https://doi.org/10.1111/j.1465-3435.2011.01501.x

Reindl, M., Auer, T., & Gniewosz, B. (2022). Social Integration in Higher Education and Development of Intrinsic Motivation: A Latent Transition Analysis. *Frontiers in Psychology, 13*. https://doi.org/10.3389/fpsyg.2022.877072

Storrs, D., Putsche, L., & Taylor, A. (2008). Mentoring expectations and realities: An analysis of metaphorical thinking among female undergraduate protegés and their mentors in a university mentoring programme. *Mentoring and Tutoring: Partnership in Learning, 16(2),* 175–187. https://doi.org/10.1080/13611260801916499

Terrion, J. L., & Leonard, D. (2007). A taxonomy of the characteristics of student peer mentors in higher education: Findings from a literature review. *Mentoring and Tutoring: Partnership in Learning, 15(2),* 149–164. https://doi.org/10.1080/13611260601086311

Tinto, V. (1975). Dropout from Higher Education: A Theoretical Synthesis of Recent Research. Source: *Review of Educational Research, 45(1),* 89–125. https://www.jstor.org/stable/1170024

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A Quest for a School Feeding Program in Kakuma Refugee Camp, Kenya: Lessons from Success Stories Globally

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ABSTRACT

Refugee education is essential, as it plays a crucial role in rebuilding lives for those displaced from their home countries due to conflict. Unfortunately, hunger continues to be a significant challenge for refugee children as they strive for this transformative opportunity while residing in camps. Numerous refugee camps worldwide have successfully implemented school feeding programs, yielding positive outcomes. However, Kakuma refugee camp, which accommodates over 1 million refugees, currently lacks a feeding program for school-aged children.

This paper seeks to draw upon various success stories from different refugee camps to propose recommendations for establishing a school feeding program in Kakuma. Such an initiative could help alleviate hunger among schoolchildren, which greatly affects their academic performance and overall health. As the global community endeavors to achieve the Sustainable Development Goals (SDGs), particularly regarding equality and zero hunger, it is important that refugees are not left behind.

KEYWORDS

refugee, hunger, education, Kakuma

INTRODUCTION

The steady rise in the number of hungry and food insecure people in most parts of the word is of a great concern and its bound to get worse due to the COVID 19 pandemic thus necessitating more effort to be stepped up to meet the SDG targets in the ten years left before 2030(FAO, 2020).Up to 80% of the 26 million refugees worldwide, regardless of where they live, experience food insecurity(Nisbet et al., 2022). In Sub-Saharan Africa for instance there's widespread food insecurity due to the increase in climate disasters and persistent conflicts has led to widespread food insecurity and this has immensely affected millions of refugees(World Economic Forum, 2024).

The Kenya Refugee Act 2021, which preceded the 2006 law outlines the recognition, protection and management of refugees in accordance with the 1951 United Nations Convention on the Status of the Refugees and the 1969 Organisation of Africa Unity Convention that governs important aspects of refugee issues in Africa(Kituo Cha Sheria, 2021). If the act is fully implemented, enables refugees to move freely, work, access financial services among many other privileges. Under Article 28(5) the act acknowledges the right to work specifically mentioning the "special circumstances of refugee". One key component of the new refugee policy is turning refugee camps into urban settlement zones and this has seen Kakuma refugee camp turn into a city with over 2500 enterprises and urban employments(Abdullahi Boru Halakhe et al., 2024).

Kakuma Refugee Camp in Kenya which hosts nearly two hundred thousand people from 20 countries, marked its 30th anniversary in 2021 (Teferra, 2022).It was set up to accommodate an influx of Sudanese refugees who fled the civil war in Sudan and were followed soon after by refugees from Ethiopia(Piper et al., 2011).However the challenges in food provisioning and rationing in the camp has forced the young ones to fend for themselves which have adversely impacted their fundamental right to education(Benedetta, 2017).

Globally school feeding programs are part of a child's education and in refugee communities it is a safety net and a means of expanding access to nutrition, health and educational resources(World Food Program, 2022).Despite such initiatives, environmental hardships such as Kakuma's hot climate, frequent dust storms and employment restrictions makes agriculture impossible leaving refugees dependent on aid including school meals for children (World Food Program USA, 2023).

According to a UNHCR report only 63% of refugee children attended primary education in 2018 as opposed to 91% globally(UNHCR, 2019).The percentage is much lower in secondary school with only 24% of refugee children enrolled compared to 84% worldwide. This is a clear indication that there's still a global gap in education for refugees(Diarra, 2023).As at present Kakuma Refugee camp has 13 pre-schools, 21 primary and 5 secondary schools and this has allowed approximately 56% of pre-primary, 92% of primary and 6% of secondary eligible children to enroll (UNHCR, 2018).

In Kenya school feeding programs have been in place since the 1980s varying levels of accomplishment. Its main target was to encourage the enrollment and retention of rural children and girls of which is the country's goal of achieving universal primary education(Langinger, 2011).This is a good indication that such a program if implemented in Kakuma Refugee camp will help address the present education challenges being experienced in the camp.

LITERATURE REVIEW

According to the 1951 Refugee Convention, the Convention of the Rights of the Child and Sustainable Development Goal 4 and the UNHCR's Education Strategy 2012-2016, creating and implementing inclusive, high-quality educational options for youths and children remains a primary goal.(UNHCR, 2018).Among the few initiatives that show potential for boosting of school enrollment and learning are school feeding and community-based monitoring programs(3ie et al., 2016)

As they strive to make the best out of a bad situation, refugees prioritises all forms of education by ensuring that their children go to school despite the declining resources available for refugee education(Crisp et al., 2001)

School feeding programmes plays a critical role in lowering barriers to education by enhancing children's health and cognitive development while increasing their rates of enrolment and attendance in school(World Food Program, 2022).In Ethiopia the World Food Program(WFP) implemented a school feeding program in Afar and Oromia regions, through the provision of daily school meals and take home rations with a goal of boosting girls enrolment in schools as well as those with disabilities .The initiative led to a significant improvement in their educational performance(World Food Program, 2023b).Similarly, in Rwanda, Adventist Development and Relief Agency(Rwanda) in collaboration with the World Food Program(WFP) conducts a school feeding program in six refugee camps including Kiziba, Gihembe and Mahama through the daily provision of porridge meals .This led to the improvement of the school attendance and well-being of both for the refugee and local children(ADRA Rwanda, 2020).

In Lebanon's Bekaa region, a pilot school-based nutrition intervention exhibited enormous benefits for the Syrian refugee children especially in gastronomic knowledge, attitudes, behaviours (KAB) and their nutrient intake. Children in grades 4-6 at informal schools were targeted with the six month project which combined classroom instruction with the distribution of health snacks made locally(El Harake et al., 2018).

Not only does school feeding programs act as a social safety net for achieving the Millenium Development Goals but also target low income households with food insecurity or schools that have low student enrollment and attendance rates(Lawson, 2012).It would therefore be essential to set up a system for enhancing school health clinical records, which would involve expanding the health indicators examined to include anthropometric measures and dietary investigation as a component of an initiative to track, detect, and lower the prevalence of malnutrition among kids in the camps(Rizkallah, 1991)

Kenya presents an evolving example due to recent changes in refugee policy that significantly deviate from earlier national approaches. As regional geopolitical dynamics, strategic interests, and security concerns have changed throughout time, so too has its refugee policy. As a result, the nation has transitioned over time from an integration strategy to an encampment policy and back to a policy that improves the integration of refugees into national systems, providing them with wider access to services in accordance with the Comprehensive Refugee Response Framework (CRRF) framework. (Maloba & Is, 2024)

AIMS, RESEARCH QUESTIONS AND HYPOTHESES

Many refugee camps still face inconsistent and unstable education which is a glaring gap between the declaration of education for all and the realities that the children in refugee camps are facing(Thulare et al., 2019).Despite the overwhelming evidence of the positive outcomes of school based interventions in enhancing the state of nutrition of vulnerable children in war and displacement settings, there remains a lack of sufficient investigation into their potential benefit

(Abuhaloob et al., 2018).There's is minimal research attention paid to the nutritional status of school-aged children(El Harake et al., 2018) even as acute malnutrition reaches severe levels in Kakuma and Dadaab refugee camps in Kenya endangering the wellbeing of many particularly children(IRC, 2024).In response to the concern of malnutrition in the camp, this paper seeks to explore success stories from existing school feeding programs in selected refugee camps globally and through this be able to identify its applicability in addressing the hunger issues affecting schoolchildren in Kakuma Refugee Camp.

MAIN RESEARCH OBJECTIVE

To find out how successful school feeding programs in selected refugee camps of the world can be replicated in Kakuma Refugee Camp schools.

SPECIFIC OBJECTIVES

- To identify the key features of the successful school feeding programs in selected refugee camps globally
- To find out the outcomes of the successful school feeding programs in selected refugee camps globally
- To evaluate the applicability in Kakuma Refugee Camp schools of the successful school feeding programs in selected refugee camps globally

METHODOLOGY

This study analyses some of the documented successful school feeding programs in three of the worlds refugee camps to through the review of relevant documents such as policy drafts/documents, sessional papers, commissioned or non-commissioned specific studies, project appraisals, mid-term or terminal evaluations, progress reports, and various articles in journals and newspapers(Aklilu, 2008).The selection of the cases was based on their applicability to the concept of a sustainable feeding program for Kakuma Refugee schools. The comparison criteria including the key features, challenges and outcomes was adopted from the World Food Program initiative that was conducted in Ethiopia between 2019-2024(World Food Program, 2023b).The measure of any nutrition or public policy should be supported by strong evidence from both social or biological sciences as well as the quality of the procedures and the results on the wellness needs of the project(Levinson et al., 1999).

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RESULTS

In this section we present the findings from the review of selected refugee camps who have implemented successful school feeding with a bid to evaluate their applicability into the Kakuma Refugee camp schools. Below is the Table 1 which illustrates the key features, outcomes and applicability of the school feeding initiatives to the Kakauma context.

Table 1
Successful Refugee School feeding programs

Refugee Camp	Country	Program Name	Key features	Outcomes	Applicability to Kakuma
Zaatari	Jordan	Nutrition for Education Initiative	A nutritious midday snack of biscuits or a fortified date bar distributed to children in classroom by teachers	Increased school attendance by 20% and improved nutrition status	Strongly applicable
Bekaa Valley	Lebanon	Pilot School Based Nutrition Programme	Combined classroom-based education and provision of locally prepared nutritious snacks	Improved dietary knowledge, nutritional status and attitude among refugee students	Boosting of sustainable community-based solutions through the education aspect
Cox's Bazaar	Bangladesh	WFP School Feeding USDA McGovern Dole Grant	-Provision of fortified biscuits -Raising aweareness about the cooking and consumption of healthy food -Promotion of vegetable gardens	-Strengthening of students enrollment, attendance and concentration /Complementation of government and other donors' efforts	Due to the water scarcity and limited space in Kakuma the refugee community should be encouraged to adopt alternative vegetable gardening which require less water and can flourish in limited space.

Source: Author

DISCUSSION

This section examines the key features, outcomes of school feeding programs implemented in Zaatari (Jordan), Bekaa Valley (Lebanon) and Coxs Bazaar (Bangladesh) with an aim of establishing their relevance to the Kakuma Refugee Camp in Kenya.

KEY FEATURES OF THE SCHOOL FEEDING PROGRAMS

Every program in Table 1, reflects the uniqueness and multifaceted ways of tackling hunger among refugee school going children from direct provision of meals to involving the community through projects that aim at sustaining the school feeding programs. The Zaatari Refugee camp school feeding programe targets the immediate nutritional needs of school children through the distribution of fortified biscuits in camp learning centres (ReliefWeb, 2013).There's an urgent need for constant screening and intervention initiatives for the refugee population who are affected by malnutrition which exposes them to the risk of stunted growth especially the adolescents(Saeedullah et al., 2021).Through community participation the Cox's Bazaar program ensures the sustainability through promotion of vegetable gardening and creation of awareness of health food preparation through increased home visits, door to door biscuit distribution and the use of digital platforms (World Food Program, 2023a).

OUTCOMES

As indicated by a pilot program of a school-based nutrition initiative carried out in Bekaa, Lebanon, the Syrian refugee children were positively impacted through an increase in the dietary knowledge, attitudes and nutritional health(El Harake et al., 2018).This demonstrates the benefits of a similar school feeding program in Kakuma Refugee Camp to support students learning and well-being. School feeding programs have improved attendance and academic achievement in low-income nations, and there is evidence in the literature that a nutritious diet is essential for proper cognitive development and educational achievement(Hoteit, 2018).The provision of in- school meals boosts the enrolment for the children who had not been enrolled at the start but have attained the recommended age of school admission(Alderman et al., 2012)

APPLICABILITY TO KAKUMA REFUGEE CAMP

In 1966, the School Feeding Council in Kenya launched the first school meal programmes. Additionally, all public elementary schools in Kenya began offering school milk programmes in 1979. Established with full government funding, the program's goal was to improve children's health and nutrition.(Bekidusa & Kisimbii, 2020).Since its founding, it has focused on addressing food insecurity in Kenya's most vulnerable areas, such as the ASAL school districts and the informal urban slums of major cities like Nairobi and Mombasa(Espejo, 2009).The unfortunate part is that no such program has been rolled out in the refugee schools. Through integrating refugees and asylum seekers in national systems and providing them with better services for both refugee and host community children , we can unlock a triple win: for refugees, for host communities and for governments(UNICEF, 2023).It is therefore of huge importance to involve the schools in the refugee camp in the school feeding program to bridge the education inequality gap existing among the displaced populations of the world.

Combining classroom based education and school feeding initiatives promotes awareness of and demand for high quality education(ReliefWeb, 2021).To ensure that refugee children grow up into healthy adults, measures of prevention should start early in life and this can be fostered through schools providing an environment that promotes health lifestyles(Habib-Mourad et al., 2014). Due to water scarcity in refugee camps alternative ways of food production that require less water and minimal space can be adopted. One way to deal with the lack of water is having a small manageable area to irrigate only enough to yield a considerable number of vegetables and water friendly. Residents should also be trained on water conservation

methods throughout all the vegetable production stages.(Haddad, 2023)

Conclusion

Although hunger remains one of the biggest and most preventable issues in the world, it is still possible to eradicate it.(World Food Program, 2024).From the various reviewed cases of successful school feeding programs in the selected refugee camps of the world on thing has stood out and that is the need to address the immediate nutritional needs of refugee school children to save them from malnutrition and poor cognitive development that will affect them adversely in their adult life. These camps include Zaatari in Jordan, Cox's Bazaar in Bangladesh and Bekaa Valley in Lebanon all of which have realized the positive benefits of providing meals to vulnerable children such as increased school attendance, dietary knowledge, attitudes as well as nutritional status of refugee children. These programs also complement other government and donor initiatives which promotes the wellbeing of marginalized communities in this case thew refugees. Due to geographical disparities among the selected refugee camps, modification of the programs will make it easy to implement them into the Kakuma context. For instance, the vegetable gardening promoted in Bangladesh can be adopted through the use of methods that require less water and limited space. As indicated in all the three case studies, the provision of fortified biscuits stands out as the main meal given to the school children. This study therefore recommends a similar kind of program in Kakuma Refugee Camp schools and if possible, it can start with a pilot project to gauge its feasibility. Government agencies as well as Humanitarian Organisations (HOs) should promote collaboration to ensure sustainability of the school feeding programs in refugee camps. For future researchers, we recommend studies on ways of integrating the national school feeding programs of host countries into the refugee schools. In addition, more research should be conducted on community led models of refugee school feeding programs to enhance sustainability.

References

3ie, Snilstveit, B., Stevenson, J., International Initiative for Impact Evaluation (3ie), Menon, R., International Initiative for Impact Evaluation (3ie), Phillips, D., International Initiative for Impact Evaluation (3ie), Gallagher, E., International Initiative for Impact Evaluation (3ie), Geleen, M., Maxwell Stamp, Jobse, H., Independent Consultant, Schmidt, T., Independent Consultant, Jimenez, E., & International Initiative for Impact Evaluation (3ie). (2016). *The impact of education programmes on learning and school participation in low- and middle-income countries* (2016th ed.). International Initiative for Impact Evaluation (3ie). https://doi.org/10.23846/SRS007

Abdullahi Boru Halakhe, Allan Mukuki, & David Kitenge. (2024). *The New Refugee Act in Kenya and What it Means for Refugees—Kenya | ReliefWeb*. https://reliefweb.int/report/kenya/new-refugee-act-kenya-and-what-it-means-refugees

Abuhaloob, L., Carson, S., Richards, D., & Freeman, R. (2018). Community-based nutrition intervention to promote oral health and restore healthy body weight in refugee children: A scoping review. *Community Dental Health*, *35*(2), 81–88.

ADRA Rwanda. (2020). *Warehouse and School Feeding Program*. ADRA Rwanda. https://adra-rwanda.org/our-projects/current-projects/sfp/

Aklilu, Y. (2008). Livestock marketing in Kenya and Ethiopia: A review of policies and practice. *Feinstein International Center, Addis Ababa*, *38*.

Alderman, H., Gilligan, D. O., & Lehrer, K. (2012). The Impact of Food for Education Programs on School Participation in Northern Uganda. *Economic Development and Cultural Change*, *61*(1), 187–218. https://doi.org/10.1086/666949

Bekidusa, A., & Kisimbii, Dr. J. (2020). Influence Of School Feeding Program On The Retention Of Learners In Public Primary Schools In Kenya; A Case Of Mombasa County. *Journal of Education and Practice*, *4*(3), 1–12. https://doi.org/10.47941/jep.440

Benedetta, W. (2017). *Examining the Protection and Promotion of Children's Right to Education in Refugee Camps: A Case Study of Kakuma Refugee Camp Turkana County, Kenya*.

Crisp, J., Talbot, C., & Cipollone, D. B. (2001). *Learning for a Future: Refugee Education in Developing Countries*. United Nations Publications, Sales & Marketing Section, Room C-113, Palais des Nations, 1211 Geneva 10, Switzerland. https://eric.ed.gov/?id=ED480207

Diarra, G. (2023). *Access, Enrollment and Retention: The Case of Secondary Female Refugee Education in Kakuma Refugee Camp and Kalobeyei Settlement in Northwestern Kenya*. Carleton University.

El Harake, M., Kharroubi, S., Hamadeh, S., & Jomaa, L. (2018). Impact of a Pilot School-Based Nutrition Intervention on Dietary Knowledge, Attitudes, Behavior and Nutritional Status of Syrian Refugee Children in the Bekaa, Lebanon. *Nutrients*, *10*(7), 913. https://doi.org/10.3390/nu10070913

Espejo, F. (2009). *Home-Grown School Feeding: A Framework to link School Feeding with Local Agricultural Production: World Food Programme*.

FAO. (2020). *The State of Food Security and Nutrition in the World 2020*. FAO, IFAD, UNICEF, WFP and WHO. https://doi.org/10.4060/ca9692en

Habib-Mourad, C., Ghandour, L. A., Moore, H. J., Nabhani-Zeidan, M., Adetayo, K., Hwalla, N., & Summerbell, C. (2014). Promoting healthy eating and physical activity among school children: Findings from Health-E-PALS, the first pilot intervention from Lebanon. *BMC Public Health*, *14*(1), 940. https://doi.org/10.1186/1471-2458-14-940

Haddad, J. (2023). Growing Vegetables Amid Water Scarcity in Refugee Settlements in Uganda. *East-West Seed Knowledge Transfer*. https://www.ews-kt.com/growing-vegetables-amid-water-scarcity/

Hoteit, R. A. (2018). *Does A Subsidized School Meal Program Reduce Absenteeism and Improve Academic Performance of Palestinian Refugee School Children?* https://doi.org/10.13140/RG.2.2.25542.14409

IRC. (2024). *IRC urges immediate action to address alarming rise in malnutrition cases threatening refugees in Kenyan Camps | International Rescue Committee (IRC)*. https://www.rescue.org/press-release/irc-urges-immediate-action-address-alarming-rise-malnutrition-cases-threatening-0

Kituo Cha Sheria. (2021). *Https://kituochasheria.or.ke/wp-content/uploads/2023/11/Refugees-Act-2021-plus-Cover-B_compressed.pdf*. https://kituochasheria.or.ke/wp-content/uploads/2023/11/Refugees-Act-2021-plus-Cover-B_compressed.pdf

Langinger, N. (2011). School feeding programs in Kenya: Transitioning to a homegrown approach. *Stanford Journal of International Relations*, *13*(1), 30–37.

Lawson, T. M. (Ed.). (2012). *Impact of School Feeding Programs on Educational, Nutritional, and Agricultural Development Goals: A Systematic Review of Literature*. https://doi.org/10.22004/ag.econ.142466

Levinson, F. J., Rogers, B. L., Hicks, K. M., Schaetzel, T., Troy, L., & Young, C. (1999). Monitoring and evaluation of nutrition programs in developing countries. *Nutrition Reviews*, *57*(5), 157–164.

Maloba, E. S. I., & Is, S. M. (2024). *Refugee policy in the horn of Africa: What can development partners learn from Kenya's policy change?* European University Institute. https://doi.org/10.2870/857528

Nisbet, C., Lestrat, K. E., & Vatanparast, H. (2022). Food Security Interventions among Refugees around the Globe: A Scoping Review. *Nutrients*, *14*(3), 522. https://doi.org/10.3390/nu14030522

Piper, B., Dryden-Peterson, S., Chopra, V., Reddick, C., & Oyanga, A. (2011). Are Refugee Children Learning? Early Grade Literacy in a Refugee Camp in Kenya. *Journal on Education in Emergencies*, *5*(2), 71. https://doi.org/10.33682/f1wr-yk6y

ReliefWeb. (2013). *WFP Starts School Feeding For Syrian Refugee Children In Jordan And Iraq—Syrian Arab Republic | ReliefWeb*. https://reliefweb.int/report/syrian-arab-republic/wfp-starts-school-feeding-syrian-refugee-children-jordan-and-iraq

ReliefWeb. (2021). *End-Term Evaluation of WFP School-Feeding USDA McGovern Dole Grant 2017-2020—Decentralized Evaluation Report, March 2021—Bangladesh | ReliefWeb*. https://reliefweb.int/report/bangladesh/end-term-evaluation-wfp-school-feeding-usda-mcgovern-dole-grant-2017-2020

Rizkallah, N. (1991). *Nutritional Status of Primary School Children in a Refugee Camp of the West Bank*.

Saeedullah, A., Khan, M. S., Andrews, S. C., Iqbal, K., Ul-Haq, Z., Qadir, S. A., Khan, H., Iddrisu, I., & Shahzad, M. (2021). Nutritional Status of Adolescent Afghan Refugees Living in Peshawar, Pakistan. *Nutrients*, *13*(9), Article 9. https://doi.org/10.3390/nu13093072

Teferra, G. (2022). Kakuma Refugee Camp: Pseudopermanence in Permanent Transience. *Africa Today*, *69*, 162–189. https://doi.org/10.2979/africatoday.69.1_2.08

Thulare, T. D., Spoolstra, C., Dombrowski, E., Jordan, R., & Nabacwa, R. (2019). A Comparative Policy Analysis of the Comprehensive Refugee Response Framework in Uganda and Kenya. In *Comparative Perspectives on Refugee Youth Education*. Routledge.

UNHCR. (2018). *Education Strategy Kakuma Refugee Camp Keny*. Bing. https://www.bing.com/search?q=Education+Strategy%0D%0AKakuma+Refugee+Camp%0D%0AKeny&FORM=SSQNT1&PC=U531

UNHCR, U. N. H. C. for. (2019). *Stepping up: Refugee education in crisis*. UNHCR Genève.

UNICEF. (2023). *Accelerating inclusion of refugee children*.

World Economic Forum. (2024, June 20). *5 ways to alleviate food insecurity in displaced populations*. World Economic Forum. https://www.weforum.org/agenda/2024/06/5-ways-to-bolster-food-security-in-displaced-populations/

World Food Program. (2022, June 30). *Considerations for programming School Feeding programmes in Refugee Settings, 2022 | World Food Programme*. https://www.wfp.org/publications/considerations-programming-school-feeding-programmes-refugee-settings-2022

World Food Program. (2023a). *Ethiopia, Food for Education and Child Nutrition 2019-24: Evaluations | World Food Programme*. https://www.wfp.org/publications/ethiopia-food-education-and-child-nutrition-2019-24-evaluations

World Food Program. (2023b). *WFP Bangladesh Country Brief, June 2023—Bangladesh | ReliefWeb*. https://reliefweb.int/report/bangladesh/wfp-bangladesh-country-brief-june-2023

World Food Program. (2024). *Donate | World Food Programme*. https://www.wfp.org/support-us/stories/donate

World Food Program USA. (2023). Hunger in the 4 Largest Refugee Camps in the World. *World Food Program USA*. https://www.wfpusa.org/articles/hunger-largest-refugee-camps-world/

Topics on Teacher Training

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The Interaction Style of Teacher Education Students

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ABSTRACT

A teacher's interaction style is a hard-to-change, constant personality trait, which is reflected in the teacher's behaviour, communication, and is derived from mutual, two-way reactions and this relationship. Its importance is primarily manifested in the development of the cognitive and affective aspects of the students' personality (Wubbels et al., 2005; Gavora et al., 2003). We consider it important to be able to point out the different interaction styles even in the case of teacher candidates, giving students the opportunity to shape their personality and discover their self-knowledge already during their studies. The aim of our present research is to examine the interaction style of students participating in Hungarian-speaking teacher training in Slovakia. Our study discusses the first results from our pilot research. Our sample consisted of university students studying pedagogical sciences, participating in teacher training, who are currently completing their studies in a master's course, all Hungarian-speaking, in Slovakia. The main goal was to adapt an instrument suitable for measuring teacher interaction. Within the framework of a pilot study, we examined the suitability of the Hungarian version of the 48-item QTI questionnaire (Fisher et al., 1995; Wubbels, 2005) for measuring teacher interaction for a broader measurement of Hungarian students in Slovakia. We examined the reliability indicators of the Hungarian version of the questionnaire. In the article, we summarize the results from the processing and evaluation of the data, and we designate a direction for our further research, as a result of which we can draw parallels between the interaction style considered ideal by students, the interaction style of practicing teachers and the interaction style of future teachers.

KEYWORDS

interaction, teacher interaction, interaction style, teacher training.

INTRODUCTION

The aim of the research was to develop a reliable and valid Hungarian version of the Questionnaire on Teacher Interaction (QTI) for Hungarian-speaking teacher training students in Slovakia. Emphasising the importance of social skills, the instrument aids in identifying the interpersonal style of future teachers, which will, in turn, influence the cognitive and emotional development of the pupils they teach during their teaching practice. In the course of the research, 64 master's level teacher training students completed the 48-item questionnaire, which assesses 8 factors. As a result of the analysis, the items formed a new model consisting of 8 subscales. Considering the reliability indicators, the questionnaire is suitable for a broader examination of Hungarian-speaking teacher training students in Slovakia.

LITERATURE REVIEW

To engage in discussions with others, we need social skills. Regarding the process of socialisation, it is crucial that these skills—enabling us to understand others' thoughts, feelings, or intentions regarding us—are developed (Weinstein, 1969; 1976). Over the course of history, the expectations set for teachers have encompassed personality traits, behaviours, and abilities—or as we refer to them today: competencies.

While ability is defined by The Explanatory Dictionary of the Hungarian Language (Soltész et al., 1972: 672) as a 'physical and mental aptitude, suitability, inclination for performance or activity', the term competency is not yet included in the mentioned dictionary. The term competency (from Latin competentia), denoting suitability, is interpreted by the Pedagogical Lexicon (Agócs et al., 1997) as a cognitive characteristic, while ability is described as a 'psychic characteristic' that 'develops through the practice of certain activities and is manifested in performing them'. A teacher's competency is individualised and variable, making it difficult to measure (Obst, 2002). According to Nagy (2000), competency refers to the aptitude to fulfil a specific function, which is partially a condition for implementation—achieved through ability. The English terms 'compete', 'competition', 'competence', and 'competency' explain the concept of competency from different perspectives (Klein & Klein, 2012; Tóth & Horváth, 2021). According to Szőke-Milinte (2006), the basic abilities include those teacher personality traits that are essential for the functioning of interpersonal relationships. Interpersonal (social) competence ensures the path to peace and sustainability, while personal competence, which focuses on the individual and is based on self-knowledge (self-awareness, self-control, motivation, commitment, and taking on roles), embodies a quality value system (Hupková & Petlák, 2004).

According to Weinstein (1976), interpersonal competence is the ability through which we can influence and control others' responses in relation to our own goals. Factors aimed at assessing effective interpersonal competence are likely influenced by the series of interactions experienced during childhood, where we also become self-evaluators of our behaviour (Weinstein, 1976; Bandura & Walters, 1963). Individuals with low self-esteem tend to avoid making mistakes of any kind and shy away from failure (Weinstein, 1976). While Foote and Cottrell's (1955) theory of interpersonal competence does not account for the demands and acknowledgements affecting the participants in an interaction, Weinstein (1969) positions the interaction process itself as the starting

point. The social-psychological approach to the concept of interaction focuses mainly on goals (Thibaut & Kelley, 1959; Homans, 1961; Weinstein, 1976), whereas other approaches, which are based on the concepts of interpersonal tasks and interpersonal competence, consider and examine the entire process (Goffman, 1961; Garfinkel, 1964; Weinstein, 1976). In pedagogy, interaction is a two-way interplay where the teacher and student mutually influence each other's behaviour. The predictability stemming from the stability of a teacher's interaction style provides a sense of security for the student (Gavora et al., 2003). Good interaction is one of the basic conditions for being in a social environment, and it is also one of our fundamental interpersonal skills (Roeders & Gefferth, 2007). Leary (1957) believed that the impact a person has on others is primarily influenced by their own personality, with their behaviour remaining consistent in similar situations; thus, through analysing these situations, we can gain a deeper understanding of the essence of personality. In his psychotherapy practice, Leary developed an instrument to analyse interactions and assess his patients' personality traits, based on the principle of complementarity. The model comprises personality traits arranged in a circular manner between the axes of attachment and resistance, as well as dominance and submission (interpersonal circumplex).

A teacher's behaviour can be assessed not only by those around them, but also by the teacher themselves, using self-evaluation (Gavora et al., 2003). The self-image reflects how we perceive ourselves, while the social image conveys how we believe others perceive us (Weinstein, 1976). Weinstein (1976) outlines the types of remedial approaches distinguished in Merril Jackson's unpublished work, which can also be projected onto pedagogical styles in the context of interactional forms. According to this framework, the teacher, as a representative of shamanism, may appear narcissistic at times, yet also timid, humble, or even repellent, in order to draw the attention of those around them to themselves. This charismatic teacher employs their own power and allure to achieve their aims ('healing') and to temporarily motivate their students. The practitioner of magic, the sorcerer, is knowledgeable of the secret rules and rituals. The preacher, who bases their approach on religion, downplays their personal power and virtues, representing the community to which they belong in this spirit. They inspire their students, guide them towards understanding the past and planning the future, and, importantly, maintain a close relationship with their pupils. The pedagogue grounded in mysticism adopts a student-centred and empathetic approach, relying on intuition and wisdom, aiming to heal and develop the students' personalities; however, this style is often perceived as less successful compared to the preacher's approach. The reason for this primarily lies in the contrived performance of the teacher role. From an external perspective—in this case, the students—such teachers were seen as overly helpful, friendly, kind, and, noticeably, somewhat artificial. Nature-based pedagogy, by contrast, is impersonal, focusing solely on the task itself. Employing a self-assessment instrument that measures teachers' interpersonal behaviour may provide a more complex picture of the factors within the classroom that significantly influence students (Wubbels et al., 2006).

Moving out of the field of clinical psychology, attempts were made to adapt Leary's (1957) model to the domains of education and teaching. The authors identified eight categories of teacher interpersonal behaviour, which were subsequently adopted by numerous researchers (Wubbels et al., 1987; Wubbels & Levy, 1991; 1993; Gavora et al., 2003; Tóth & Horváth, 2022):

- Leadership (assertive, leading, organising, instructing)
- Helpful/Friendly (attentive, humorous, interested)
- Understanding (consensus-seeking, sympathetic, patient, empathetic)
- Student Freedom, lenient (granting freedom and responsibility)
- Uncertain (indecisive, hesitant)
- Dissatisfied (doubtful, critical, evaluative)
- Admonishing (disciplining, angry)
- Strict (firm, controlling, rule-abiding)

To assess a teacher's interaction style from the perspectives of students, colleagues, superiors, or even the teachers themselves, Wubbels & Levy (2005) developed an instrument known as the Questionnaire on Teacher Interaction (QTI). The 48-item version of the QTI has been applied in several countries (Passini et al., 2015; Sun et al., 2018; Boukari et al., 2022); however, it was first adapted in Australia by Fisher et al. (1995), who also confirmed its suitability for teachers' self-assessment. Tóth & Horváth (2022) examined ideal teacher interpersonal behaviour among Hungarian students at four teacher training institutions in the Carpathian Basin, successfully adapting the Hungarian-language version of the QTI for their study (Cronbach $\alpha = 0.676 – 0.804$).

AIMS, RESEARCH QUESTIONS, AND HYPOTHESES

Our research aimed to develop a reliable and valid Hungarian version of the QTI (Fisher et al., 1995; Wubbels, 2005) for assessing Hungarian teacher training students in Slovakia in a way that allows them to evaluate themselves.

We framed our research question as follows: Is the Hungarian-adapted version of the Questionnaire on Teacher Interaction (QTI) applicable for a broader examination of Hungarian teacher training students in Slovakia?

METHODS

We conducted quantitative inferential descriptive research through a cross-sectional data collection using a survey. Data analysis was performed using IBM SPSS Statistics 26.

SAMPLE

Our research sample consisted of Hungarian teacher training students in Slovakia, enrolled in master's-level university or college programmes. Using random stratified sampling, a total of 64 students (N=64) participated in the study, including 59 women and 5 men, with an average age of 26.03 years. Of the respondents, 89.1% were permanent residents of Slovakia, while 10.9% resided in Hungary; 54.7% lived in rural areas, and 45.3% in urban settings. Among the Slovakian students, the largest group (47.37%) was from the Nitra Region, followed by 26.32% from Trnava, 17.54% from Banská Bystrica, 7.02% from Košice, and 1.76% from Bratislava. All respondents are currently studying at a Hungarian-language higher education institution in Slovakia, enrolled in various specialisations

within the teacher training faculty's master's programme. Regarding their secondary education, the majority of respondents had graduated from vocational secondary schools with a school leaving examination (51.6%) or secondary grammar schools (43.8%). A smaller segment of our sample had already chosen a support or teaching profession during their secondary studies (20.31%). One distinctive feature of our sample is that the survey was conducted within a national minority context. Regarding the population, data provided by the academic office of the university attended by the respondents indicated that there are 185 students enrolled in master's-level Hungarian teacher training in Slovakia. We defined the participants in Hungarian teacher training in Slovakia as those undertaking secondary-level college or university studies in Slovakia within a Hungarian-language primary school or secondary school teacher training programme. For the 2024/2025 academic year, a total of 185 students are enrolled in this master's programme at the relevant institution, of whom 34.59% completed our questionnaire. Among the 141 full-time students, 54 (38.30%) responded, while 10 (22.73%) out of the 44 part-time students answered our questions. Regarding the study programmes, 43 respondents were enrolled in primary school teacher training, and 21 were pursuing secondary school teacher training.

We also examined additional background variables, such as the highest educational attainment of the respondent's mother and father, the distance between the university and their permanent residence, commuting methods to the institution, average academic performance, foreign languages spoken, participation in voluntary activities, employment undertaken alongside university studies, as well as their future career plans in the teaching profession. We were also interested in whether there were or are teachers within their family or extended family and whose influence guided them towards a teaching career.

Our research was conducted in 2024, and as such, data analysis is still ongoing; this study presents only preliminary findings. To measure teacher interaction, we conducted an online questionnaire survey.

Measurement

To assess the teachers' own interaction styles, we used the 48-item version of the Questionnaire on Teacher Interaction (QTI) adapted in Australia by Fisher et al. (1995), based on Wubbels et al. (2005) original version. We selected this instrument because Tóth & Horváth (2022) had successfully used its Hungarian version among university students to define ideal teacher interaction styles. This tool is a self-assessment questionnaire consisting of 48 items on a 5-point Likert scale, examining eight factors:

- Leadership, assertive
- Helpful, friendly
- Understanding, consensus-seeking
- Student Freedom, lenient
- Uncertain, indecisive
- Dissatisfied, doubtful
- Admonishing, reprimanding, disciplining
- Strict, firm (Wubbels & Levy, 1991; 2005)

We worked with the 48-item English version of the originally Dutch questionnaire (Wubbels et al., 1985), which had already been successfully translated into English and used in Australia (Fisher et al., 1995), with each factor represented by six items. Beyond translation, we adapted the questionnaire to the Hungarian teacher training community in Slovakia. The item formulations were restructured into a self-report format. For double back-translation, two independent translators translated the content into Hungarian; one of them was unfamiliar with the theoretical framework of the study. Conflicting sections were edited and then back-translated into English. After addressing errors and inconsistencies, we involved three university students in refining the items, after which further revisions were made. Completion of the online questionnaire was voluntary and anonymous. In the original questionnaire, responses were rated on a Likert scale from 0 to 4; in our study, we modified this to a scale from 1 to 5.

Results

Following the adaptation and preparatory tasks related to translation and the execution of the sampling procedure, we aimed to assess whether the QTI questionnaire is suitable for broader measurement among Hungarian teacher training students in Slovakia, and to examine the factor structure of the instrument. After conducting normality tests as part of our statistical procedures, we proceeded beyond descriptive statistical analysis to examine reliability indicators as well.

For scale-type questionnaires, the standard method for establishing reliability is to determine internal homogeneity. We assessed reliability using the Cronbach's alpha coefficient, considering values between 0.6 and 0.9 as acceptable. We examined the reliability indicators of each factor individually (Table 1). Among the factors, the values for Leadership (Cronbach's α = 0.824), Helpful (Cronbach's α = 0.806), Dissatisfied (Cronbach's α = 0.833), and Understanding (Cronbach's α = 0.826) were at a good level, the Admonishing factor (Cronbach's α = 0.767) was acceptable, while the Uncertain (Cronbach's α = 0.694) and Strict (Cronbach's α = 0.687) factors showed moderate but still acceptable reliability indicators within the subdomain, and the Student Freedom factor (Cronbach's α = 0.599) was on the borderline of acceptability. The Cronbach's alpha values for the different factors ranged between 0.599 and 0.833. The standardized values are presented in Table 1.

Table 1.
The Cronbach-alpha values of the QTI octans

SCALE	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	Cronbach's Alpha if Item Deleted
leadership (DC)	0.824	0.845	-
helpful (CD)	0.806	0.811	-
understanding (CS)	0.826	0.833	-
student freedom (SC)	0.599	0.601	0.649
uncertain (SO)	0.694	0.770	0.829
dissatisfied (OS)	0.833	0.837	0.835
admonishing (OD)	0.767	0.793	0.839
strict (DO)	0.687	0.688	-

Subsequently, we excluded items with inadequate values based on communalities. The Admonishing factor (Cronbach's α = 0.839), the Uncertain factor (Cronbach's α = 0.829), and the Dissatisfied factor (Cronbach's α = 0.835) all showed good levels, and the Student Freedom factor (Cronbach's α = 0.649) also had an acceptable reliability indicator in this subdomain. We were unable to improve the

values of the Leadership, Helpful, Understanding, and Strict factors, but these are considered acceptable without omitting any items. The Cronbach's alpha values for the different factors then ranged between 0.649 and 0.845, making all variables reliable and meeting the required standards for an instrument. We did not have any values exceeding 0.9. Table 1 presents the questionnaire sections where reliability indicators could be improved by omitting certain items. Since we did not solely rely on Cronbach's alpha to assess a questionnaire's acceptability in the given environment, we also examined whether inter-item correlation reached at least a value of 0.5.

As shown in Table 2, our variables are suitable for factor analysis based on the Kaiser-Meyer-Olkin indicator (KMO = 0.622) ($\chi^2[1128] = 2352.112$, $p < 0.000$). The KMO value for the entire model is adequate, meaning it is acceptable (Sajtos & Mitev, 2007).

Table 2
KMO and Bartlett´s Test

KMO and Bartlett´s Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.622
Bartlett's Test of Sphericity	**Approx. Chi-Square**	2352.112
	Df	1128
	Sig.	.000

We subjected our data to factor analysis to determine the model we obtained. We conducted a normality test. There are three latent variables indicating a normal distribution. According to the Kaiser-Meyer-Olkin indicator, the Uncertain factor follows a normal distribution, and under the Student Freedom criterion, the Strict and Leadership factors can also be considered normally distributed (Sajtos & Mitev, 2007). The Helpful, Understanding, Student Freedom, Dissatisfied, and Admonishing scales do not follow a normal distribution. The 48 measured variables are suitable for factor examination.

For factor rotation, we applied Varimax rotation and the Maximum Likelihood method. The communality of all variables exceeded the expected minimum value of $r<0.3$, so none were excluded from the model. Using the Maximum Likelihood method, we categorized the items into 8 factor variables. The total variance of the obtained 8 factors was 65.330%, which still meets the 60% variance criterion (Sajtos & Mitev, 2007) and the standard requirement in social science research (see Fig. 1).

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Table 3
Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	13,872	28,901	28,901	13,872	28,901	28,901
2	4,169	8,685	37,586	4,169	8,685	37,586
3	3,408	7,099	44,685	3,408	7,099	44,685
4	2,691	5,606	50,291	2,691	5,606	50,291
5	2,24	4,667	54,959	2,24	4,667	54,959
6	1,823	3,799	58,757	1,823	3,799	58,757
7	1,65	3,438	62,196	1,65	3,438	62,196
8	1,504	3,134	65,33	1,504	3,134	65,33
9	1,385	2,885	68,215	1,385	2,885	68,215
10	1,323	2,756	70,971	1,323	2,756	70,971
11	1,239	2,582	73,553	1,239	2,582	73,553
12	1,032	2,151	75,704	1,032	2,151	75,704
13	1,009	2,102	77,806	1,009	2,102	77,806
14	0,938	1,955	79,761			
15	0,842	1,755	81,516			
16	0,785	1,635	83,151			
17	0,716	1,491	84,642			
18	0,67	1,397	86,038			
19	0,632	1,316	87,354			
20	0,547	1,141	88,495			
21	0,524	1,092	89,586			
22	0,494	1,03	90,616			
23	0,475	0,991	91,607			
24	0,423	0,882	92,489			
25	0,377	0,785	93,274			
26	0,351	0,732	94,006			
27	0,329	0,685	94,691			
28	0,317	0,66	95,351			
29	0,28	0,584	95,935			
30	0,257	0,536	96,471			
31	0,229	0,477	96,948			
32	0,213	0,443	97,392			
33	0,174	0,363	97,755			

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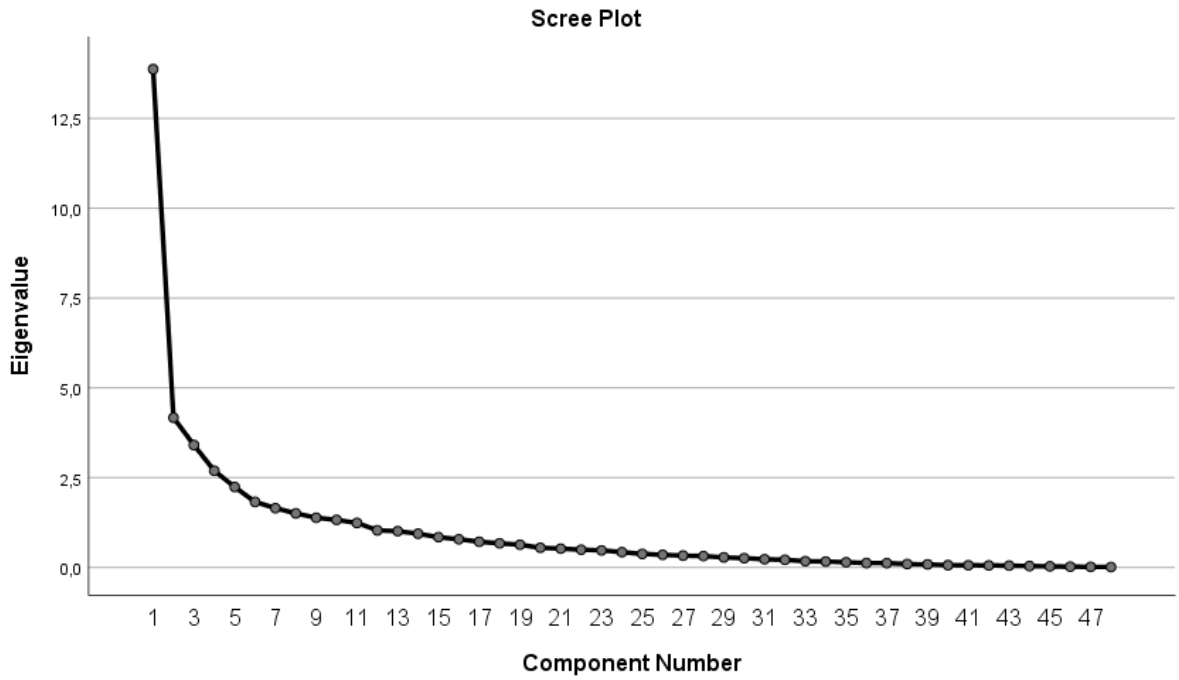
34	0,165	0,343	98,098
35	0,145	0,301	98,399
36	0,123	0,256	98,655
37	0,121	0,252	98,907
38	0,094	0,196	99,103
39	0,085	0,176	99,279
40	0,063	0,132	99,412
41	0,06	0,124	99,536
42	0,055	0,115	99,651
43	0,051	0,106	99,757
44	0,038	0,08	99,837
45	0,031	0,064	99,9
46	0,021	0,044	99,944
47	0,015	0,032	99,976
48	0,011	0,024	100

Extraction Method: Principal Component Analysis.

When determining the number of factor dimensions, we also took the elbow method into account (see Fig. 1).

Figure 1
Scree plot



Given the larger standard error of factor loading, we worked with factor loadings of at least 0.3.

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Table 4
Rotated Component Matrix

Item	Component							
	F1	F2	F3	F4	F5	F6	F7	F8
OS8	.797							
OD4	.738							
OD24	.695							
OS27	.677			.366				
SO11	.672	-.336					.319	
OS31	.645	-.531		.319				
SO23	.609		-,333		.461			
OD16	.587			.382				
OS35	.495	-.473						
OS47	.449			.443				
SC34	.443				.432			
DO48	.415			.409		-.326		
CD33		.772						
CD25		.759						
CS6		.744						
CS10		.734	.374					
CD29		.639						
CS14		.635		-.329				
CS18		.602	.481					
CS2	-.350	.453			.412	.407		
CS22		.422	.331			.328		
DC21			.804					
DC17			.725					
DC9		.302	.715					
DC5		.457	.698					
SO3	.374		-.668					
SO7	.443		-.551					
DC1		.359	.490				.365	
CD45	-.308		.486			.484		
SO19	.380		-.402		.340			
DO44				.762				
DO36				.734				
DO28				.693				
DO40		-.396		.611				
OS43					.732			
SC30	.460		-.312		.549			
OD20	.421				.477			
OS39	.316	-.314		.425	.436			
DC13						.704		
CD37					-.401	.551		

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CD41			-.500	.535	
DO32				.476	-.402
OD12					-.719
SO15					.685 -.314
SC26		.313			.528
SC46					.738
SC38					.702
SC42					.629

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization. a. Rotation converged in 15 iterations.

A new model was formed that does not align with the original circumplex model but instead covers the phenomenon across 8 distinct subscales, with different items than the original, categorized under different scales in the model (see Table 3). We concluded that the factor analysis results do not reproduce the QTI variables.

Table 5.
The new factors

Factor	Name of scale
F1	Impulsive, directive, oppositive, distrustful to students
F2	Helpful, understanding, cooperative, faithful to students' capabilities, empathetic
F3	Leader, uncertain on behaviour issues, dominant, confident on educational issues
F4	Strict
F5	Critical, submissive, sceptical
F6	Helpful, consistent, cooperative
F7	Assertive
F8	Student Freedom

In our model, we have designated the subscales according to the interpretation of the factors as follows (Table 4):

- F1: A factor variable that is difficult to categorise, as the factor loadings of its items are distributed across multiple factor variables. It includes the following variables: Admonishing (4), Dissatisfied (4), Uncertain (2), Student Freedom (1), and Strict (1). The impulsive, directive teacher is uncooperative, often distrustful of students, and instils fear, which can negatively impact student performance.
- F2: Consists entirely of the items for the variables Helpful (3) and Understanding (6). All items from the Understanding variable in the original model fall into this factor. This type of teacher is helpful, understanding, and cooperative, trusting in the students' abilities. They are highly empathetic, someone whom their students can always rely on, and they place considerable emphasis on educational matters.
- F3: Comprises the items for the variables Leadership (5) and Uncertain (3). This is a dominant type of teacher, capable of cooperation and providing necessary guidance. While they are uncertain on educational matters, they are confident in professional issues related to teaching, particularly those required for teaching exact sciences.
- F4: Consists entirely of the items for the variable Strict (4). Their expectations are extremely high in terms of academic rigour and assessment, though the individual items do not cover the appearance of strictness in the educational process or in areas related to student behaviour.
- F5: A factor variable that is difficult to categorise, as it includes the items for the variables Dissatisfied (2), Student Freedom (1), and Admonishing (1). This teacher is submissive, uncooperative, often critical and dissatisfied with students, which may stem from their scepticism.
- F6: Another difficult-to-categorise factor variable. It includes 3 items from the Helpful variable, as well as items from the Leadership and Strict variables. This teacher is helpful, consistent, and cooperative, with lessons characterised by a positive atmosphere, in addition they exhibit dominance and always maintain a thorough overview of what is happening in the classroom.
- F7: Plays a role in the variance of multiple items, making it a challenging factor variable to identify. It covers one item each from the Admonishing, Uncertain, and Student Freedom variables. The assertive teacher allows students to develop independently, granting them freedom in certain decisions while also setting clear boundaries to maintain discipline.
- F8: Easily identifiable, containing only the items from the Student Freedom (3) variable. This teacher's permissiveness may stem from a lack of dedication, disinterest, or even signs of burnout.

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Following this, we examined how university students perceive their own teacher interaction style. We ranked the interaction styles characteristic of our sample. The teacher training students' assessments were ranked in descending order as follows:

- Uncertain, Dissatisfied, Admonishing
- Strict
- Leadership
- Student Freedom
- Helpful
- Understanding

We also asked students how they would define a good or ideal teacher. For this question, they could provide up to 3 terms in text form. We then aggregated the results based on their meaning and ranked the responses (Table 5), which showed the following:

Table 6
Characteristics of a good teacher

Characteristic	Frequency of responses
Empathetic	30
Understanding	18
Professionally qualified	17
Patient	15
Helpful	15
Caring, devoted, child-orientated	14
Determined, confident, consistent	13
Friendly, kind	11
Motivated, enthusiastic	8
With good communication skills	7
Flexible, good problem solver	6
Cooperative	4
Good sense of humour, cheerful	4

The characteristics of a teacher considered good or ideal by the teacher training students were those least reflected in their self-assessments (understanding, helpful).

Discussion

The aim of our research was to adapt the QTI Teacher Interaction Style Questionnaire to the Hungarian educational environment in Slovakia during a pilot testing phase, ensuring that it functions reliably and validly for measuring Hungarian teacher training students in Slovakia. The reliability indicators of the adapted questionnaire range between 0.649 and 0.845. Through statistical analysis, we developed a new model with 8 subscales, differing from the original circumplex model. We consider this instrument, in its adapted form, applicable for broader measurements among Hungarian teacher training students in Slovakia. Our results show that students perceive themselves primarily as uncertain, dissatisfied, and admonishing teachers, while helpful and understanding teacher interaction styles ranked lowest.

Conclusion

This pilot study has certain limitations, the most significant of which include the small sample size, the questionnaire's tendency towards emotion-driven, subjective responses, and, notably, the distortions introduced through translation, as we translated the English version of the originally Dutch questionnaire into Hungarian. Rephrasing certain items could significantly enhance the questionnaire's reliability parameters, with the most substantial improvement likely achievable through item rewording and expanding the Likert scale values, which could yield higher reliability scores; moreover, using a Likert scale with a greater number of values would likely reduce the number of items needed to reach the general threshold of 0.7 for Cronbach's alpha (Kárász et al., 2022), thereby lessening the burden on respondents. Regarding the model, it is essential to consider that, in the 6 decades since its development, the role and expectations of teachers have changed significantly; thus, reevaluating and reconsidering both the model and the instrument could prove beneficial.

By separating the subscales, we aimed to delineate 8 reinterpreted personality variables, though it is important to remember that the original model adheres to a circumplex logic. The results indicate that the majority of teaching students view themselves as being in the Uncertain, Dissatisfied, Admonishing, Leadership, and Strict categories. This suggests they have personal experiences with teachers who display similar interaction styles, which in turn influences their self-perception. In contrast, the understanding and helpful behaviour considered most necessary for the 21st century is only minimally present among university students on the brink of their teaching careers. This highlights factors that may need to be strengthened during teacher training. Further research is needed to explore why students' self-perceptions differ so greatly from the characteristics they define as those of a good teacher. Longitudinal studies would also be beneficial, enabling us to monitor any behavioural changes in education students throughout their studies; such research could confirm or refute the stability and consistency of teacher interaction styles. In the future, this instrument could prove valuable for investigating the interpersonal behaviour of future teachers and for predicting potential issues related to teacher interaction styles.

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REFERENCES

Agócs, L., Bagdy, E. & Balázs, É. (1997). *Pedagógiai lexikon I-III.* (Z. &. Báthory, Szerk.) Budapest: Keraban Könyvkiadó.

Bandura, A. & Walters, R. H. (1963). *Social Learning and Personal Development.* Holt: Rinehart and Winston.

Boukari, S.; Guelmami, N.; Chotrane, S.G.; Bouzid, S.; Khemiri, A.; Muscella, A. & Khalifa, R. (2022). Adaptation of the Questionnaire on Teacher Interaction in Tunisia: Teaching Strategies to Promote Sustainable Education in Schools. *Sustainability, 14(5),* 2489. https://doi.org/10.3390/su14052489

Fisher, D., Fraser, B., Creswell, J. (1995). Using the Questionnaire on Teacher Interaction in the Professional Development of Teachers. Australian Journal ofTeacher Education. https://doi.org/10.14221/ajte.1995v20n1.2

Foote, N. & Cottrell, L. S. (1955*). Identity and Interpersonal Competence*. Chicago: University of Chigaco Press.

Garfinkel, H. (1964). The Routine Grounds of Everyday Activities. *Social Problems, 11(3),* 225-250.

Gavora, P., Mareš, J. & den Brok, P. (2003). Adaptácia Dotazníka interakčného štýlu učiteľa. *Pedagogická revue, 55(2),* 126-145.

Goffman, E. (1961). *Encounters.* Indianapolis: Bobbs-Merrill.

Homans, G. C. (1961). Social Behavior: Its Elementary Forms. *Social Forces, 40(2),* 180-181.

Hupková, M. & Petlák, E. (2004). *Sebareflexia a kompetencie v práci učiteľa.* IRIS.

J. Soltész, K., Szilágyi, F., Bakos, F., P. Balázs, J., Elekfi, L., Kiss, L., Kovács, T., Ladó, J., Lengyel, L., H. Molnár, I., Országh, L., Szabadi, B. & Wacha, I. (1972). *Magyar értelmező kéziszótár* (2. kiad.). (J. S. Juhász, Szerk.) Budapest: Akadémia Kiadó.

Kárász, J. T. et al. (2022). Cronbach-alfa: vele vagy nélküle? *Magyar Pszichológiai Szemle, 77(1),* 81-98. https://doi.org/10.1556/0016.2022.00004

Klein, B. & Klein, S. (2012). *A szervezet lelke.* Budapest: EDGE 2000 Kiadó.

Leary, T. F. (1957). *Interpersonal Diagnosis of Personality: A Functional Theory and Methodology for Personality Evaluation*. New York: Ronald Press.

Obst, O. (2002). Učitel ve výuce. In O. &. Obst, *Školní didaktika* (old.: 92-120). Praha: Portál.

Passini, S. M. (2015). A validation of the questionnaire on teacher interaction in Italian secondary school students: the effect of positive relations on motivation and academic achievement. Social *Psychology of Education, 18(3),* 547-559.

Roeders, P. & Gefferth, É. (2007). *A hatékony tanulás titka: A hatékony tanítás és tanulás dinamikája* (2. kiad.). Budapest: Trefort Kiadó.

Sajtos, L., Mitev, A. (2007). *SPSS kutatási és adatelemzési kézikönyv.* Budapest: Alinea Kiadó.

Sun, X., Mainhard, T. & Wubbels, T. (2018). Development and evaluation of a Chinese version of the Questionnaire on Teacher Interaction (QTI). *Learning Environments Research, 21(1),* 1-17.

Szőke-Milinte, E. (2006). *Konfliktuskezelés és pedagógusmesterség*. Budapest: Országos Pedagógiai Könyvtár és Múzeum.

Thibaut, J. W. & Kelley, H. H. (1959). *The Social Psychology of Groups.* New York: Wiley.

Tóth, P. & Horváth, K. (2021). *Didaktika. Bevezetés az oktatás elméletébe.* Komárom: Selye János Egyetem.

Tóth, P. & Horváth, K. (2022). Pedagogue students' opinions on ideal teacher interaction. Információs *Társadalom.* https://doi.org/10.22503/inftars.XXII.2022.2.5

Weinstein, E. A. (1969). The Development of Interpersonal Competetence. (D. A. Goslin, Szerk.) *Handbook of Socialization Theory and Research*, 754-778.

Weinstein, E. A. (1976). Az interperszonális kompetencia fejlődése. In F. Pataki, *Pedagógiai szociál-pszichológia* (M. C. Andor, Ford., old.: 369-393). Budapest: Gondolat Könyvkiadó.

Wubbels, T. & Levy, J. (1991). A comparison of interpersonal behavior of Dutch and American teachers*. International Journal of Intercultural Relationships, 15(1)*, 1-18.

Wubbels, T. & Levy, J. (1993). Do you know what you look like? Interpersonal relationships in education. London: Falmer Press.

Wubbels, T., Brekelmans, M., den Brok, P., & van Tartwijk, J. (2006). An Interpersonal Perspective on Classroom Management in Secondary Classrooms in the Netherlands. In C. M. Weinstein, *Handbook of classroom management: Research, practice, and contemporary issues* (old.: 1161–1191). Evertson: Lawrence Erlbaum Associates Publishers.

Wubbels, T., Créton, H. A. & Hooymayers, H. P. (1985). Discipline problems of beginning teachers, interactional teacher behavior mapped out. Letöltés dátuma: 2024. 02 26, forrás: Educational Research Association, Chicago: https://eric.ed.gov/?id=ED260040

Wubbels, Th., Créton, H. & Hooymayers, H. (1987). A School-based Teacher Induction Programme. *European Journal of Teacher Education, 10(1)*, 81-94.

Wubbels, Th., Créton, H., Levy, J. & Hooymayers, H. (2005). The Model of Interpersonal Teacher Behavior. In T. &. Wubbels, *Do you know what you look like?* (old.: 11-25). London: Taylor & Francis.

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EXCIITE – A European Project for an Inclusive Teacher Practice

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ABSTRACT

EXCIITE aimed to build a flexible system for teacher training, with a strong focus on creativity, inclusion, innovation, and digital literacy. By creating a Hub suitable for supporting in-service teacher training, we aim to enhance their continuing professional development in these challenging areas of competence and prepare the ground for a renewed initial teacher training curriculum. The project is committed to making learning more learner-centred, inclusive, and stimulating through digital technology's meaningful, creative, and interactive use.

In the present paper, we introduce the project structure and goals, including the tools created and the results of the collection of good practices. These good practices include research, methodology and inspiring tools, which have been collected and shared through the Hub in all project languages. As this is primarily an educational development project, the presentation aims to show the tools developed.

KEYWORDS

inclusion, creativity, innovation, digitalization, teacher training

INTRODUCTION

Recent European research underscores the need for targeted professional development in digital pedagogy and inclusive teaching practices. This research also highlights the importance of structured frameworks, providing a clear roadmap for professional development. The 2023 Education and Training Monitor further supports this, noting that teachers are increasingly seeking training, particularly following the pandemic. In response, initiatives such as the Erasmus+ Teacher Academies are being developed to facilitate cross-border professional development and to support teachers in acquiring skills for an evolving educational landscape. Globally, UNESCO and Eurydice stress the importance of these structured frameworks that address digital literacy, cultural competence, and a sustainable, progressive approach to skill-building across diverse educational systems. In light of these findings, supporting educators in advancing inclusive, digital, and creatively stimulating learning environments has become crucial. Current educational research highlights that creativity within teaching fosters essential skills in students, such as critical thinking and problem-solving, which are vital in a complex, rapidly changing world (European Commission, 2023; UNESCO, 2022). To create such environments, teachers must be equipped with innovative pedagogical strategies that encourage collaboration, inquiry-based learning, and creative engagement with content. Professional development programs prioritising creativity, digital literacy, and cultural responsiveness can enable teachers to design engaging and conducive learning spaces for active student participation. In doing so, teachers can cultivate adaptive, creative thinking in students, thereby preparing them for future academic and professional challenges within a diverse, technology-rich context.

LITERATURE REVIEW

Castoldi (2010) describes teaching as "an educational relationship aimed at supporting cultural heritage learning within an institutional context" (p. 15). This action is inherently complex and extends beyond mere spontaneity, requiring instead intentional and process-driven approaches (Cerri, 2012). Teaching unfolds through three phases: the pre-active phase, which involves designing the teaching action; the active phase, which entails executing the planned action; and the post-active phase, focused on evaluating and assessing the effectiveness of the action. Altet (2002) characterises teaching as a co-action—a joint activity based on reciprocal interaction between teacher and student, who, while occupying distinct roles, engage collaboratively around a shared knowledge objective. Thus, the professional teacher can adeptly navigate and manage these complex teaching situations (Viganò, 2002).

Teacher competence is shaped by integrating schemas, beliefs, attitudes, and knowledge (Pellerey, 2004, p. 12). Teaching practice involves four core types of knowledge: subject matter knowledge, pedagogical knowledge, pedagogical content knowledge, and experiential knowledge (Altet, 2006). Therefore, supporting teachers' professional development requires fostering changes in these foundational frames of reference, encompassing knowledge, beliefs, attitudes, and perspectives that inform their instructional practices.

Kennedy (2005) identifies nine models of in-service teacher professional development, which exist on a continuum between two contrasting approaches: a transmissive approach, aimed at equipping teachers with specific knowledge and tools to address institutional

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expectations and practical challenges, and a transformative approach, which seeks to engage teachers in reflective, transformative processes. The transmissive approach primarily focuses on equipping teachers to respond to external demands but has limited influence on values and attitudes. Conversely, the transformative approach encourages teachers to adopt a reflective, critical, and proactive stance toward their teaching practices.

Effective teacher development guides educators toward necessary changes for professional growth. Shulman (1987) notes that teachers' actions are shaped by their beliefs and conceptual frames regarding their profession. Consequently, professional learning is most impactful when it encourages teachers to adopt an inquiry-based approach toward their practices, fostering an ongoing process of self-examination and constructive reflection on their underlying beliefs, attitudes, routines, and knowledge (Taylor, 2015). A sustained reflective stance plays a crucial role in supporting this reflective process. Schon (1983) describes teachers as reflective practitioners who continuously interpret and address challenges within their practice while reviewing and refining their belief systems, knowledge, and attitudes. Mezirow (1997) further emphasises the transformational potential of reflexivity, viewing it as a mechanism that enables teachers to adapt, evolve, and restructure their frames of reference—beliefs, knowledge, and attitudes—thereby enhancing their effectiveness in new teaching contexts.

Recent investigations into teachers' engagement with educational research reveal a complex interplay of personal and contextual factors influencing sustained participation in research activities. Kowalczuk-Walędziak, Ion, and Crespo (2024) identify vital motivators such as intrinsic professional growth, the perceived applicability of research findings to classroom practices, and institutional support as significant enablers of research engagement. Complementing this, Kowalczuk-Walędziak and Ion (2024) highlight, that collaborative networks, peer support, and access to resources critically enhance teachers' abilities to integrate research into pedagogical practices effectively. These findings underscore the importance of fostering institutional environments that prioritise mentorship, peer collaboration, and the practical application of research, as these factors facilitate a sustainable culture of research engagement within the teaching profession. On the potential of the teachers' network, the eTwinning program, officially launched in January 2005, is the most widespread and established experience of transnational teacher collaboration and school community. Many studies have been conducted on the impact of teachers' professionalism in participation in the eTwinning program, especially regarding technological skills. A recent European monitoring report (2023) identified that the outcomes for pre-service teachers are the same as for all teachers engaged in the programme: *"internationalisation, competence development, new knowledge of pedagogical methods, peer support and community engagement"*.

AIMS, RESEARCH QUESTIONS AND HYPOTHESES

The aim of the project research was to:

Develop Training Modules: Create flexible and personalised learning paths for teachers using a self-assessment tool to identify their training needs.

Establish a Training Hub: Build a web repository of multilingual learning resources to enhance teachers' creativity, innovation, self-regulation, and appreciation of diversity and social inclusion.

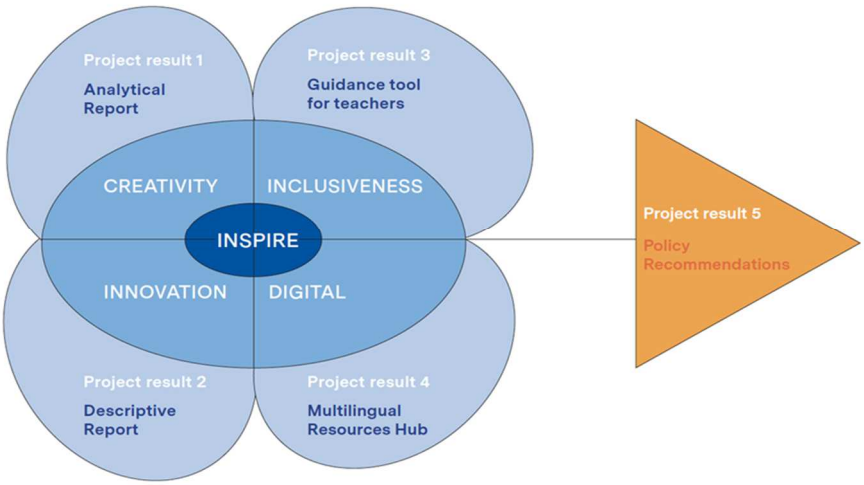
Form an Educational Alliance: Create a network of teacher education institutions to collaborate transnationally and share resources and best practices in in-service teacher education.

In this contribution, the goal is to present the project's developments by highlighting its key products.

METHODS

Throughout the project, we employed a variety of methods. Initially, we constructed a model based on the project's aims. As we created a model (see Fig. 1.), this study examines the role of a self-guided training platform developed within a European project to advance teachers' professional growth through reflection-driven professional learning.

Figure 1
EXCIITE model of project development



We built a standard, concise and comprehensive definition of each core element (inclusion, creativity, digital, innovation). Afterwards, partners collected 35 good practices and intervention models for teacher training, summarising existing knowledge and good practices in teacher training (project result -PR1). To accommodate the complexity of the data and pursue the intended aim, the researchers opted to analyse the practices from a dual perspective: directly, by surveying and describing elements attributable to the four core elements; indirectly, with the identification of cross-cutting and recurring elements of training practices that we defined as Good Practice Elements (GPEs). For the project result - PR 2, we conducted 8 focus group interviews, inviting participants to share their perspectives on the school system and inclusive practices in their respective countries. Focus groups were conducted in Italy, Spain, Sweden, and Hungary, with two groups per country: one for primary teachers and one for first-grade secondary teachers. Participants in focus group interviews are valued as experts (Byron, 1995), and they have the unique opportunity to work collaboratively with researchers and interact with other participants (Gibbs, 1997). This collaborative nature of focus groups makes them feel included and part of a team. They also gain the experience of speaking in public and articulating their views (Panyan et al., 1997) cited by (Williams & Katz, 2001).

Drawing on the reference literature and the Focus group analysis results (Krueger, Casey, 2015), we also conducted an exploratory survey with 250 teachers of all school levels in the five countries partners in the EXCIITE to deeply identify teachers' needs.

From the analysis of good practices in teacher education (PR1) and the analysis of teachers' needs in the four areas (PR2), we developed the Based on these previous works; we developed a «guidance tool» for Self-assessment and Learning Paths to help teachers recognize their training needs (Project result—PR 3). We focused on teachers' needs in our four main areas.

In the end, we co-built a multilingual hub with educational resources accessible to primary and lower secondary school teachers in five languages (English, Italian, Catalan, Swedish, and Hungarian), offering both theoretical information and practical resources (Project result - PR 4). Partners agreed on criteria for searching, reviewing, and selecting resources to make a solid contribution to identifying resources valuable to developing effective professional educational pathways. We then applied the same criteria for resource production by partners.

The last project result, EXCIITE's Recommendations for the main policy challenges (PR5), distils the lessons learned during the project to guide future EU and national policies on teacher training. The aim is to enhance policy-making through a bottom-up approach, strengthening the teaching profession to meet future challenges.

RESULTS

In a collaborative effort, the project group has built an open online platform for teachers' training. It serves as a repository for materials enhancing teachers' skills and knowledge and a virtual meeting place where teachers can share practices and experiences with colleagues.

As the first project result, we created a theoretical framework. We identified some critical aspects for every core element called “Good Practice Elements (GPEs)". We have focused on seven good practice elements (GPE) for every area we have examined. Here are the concepts and how we understood them.

In accordance with the Index for inclusion (Both, Ainscow, 2000), inclusion in an educational environment implies the reduction of barriers to learning and participation for any student. This can be achieved by building collaborative relationships and improving the learning and teaching environment; encouraging a view of learning in which children and young people are actively involved, integrating what they are taught with their own experience; making schools supportive and stimulating places for both staff and students; building communities which encourage, support and value their achievements. In Tab. 1. we explain the core elements of Inclusion.

Table 1
Core Element *Inclusion*

Good Practice Elements	Brief description
Modifying spaces	Modifying spaces to make them more accessible and inclusive
Making classroom welcoming	Making schools supportive and stimulating places for adults and children: welcoming uniqueness
Collaborative relationships	Building collaborative relationships to promote communities of learning and practice
Collective involvement	Encouraging a vision of learning in which all actors are involved and their views are welcomed and valued
Encourage children’s agency	Encouraging a vision of learning in which children’s point of view, awareness, initiative, intentionality to learn and participate are welcomed and valued
Organisational aspects	Organisational and system structural aspects that promote inclusion
Shaping a democratic environment	Promoting inclusive education as a value

According to Vygotsky (1972), creativity is an activity that generates something new, whether material or immaterial, by combining and adapting known elements to achieve a specific goal. Creativity is characterised by a deliberate exploration of ideas, marked by curiosity, playfulness, imagination, a sense of self-efficacy, tolerance for ambiguity, and persistence (Sala et al., 2020). Creative personalities often display autonomy

(as critical disposition to produce new ideas and artefacts, introspection as a reflective attitude, curiosity as problem seeking and finding (Cardarello, 2016, p. 22), flexibility, originality, and metaphorical thinking but also persistence, discipline, ability to collaborate and to take risks (Sala et al., 2020). In Table 2. we explain the core element of Creativity.

Table 2
Core Element *Creativity*

Good Practice Elements	Brief description
Connections across professions	Enhancing creativity through forging connections among different professionals
Teachers' emotional languages	Enhancing creativity through teachers' reflection through experimentation with multiple modalities and emotional languages
Sharing educational materials	Exercising creativity through designing and sharing educational material
Multiple languages and modalities	Enhancing creativity by connecting pupils with multiple languages and learning with multimodalities
Use of materials	Exercising creativity through the innovative use of materials
Learning environment	Promoting autonomy, curiosity and reflexivity with innovative learning environments
Changing teaching methods	Fostering creativity by changing teaching methods

By international practice (OECD/Eurostat, 2018), innovation is defined as a new or improved educational practice, teaching and learning method, or organisational structure (or a combination thereof) that aims to promote desirable changes or introduce new procedures to address perceived needs (Cardarello, 2014). This encompasses educational services that implement significantly altered processes for delivering their services, such as new pedagogies or combinations of pedagogies, including e-learning services. It also includes new ways of organising activities, such as changing how teachers collaborate, how students are grouped, and how other aspects of learning are managed. Additionally, it involves establishing new relationships with stakeholders, such as innovative forms of communication with students and parents and new partnerships with local public institutions and both profit and non-profit organisations. In Table 3. we explain the core elements of Innovation.

Table 3
Core Element *Innovation*

Good Practice Elements	Brief description
New topics	New teaching topics, to bring real life into the classroom
New ways of organising educational activities	New ways of organising educational activities, introducing tools and reshaping the learning environment to meet students' needs
New methods	New or rethought teaching practices, new approaches/methods of teaching-learning
Changes in school organisation	Changes in organisational structures within the school to meet student needs
Relationship with colleagues	New ways of designing activities and teaching together with colleagues to meet student needs
Formal learning in informal setting	Carry out formal educational processes changing the organisational structure of the school and involving educational agencies
New partnerships	Forging new partnerships between school and community

Digital competence is the set of skills, knowledge and attitudes to enable the confident, creative and critical use of technologies and systems in an increasingly digital world. These skills have to enable people to be confident digital citizens, to interact and collaborate digitally, to produce work digitally, and to be confident in handling data. In short, to be digitally competent people have to (Carretero, Vuorikari & Punie, 2017) be literate in information and data management that implies the capacity to search, evaluate and manage information and digital content; We must know how to communicate and collaborate using digital technologies; Create, develop, re-elaborate and integrate digital content; We must possess knowledge on security and devices protection; We have to be able to solve technical problems. In Table 4. we explain the core elements of Digital.

Table 4
Core Element *Digital*

Good Practice Elements	Brief description
Self-assessment & Document evidence	Use of ePortfolios, eBadges and other digital storage tools to document evidence of learning outcomes and self-assessment of teacher's competences as a strategy to develop awareness of emerging learning needs
Online co-designing	Joint use of common technology platform to co-design innovative learning programmes, including sharing lessons on common platform, in general online collaboration among teachers
Intercultural Learning through ICT	Use of digital platforms to support intercultural learning experiences (Virtual Exchange, virtual mobility, etc.) involving teachers and learners from different countries

Production of and with multimedia resources	Supporting the creation of multimedia resources by capturing contents through different technologies and students' activities
Critical skills for using digital technology	Use of digital technology to develop critical digital skills for teachers and students
Digital resources that provides remote access to content and software	Learners' access to remote teachers, digital resources or to equipment not available locally
Digital game-based learning where students collaborate with other players	Digital game-based learning, particularly with multiple remote players

We used to analyse good teacher training practices and teachers' training needs based on these seven good practice elements (GPE) for every area we have examined and, ultimately, to categorise educational resources for teacher training. We investigate teachers' training needs and beliefs on EXCIITE core elements and GPEs through focus groups and surveys.

Overall, what emerges is the profile of teachers interested in professional development, which is still strictly linked to disciplinary didactics. Diverse profiles and opinions on inclusion and creativity are based mostly on differences between countries and school systems. After the pandemic, teachers are more conscious of the need to use mixed tools and methodologies, even using technologies and platforms for shared work at school.

Based on the outcomes of the first action phases, the partnership constructed a tool for teachers to self-assess their professionalism regarding the four thematic areas. Specifically, a self-assessment questionnaire comprised 21 sections: one for each GPE. For each GPE, teachers are asked to self-assess, on a 4-level Likert scale, whether they know about it and consider themselves capable of acting on it.

In defining GPEs, we have used the examples extrapolated from good training practices (PR1). This is an example (see Table 5.):

Table 5
Example of Guidance Tool items and questions

Inclusion	
Modifying spaces	Modifying spaces to make them more accessible and inclusive
Inclusion can be supported and encouraged through the design or redesign of spaces, meant as places of learning and relationship. When designing new or existing spaces, the entire school community can be involved in a dialogue involving different points of view.	Examples: • transforming spaces to have them accessible and safe for all, also using ICT, starting from emergent children's needs; • redesigning spaces through projects to sustain the innovative idea of school as a place where the environment has an educational value, redesigning them; • creating new spaces in the school where children, teachers and artists can collaborate together.
Questions: I have knowledge about how to modify learning spaces to make them more inclusive. 1□ 2□ 3□ 4□ I can transform, redesign and create learning spaces to make them more inclusive. 1□ 2□ 3□ 4□	

This scale allows us to understand teachers' self-perceived competence using the EXCIITE Framework. The questionnaire is available on the teacher training platform in English, Italian, Swedish, Spanish, Catalan, and Hungarian. Based on the scores collected from the questionnaire, the HUB recognizes the areas in which each teacher could improve the most and proposes tailored pathways.

Inspired by the data collected and the analysis of the first three phases, the partnership has built a multilingual hub suitable for supporting in-service teacher training. Teachers can find resources to deepen their knowledge of the EXCIITE project's four thematic areas on this online, open-access platform.

Partner designed or collected resources from available materials and resources for each GPE of the following types[1]:

Resources to guide understanding of content (Core concepts): This resource helps users gain a deeper theoretical knowledge of the inspiring topic in general or in one of its possible declinations. Scientific publications (papers, chapters, books) or university lessons/talks are included.

Resources displaying how these contents have been shaped into good practices (Inspiring tool): These resources can motivate teachers and educators to put the inspiring topic into practice in their own educational work, in the classroom, and at school. Guidelines (manuals, teaching instructions, guidance, ministerial-national document, European document, Erasmus products) are included.

Resources guide teachers in using content to plan and structure environments and activities in their professional context (Further ideas): These types of resources give suggestions or additional examples of how teachers can develop any topic in theory or practice. This category also includes relevant resources that refer to other websites (e.g., repositories or self-assessing digital tools).

After systematically collecting and selecting relevant resources, we ensured access to pilot users first, fostering a collaborative spirit. Between May and July 2024, we organised hub testing workshops with teachers (May- July 2024) in all partner countries. We aimed to assess the hub's functionality and technical quality, evaluate the usability and quality of the resources, and disseminate the project among teachers.

Finally, we have drafted Policy Recommendations to guide future initiatives and policies in teacher training and professional development. The resulting Roadmap provides suggestions for transforming teacher professional development into a transnational issue, accelerating innovation in European school systems at both the EU and national/regional levels, and inspiring a new era of teacher training.

Discussion

The hub is a multilingual collaborative platform because it has resources in English and all the languages of its exclusive partners. The HUB is also designed to accommodate spaces for sharing and exchange among educators, with the vision of building a European community of teachers dedicated to educational innovation in the future. This proposal addresses a need expressed by teachers in investigations conducted on professional needs.

Please find attached an example of a self-produced resource from a partner. The resource outline was produced by partners to guide the initial documentation of best practices in teacher education. This product focuses on how visual arts can be integrated into a course or classroom without any extra financial investment. The product is available translated into all Hub languages.

Conclusion

By creating this asset for future teachers, we hope to contribute to improving creativity, inclusiveness, and equity in European schools and teaching professionals. As the four pillars of the project were inclusion, innovation, creativity, and digital, the most challenging perspective is continuing to work on inclusion from a European perspective. As in most countries, it exists in the level of understanding and legislation; we found it challenging to gather theoretical backgrounds; however, good practices and inspirational tools we gathered and uploaded into the Hub could help teachers in every aspect of their performance and pedagogical practice. We hope that in the future, the project's sustainability will be without any further questions, as evaluators mentioned during the project's final conference. By building it to the in-service teachers' training, we aim to keep expanding the Hub's effectiveness. We emphasised the importance of involving in-service and pre-service teachers, recognising their unique insights as we work towards establishing a Hub for all educational professionals. This article underscores our commitment to inclusivity when creating the Hub, making each educational professional feel valued by the initiative.

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References

Please list your references in alphabetical order in APA-7 style.

Altet, M. et al. (2006). Formare gli insegnanti professionisti. Roma: Armando Editore.

Booth, T., & Ainscow, M. (2002). Index for inclusion: developing learning and participation in schools. Bristol: Centre for Studies on Inclusive Education (CSIE).

Byron, S. (1995). Computing and Other Instructional Technologies: Faculty Perceptions of Current Practices and Views of Future Challenges. Conducted for Information Resources Council and the Office of Provost. University of North Texas.

Cardarello, R. (2014). L'insegnante tra efficacia e responsabilità. In L. Balduzzi, D. Mantovani, M.T. Tagliaventi, D. Tuorto, & I. Vannini (Eds.), La professionalità dell'insegnante. Valorizzare il passato, progettare il futuro (pp. 65-76). Roma: Aracne.

Cardarello, R. (2016). Il cappellino verde. Infanzia, creatività e scuola. Roma: Anicia.

Carretero, S., Vuorikari, R., & Punie, Y. (2017). DigComp 2.1: The Digital Competence Framework for Citizens. With eight proficiency levels and examples of use. Publications Office of the European Union.

Castoldi, M. (2010). Didattica generale. Milano: Mondadori.

Cerri, R. (2012). L'evento didattico: dinamiche e processi. Roma: Carocci.

European Commission. (2023). Education and Training Monitor 2023. Publications Office of the European Union. https://op.europa.eu/en/publication-detail/-/publication/2d4c4524-8e68-11ee-8aa6-01aa75ed71a1/language-en

Gibbs, A. (1997). Focus groups. Social Research Update. Issue Nineteen. University of Surrey. Available: http://www.soc.surrey.ac.uk/sru/SRU19.html

Kennedy, A. (2005). Models of continuing professional development: A framework for analysis. Journal of in-service education, 31(2), 235-250.

Kowalczuk-Walędziak, M., Ion, G., & Crespo, S. L. (2024). Towards a model for success: Exploring the motivations and factors driving research-engaged teachers. International Journal of Educational Research, 126, 102386.

Kowalczuk-Walędziak, M., & Ion, G. (2024). Understanding and improving teachers' research engagement: Insights from success stories in Poland and Spain. Teaching and Teacher Education, 151, 104747.

Mezirow, J. (1997). Transformative learning: Theory to practice. New directions for adult and continuing education, (7), 5-12.

Panyan, M., Hillman, S., & Liggett, A. (1997). The role of focus groups in evaluating and revising teacher education programs. Teacher Education and Special Education , 20(1), 37-46

Pellerey, M. (2004). Le competenze individuali e il Portfolio. Firenze: La Nuova Italia.

Sala, A., Punie, Y., Garkov, V., & Cabrera, M. (2020). LifeComp: The European Framework for Personal, Social and Learning to Learn Key Competence. Luxembourg: Publications Office of the European Union.

Schön, D.A. (1983). The reflective practitioner. New York: Basic Book.

Shulman, L. (1987). Knowledge and teaching: foundations of the new reform, Harvard Educational Review, 57 (1), pp. 1-22.

Taylor, E. W. (2015). Transformative Learning Theory. In A. Laros, T. Fuhr, & E.W. Taylor (Eds.) Transformative Learning Meets Bildung (pp. 17-29). Rotterdam/Boston/Taipei: SensePublisher.

UNESCO. (2022). Transforming education from within: Current trends in the status and development of teachers. UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000380399

Viganò, R. (2002). Pedagogia e sperimentazione: metodi e strumenti per la ricerca educativa (Vol. 2). Milano: Vita e pensiero.

Vygotsky, L. S. (2004). Imagination and Creativity in Childhood. Journal of Russian & East European Psychology, 42(1), 7–97.

Williams, A, Katz, L. (2001): The Use of Focus Group Methodology in Education: Some Theoretical and Practical Considerations, in: International Journal for Leadership, 5 (3). Available from: https://www.researchgate.net/publication/228941039_The_Use_of_Focus_Group_Methodology_in_Education_Some_Theoretical_and_Practical_Considerations_5_3?fbclid=IwY2xjawGWqI5leHRuA2FlbQIxMAABHf8zYwV3sLFSAtDtuckQnllAu33IJenxFyQOHe2O-yHaO9Tj-Vp5fyiBYg_aem_9DomZafCdAolwgc48X53Tg [accessed Nov 05 2024].

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Exploring Teacher Motivation and Optimizing the Learning Environment of students in Internally Displaced People (IDP) Camps, Myanmar through the Pink's Motivation Theory

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ABSTRACT

This paper investigates the motivational dynamics of teachers in Internally Displaced People (IDP) camps in Myanmar through the lens of Daniel Pink's Motivation Theory. Amidst the backdrop of military coups and ongoing conflicts, these camps present unique challenges for educators, such as inadequate resources, poor infrastructure, and severe security concerns. Utilizing qualitative interviews with seven volunteer teachers across four IDP camps, the study explores how autonomy, mastery, and purpose influence their teaching experiences. Findings suggest that enhancing these motivational factors can significantly improve educational practices and outcomes in such crisis settings. This research contributes to understanding how motivation impacts education in conflict zones and offers strategies to enhance teacher effectiveness under extreme conditions.

KEYWORDS

teacher motivation, IDP camps Myanmar, education in crisis area, Myanmar educational challenges

INTRODUCTION

Education in Internally Displaced People (IDP) camps in Myanmar is confronted with a unique set of challenges. As the country experienced with the consequences four times of military coups and ongoing conflicts, these camps have become not just refuges for the displaced but also critical arenas for educational engagement. The instability has disrupted traditional educational structures and exacerbated issues like inadequate funding, shortages of specialized teachers, and poor infrastructure, severely impacting the quality of education provided in these settings (Ogunode et al., 2022).

Amidst these adversities, the role of teacher motivation emerges as a pivotal factor influencing both the efficacy of teaching and broader educational outcomes for displaced students. Research indicates that teacher motivation is significantly affected by both intrinsic and extrinsic factors, which, in turn, influence their performance and, consequently, student learning outcomes (Shak et al., 2022; Ghenghesh, 2013). For instance, factors such as excessive workloads and challenging situation with the security concern and limited resources can diminish motivation, whereas personal satisfaction and a sense of purpose can enhance it (Herzberg, 1966; Ghenghesh, 2013).

The motivation of teachers in these challenging environments is critical not only for immediate educational outcomes but also for the long-term development of the displaced population. Teachers who are highly motivated tend to engage more deeply with their students, fostering an environment of enthusiasm and dedication that is reflected in student engagement and performance (Serdarević, 2023). Despite the critical role of teacher motivation, limited research exists on how intrinsic and extrinsic factors influence motivation in crisis-affected settings like Myanmar's IDP camps. This gap in understanding hinders the development of targeted interventions to support teachers and improve educational outcomes for displaced students. Addressing this issue is vital to fostering resilience within crisis-affected communities and ensuring the long-term success of educational programs in IDP camps.

In this context, Daniel Pink's Motivation Theory—which emphasizes autonomy, mastery, and purpose as important motivators—offers a useful foundation for comprehending and improving teacher motivation in unconventional contexts, such as IDP camps (Pink, 2009).

Promoting autonomy gives educators the freedom to choose what works best for their particular learning contexts. A clear sense of purpose facilitates intrinsic motivation by ensuring that teachers' efforts are in line with the overall objectives of education in crisis situations, while opportunities for mastery enable them to continuously enhance their knowledge and abilities. (Benware & Deci, 1984).

By investigating how autonomy, mastery, and purpose appear in the teaching experiences of volunteer instructors in Myanmar's IDP camps, this study seeks to better understand these motivating dynamics. The study aims to determine the difficulties these teachers have, evaluate how well the support systems are working, and investigate how these elements work together to affect instructional efficacy and learning results. The knowledge acquired will not only further the scholarly conversation on crisis education, but it will also provide practical methods for raising teacher motivation, which will ultimately improve learning environments in trying circumstances.

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Literature Review

Effect of Military Coup on Education of Students in Internally Displaced People (IDP) Camps

This study investigates the motivational dynamics of instructors in Myanmar's Internally Displaced People (IDP) camps using Daniel Pink's Motivation Theory as a framework. Given the ongoing wars and military takeovers, these camps present unique problems for educators resulting from their inadequate infrastructure, shortage of resources, and significant security concerns. Using qualitative interviews, the study examines the effects of autonomy, mastery, and purpose on the teaching experiences of seven volunteer teachers in four IDP camps. Enhancing these motivating factors has been shown to significantly improve instructional tactics and outcomes in emergency scenarios. By understanding of how motivation impacts education in conflict zones is expanded by this study, which also offers strategies for enhancing teacher effectiveness under trying conditions.

The education of students in Internally Displaced People (IDP) camps in Myanmar has been significantly impacted by the military coups, especially occurred on February 1, 2021. This coup not only disrupted the political landscape but also exacerbated existing educational challenges. With more than a million people displaced and living in appalling conditions in IDP camps, the continued fighting and civil unrest have resulted in a humanitarian disaster (Kusuma, 2023; Décobert, 2021). These displaced communities' access to education has been seriously hampered by the military's harsh actions, which include using military force against civilians and violently suppressing protests (Saito, 2021; Saito, 2021).

The coup has rolled back years of progress in Myanmar's education sector, which had been gradually improving since the political reforms initiated in 2010. The military's return to power has resulted in the suspension of educational reforms and a regression to authoritarian control over educational institutions (Htut et al., 2022). The military coup has led to a significant decline in the quality of education available to students in IDP camps. Many teachers, disillusioned by the political situation, have left their positions or joined the Civil Disobedience Movement (CDM), resulting in a shortage of qualified educators (Kim et al., 2022). This situation is compounded by the psychological trauma experienced by both teachers and students, which can severely hinder motivation and engagement in the learning process (Kim et al., 2022).

Children's educational experiences are further impacted by the social and psychological effects of living in IDP camps as well as security concerns. Learning outcomes and cognitive development can become hampered by the trauma connected to loss, violence, and displacement (Lwin, 2023). Additionally, their living circumstances' unpredictability and instability increase their lack of motivation and interest in learning (Décobert, 2021). Furthermore, the implementation of alternative educational options, such online learning, which is frequently unavailable owing to inadequate internet connectivity and a lack of technical gadgets, has been challenging due to the absence of infrastructure and resources in IDP camps (Htut et al., 2022).

In conclusion, the Myanmar military takeover has resulted in a complex crisis that has a significant influence on the education of students living in internally displaced camps. The ongoing pandemic, civil instability and political repression have combined to create major obstacles to education, depriving many children of the chance to grow up in a secure setting. In order to address these issues, local and international stakeholders have to work together to promote educational programs that are adapted to the requirements of displaced communities and to provide humanitarian assistance.

Integration of Pink's Motivation Theory in IDP Camp Settings

In the context of Internally Displaced People (IDP) camps in Myanmar, optimizing the learning environment for students is crucial, with teachers playing a central role. Their motivation levels significantly impact student learning and performance (Shak et al., 2022; Ghenghesh, 2013). Despite numerous challenges such as inadequate funding, shortage of specialized teachers, lack of infrastructure, and limited instructional materials (Ogunode et al., 2022), understanding and enhancing teacher motivation can drive educational improvements. Herzberg's theory highlights that 'hygiene' factors, like excessive workloads and challenging superiors, can undermine teacher motivation, while intrinsic factors such as personal satisfaction and a sense of purpose are powerful motivators (Ghenghesh, 2013; Shak et al., 2022). Highly motivated teachers positively influence student achievement, as their enthusiasm and dedication are mirrored in their students' engagement and performance (Serdarević, 2023).

Intrinsic motivation, stemming from an individual's inherent interest and satisfaction in their work, is a crucial driver of teacher engagement and effectiveness (Serdarević, 2023). This intrinsic motivation is associated with higher teaching skills and self-determined motivation, with teachers who find their work rewarding and enjoyable demonstrating a deeper commitment to their students' learning (Adumula & Mokuolu, 2023).

Pink's Motivation Theory, which emphasizes autonomy, mastery, and purpose, offers a valuable framework for understanding and enhancing teacher motivation (Sato et al., 2021). A strong foundation for addressing teacher motivation in the demanding settings of Internally Displaced People (IDP) camps is offered by Daniel Pink's Motivation Theory. Pink claims that improving drives and achievement in every professional context requires three fundamental components: autonomy, mastery, and purpose. These factors become particularly significant in the setting of Myanmar's IDP camps, where educators and pupils deal with unique difficulties (Mbaleka, 2014).

Autonomy in IDP Camps: Autonomy, the ability to have control over one's work, is crucial in unpredictable environments like IDP camps where traditional educational structures are often disrupted. Teachers in these settings encounter diverse and rapidly changing educational needs due to the displacement context. Enabling teachers to make independent decisions about pedagogical approaches and classroom management can empower them to respond more effectively to these fluid conditions. For instance, teachers who can choose culturally relevant teaching materials or adapt the

curriculum to better suit the displaced students' backgrounds may engage their students more effectively. This autonomy can help overcome the feelings of helplessness and frustration that often accompany displacement, bolstering teacher morale and effectiveness (Jurs et al., 2022).

Mastery Amidst Crisis: The pursuit of mastery, or the desire to improve one's skills and expertise, is another pillar that can significantly enhance teacher motivation in IDP camps. The lack of professional development opportunities is a common challenge in such settings, where resources are scarce and conditions are unstable. Facilitating mastery by providing targeted training programs, online learning opportunities tailored to crisis settings, and peer mentoring can help teachers feel more competent and confident. This, in turn, leads to better educational outcomes, as teachers are better equipped to handle the complexities of teaching in displacement. Programs that focus on crisis education skills, trauma-informed teaching practices, and flexible pedagogical strategies can be particularly beneficial (Pikoń et al., 2016).

Purpose in Teaching: Purpose—the belief that one's work serves a greater cause—can be a profound motivator for teachers working in the adverse conditions of IDP camps. Teachers in these environments often see their roles not just as educators but as stabilizing forces in the lives of displaced children. Aligning their work with a clear purpose, such as contributing to peacebuilding or community resilience, can elevate their job significance. Emphasizing how education in IDP camps contributes to broader social recovery and the future well-being of displaced communities can enhance teachers' sense of purpose. This alignment helps sustain their motivation amidst the challenges of limited resources and infrastructural deficiencies. Implementing Pink's Motivation Theory in IDP camps involves creating policies and practices that enhance autonomy, promote mastery, and clarify purpose. By addressing these motivational components, educational initiatives in IDP camps can not only improve the immediate learning environment but also contribute to a more motivated, effective teaching workforce. This approach not only meets immediate educational needs but also builds a foundation for long-term recovery and development of the displaced population (Jurs et al., 2022).

AIMS, RESEARCH QUESTIONS AND HYPOTHESES

The main aim of the research is to enhance the educational outcomes in IDP Camps in Myanmar by understanding and improving the motivational factors of autonomy, mastery and purpose among teachers, and by optimizing educational practices and the learning environment under challenging conditions. Research aims are:

1. Explore how motivational factors (autonomy, mastery, and purpose) display in the teaching experiences of volunteer teachers in IDP.

2. Identify and analyze the challenges and barriers to quality education in IDP camps as perceived by teachers and assess their impact on teacher motivation and teaching effectiveness.

3. Evaluate the effectiveness of existing support mechanisms for teachers in IDP Camps and how these mechanisms influence their motivational factors of autonomy, mastery, and purpose among teachers.

RESEARCH QUESTIONS

Q1: How do autonomy, mastery, and purpose display in the teaching experiences of volunteer teachers in IDP camps?

Q2: What are the barriers to accessing quality education for students in IDP camps as perceived by their teachers, and how do these barriers impact teachers' motivation to teach effectively?

Q3: How effective are existing teacher support mechanisms, such as senior teacher mentorship and community support, in enhancing the quality of education, and how do they influence teachers' feelings of autonomy, mastery, and purpose?

METHODS

CONTEXT OF THE RESEARCH

This study examines the interplay between the ongoing political upheaval in Myanmar and its impact on the educational landscape, particularly in the context of Internally Displaced People (IDP) camps. The backdrop of the COVID-19 pandemic, compounded by the military coup of 2021 and persistent conflicts, presents complex challenges for education reform. Given the restrictive environment in Myanmar, where expressing dissent can lead to severe repercussions, including arrest or worse under amended penal codes such as section 505A, conducting formal fieldwork remains a significant risk (SAC, 2021).

In light of these constraints, this research employs an alternative approach to data collection. To safeguard the safety of participants and honor the ethical imperatives of research in such volatile settings, this study engaged informally with volunteer teachers and educators through existing professional networks. These educators, including those actively involved in the Civil Disobedience Movement (CDM), have been displaced from their formal roles in higher education and are currently providing voluntary teaching in IDP camps. Their involvement in the CDM highlights their resistance to the military regime, which has been particularly strong among educational staff.

The CDM participants, comprised of various government staff and particularly prevalent among educators, have been forced into hiding due to their protest activities. Despite these challenging circumstances, they consented to participate in this study, providing invaluable insights into the motivational factors and learning environments within IDP camps. Consent for interviews was obtained via email, with assurances of anonymity and confidentiality to protect the identities of the respondents. This method aligns with the ethical guidelines and best practices for research in conflict-affected areas, albeit without formal institutional review board approval, which is currently unfeasible in Myanmar's political context.

The inclusion of these voices is pivotal, not merely for academic completeness but also to ensure that the narrative of those directly impacted by the turmoil—teachers and educators—is heard rather than silenced. Their firsthand accounts and experiences are crucial for informing broader analyses of educational reforms during

such critical times and for understanding the shifts in teacher motivation and the educational dynamics within IDP camps.

Research Design

This study adopts a qualitative research approach to deeply understand the motivational factors affecting teachers and the associated learning environments in Internally Displaced People (IDP) camps within Myanmar. This method is particularly suited to exploring complex, contextual, and subjective experiences which quantitative methods might not fully capture, especially in settings marked by significant socio-political disruptions.

Participants

This research utilizes a qualitative design to explore the motivational dynamics and educational challenges in IDP camps across Myanmar. Data was gathered through in-depth interviews with seven volunteer teachers who are actively working across four different IDP camps in selected regions of the country. These camps were chosen based on their geographical diversity and the varying conditions they represent, which is critical for gaining a broader understanding of the educational challenges across different displacement contexts. These participants were chosen for their unique insights into the daily educational practices and challenges within these environments, providing a comprehensive overview of the teacher's experience under extreme conditions.

Data Collection

Data was collected through in-depth, semi-structured interviews, which were designed to allow participants to share their experiences and perceptions freely. The interview guide was carefully crafted around the core elements of Daniel Pink's Motivation Theory—autonomy, mastery, and purpose—to specifically explore how these motivational factors manifest in the unique settings of IDP camps. The semi-structured format provided the flexibility to probe deeper into areas of interest that emerged during the interviews, ensuring a comprehensive understanding of the subjects discussed.

Interview Procedure

Interviews were conducted in a private and secure setting to ensure confidentiality and comfort of the participants, given the sensitive nature of their working conditions. Each session lasted approximately 45 minutes, with questions prompting discussions on teachers' motivations, their pedagogical approaches, the challenges they face, and the perceived impacts of these factors on their students' educational outcomes.

Data Analysis

The transcribed interviews were analyzed using MAXQDA, a leading software tool for qualitative data analysis. This software supports complex methodological approaches in qualitative research, facilitating efficient coding and thematic analysis of large textual datasets. By using MAXQDA, the study applied thematic analysis techniques to the interview transcripts to identify, analyze, and report patterns (themes) within the data. The analysis focused on linking the emergent themes with the theoretical framework provided by Pink's Motivation Theory, thus ensuring that findings are grounded in both empirical data and established academic theory.

Analytical Framework

The thematic analysis involved a systematic process where initial codes were generated directly from the transcript data. These codes were then collated into potential themes, reviewed, and refined to form a coherent pattern that relates to both the theoretical underpinnings of the study and the practical implications for teaching in IDP camps. This methodical approach ensures that the research findings are robust, replicable, and relevant to both academic audiences and practitioners in the field of education in crisis settings.

Ethical Considerations

Given the sensitive context of the study, ethical considerations were paramount. All participants were fully briefed about the study's aims, the voluntary nature of their participation, and their right to withdraw at any time without consequence. Informed consent was obtained from all participants, which included permission to record the interviews and use the data anonymously in the study. This process was conducted in accordance with the ethical guidelines of conducting research in high-risk areas, ensuring that the safety and anonymity of participants are preserved.

Results

This section delves into the qualitative analysis of data collected from interviews with volunteer teachers in IDP camps in Myanmar. The analysis is framed around Daniel Pink's Motivation Theory, which focuses on autonomy, mastery, and purpose as key motivators that can significantly enhance the educational environment. The responses are categorized and analyzed according to the research questions aimed at exploring these motivational factors, the challenges faced in IDP camps, and the effectiveness of existing support mechanisms.

Display of Autonomy, Mastery, and Purpose in Teaching Experiences

Autonomy: Teachers reported varying levels of decision-making freedom in their teaching methodologies, directly impacting their motivation and effectiveness. Several educators highlighted how autonomy in curriculum design allowed them to tailor lessons to the specific needs of their students, reflecting Pink's notion that autonomy can enhance job satisfaction and performance. As one respondent reflected:

"Although we have a lot of barriers, we can teach what they want, we can use teaching style and materials by their own creativity, and senior teachers help each other when they face problem in teaching. So, *for me, I feel satisfied with my profession. Students are motivated to learn, and they are interested in learning activities when teachers create interactive learning process."*

Mastery: Responses indicated a strong desire among teachers to advance their teaching skills; however, opportunities for professional development were often cited as inadequate. Teachers expressed a need for more structured training programs to improve their mastery, aligning with Pink's theory that mastery is a critical component of personal and professional growth.

One teacher's response*: "We had had the volunteer teaching training, organized by the Ministry of Education, NUG. I attended as the trainer (TOT), and I*

have to give back the teacher training to the volunteer teachers."

One of the teachers' response*: "The teacher training (both giving and receiving), I believe that these training are helpful in their day-to-day teaching tasks, as we have to learn to be able to contribute to the new volunteers. But we want to get more teaching training especially for those volunteer teachers."*

Purpose: Many teachers conveyed a deep sense of purpose in their roles, driven by the challenging conditions of the IDP camps and the visible impact of their work on students' lives. This purpose was found to be a powerful intrinsic motivator, consistent with Pink's framework, which often led to higher levels of personal commitment and job satisfaction. One participant reflected as

A teacher shared his experiences like this*:" although we have a lot of challenges and barriers, I only focus on the possibility with the limited resources. I try to use all the things I can get as the teaching aids. For example, some rice, some flowers, fruits and vegetables, these simple things can become teaching aids. I want to practice and teach my students not to give up easily, and life skills they should have built."*

A teacher shared his passion and belief on his profession this*: "I know it will be a challenging situation to teach in these IDP camps, but I am ready to face any kind of challenges and I don't feel the challenges as difficulties and just face and overcome."*

Challenges and Barriers to Quality Education

Infrastructure and Resources: One of the most significant barriers reported was the lack of physical and educational resources, which hindered effective teaching and learning. Teachers frequently mentioned the poor condition of educational facilities and the scarcity of teaching materials. Some notes from the participants are:

"That teacher feels that, it is more difficult in teaching learning situations, especially the insufficient teaching learning materials, (for example, as students need to take more time in the insufficient spaces), in the other hand, we have to close school temporarily when there is the security concern. So, these difficulties are barriers for students' quality."

"We are now using a monastery because normal school buildings are demolished by the air attack of the military."

"Some have their own tamps but the buildings are not strong enough, just the roof and half covered wall. (through the support of the community, and Myanmar people around the world who support Education of the students in these IDP areas. Teachers have to get support from their personal network such as family also."

Impact on Motivation: These challenges impact on teacher motivation by increasing stress and reducing the ability to deliver quality education. Teachers felt that their inability to provide what they deemed necessary for effective learning severely affected their professional satisfaction and motivation.

By the insufficient teachers, he has to teach the subjects he did not specified. For example, his major subject is English, and he feel confident with teaching English, but he has to teach both English and Biology- that is not his specialized subject, he has to struggle with the subject matter, teaching methods, and teaching aids. But, he his learning form other senior teachers, and preparing his best for his teaching.

Effectiveness of Support Mechanisms

Support from Management and Community: While some teachers noted receiving support from camp management and local communities, such as materials and moral support, many felt that this support was sporadic and not sufficiently tailored to their needs.

"I had once got a small financial support from a local organization, but it is just a small amount and only time. They started working as volunteers and later parents support small amount of money."

Influence on Motivational Factors: Where support was effective, it significantly enhanced teachers' feelings of autonomy and mastery. For instance, mentorship programs helped less experienced teachers develop confidence and skills, thereby fostering a sense of mastery. Community involvement sometimes enhanced the teachers' sense of purpose and belonging, which are crucial for sustaining motivation in challenging environments. One teacher response:

"We got refresher course as they are CDM teacher and I had finished formal teacher training. After that I have to give training to the volunteer teachers who have not attended any teacher training especially teaching methodology to be able to implement child centered approach and to be able to success the learning outcomes of the new curriculum."

Discussion

The findings from this study highlight the profound impact that autonomy, mastery, and purpose, as conceptualized by Pink's Motivation Theory, have on teacher motivation and effectiveness in the challenging environments of IDP camps in Myanmar. These motivational factors are crucial not only for fostering an effective learning environment but also for enhancing the resilience and adaptability of teachers working under extreme conditions.

Autonomy emerged as a significant motivator for teachers, enabling them to tailor educational content and methodologies to suit the dynamic and often unpredictable needs of students in IDP camps. The ability to make independent pedagogical decisions often led to increased job satisfaction and a sense of professional efficacy.

Mastery was identified as another key motivator, with teachers expressing a strong desire for ongoing professional development. However, the lack of structured training and development opportunities highlighted a gap that, if filled, could significantly enhance educational outcomes in IDP settings. Providing targeted training that addresses the unique challenges of teaching in crisis environments could empower teachers further and improve the overall quality of education.

Purpose was profoundly influential, with teachers often viewing their roles as critical not just to the education but to the broader wellbeing and future prospects of their students. This sense of purpose

provided a powerful intrinsic motivator, driving teachers to persevere despite the significant challenges posed by the IDP camp conditions.

However, the study also revealed considerable barriers to quality education, primarily stemming from the political instability and the resultant resource constraints. These barriers not only impede the teaching and learning process but also significantly affect teacher motivation by heightening stress and diminishing the sense of professional accomplishment.

The effectiveness of support mechanisms, such as mentorship programs and community support, was variable. Where effective, these supports enhanced feelings of autonomy and mastery among teachers. However, the sporadic nature of such support underscores the need for more consistent and comprehensive assistance programs.

Conclusion

This research underscores the critical role of teacher motivation in enhancing educational outcomes in IDP camps amidst Myanmar's complex socio-political landscape. By applying Pink's Motivation Theory, this study provides valuable insights into how enhancing autonomy, mastery, and purpose among teachers can significantly improve not only educational practices but also broader educational reforms in crisis-affected settings.

The findings suggest that addressing the intrinsic and extrinsic motivational needs of teachers is essential for improving education in IDP camps. Specifically, educational policies and programs should focus on:

- Enhancing teacher autonomy by providing more control over curriculum design and implementation.
- Supporting mastery through continuous professional development tailored to the unique challenges of crisis education.
- Reinforcing a sense of purpose among teachers by clearly connecting their work with broader educational and societal goals.

Moreover, the study highlights the urgent need for consistent support mechanisms that can mitigate the adverse effects of resource limitations and political instability on education. International agencies, non-governmental organizations, and the global educational community must collaborate to provide sustained support to teachers in IDP camps, ensuring that education remains a priority even in times of crisis.

Ultimately, enhancing teacher motivation in IDP camps not only supports educational outcomes but also contributes to the stabilization and rebuilding of communities disrupted by displacement and conflict. Future research should continue to explore the interplay between teacher motivation, educational practices, and student outcomes in crisis settings, aiming to develop more targeted interventions that support both teachers and students in IDP camps.

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References

Abiola, Ruth, Adimula., Olugbenga, A., Mokuolu. (2023). *Structural Theory on Aligning Survival Strategies with Social Needs for Efficiency in Care of Internally Displaced Persons' Camps in Africa*. https://doi.org/10.2139/ssrn.4625030

Adimula, A. R., & Mokuolu, O. (2023). *Structural theory on aligning survival strategies with social needs for efficiency in care of internally displaced persons' camps in Africa. SSRN*. https://doi.org/10.2139/ssrn.4625030

Benware, C. A., & Deci, E. L. (1984). Quality of Learning with an Active versus Passive Motivational Set. *American Educational Research Journal*, *21*(4), 755–765. https://doi.org/10.2307/1162999

Benware, C., & Deci, E L. (1984, January 1). Quality of Learning With an Active Versus Passive Motivational Set. SAGE Publishing, 21(4), 755-765. https://doi.org/10.3102/00028312021004755

Décobert, A. (2021). Myanmar's human rights crisis justifies foregoing neutrality for a solidarity-based approach to humanitarianism. *Melbourne Asia Review*, 7. https://doi.org/10.37839/mar2652-550x7.6

Ghenghesh, P. (2013, January 10). Job Satisfaction and Motivation - What Makes Teachers Tick?. *Sciencedomain International, 3(4),* 456-466. https://doi.org/10.9734/bjesbs/2013/5156

Halima, Sarkinfada., Ijai, Multafu, Kyari. (2022). Educational services and socio-economic status of internally displaced persons in Maiduguri, Nigeria: Implications for sociology of education. *Journal of Educational Research in Developing Areas, 3(1):*103-113. https://doi.org/10.47434/jereda.3.1.2022.103

Htut, K., Lall, M., & Howson, C. (2022). Caught between covid-19, coup and conflict—what future for myanmar higher education reforms?. Education Sciences, 12(2), 67. https://doi.org/10.3390/educsci12020067

Kim, G., Jung, E., & Kim, G. (2022). Association between post-traumatic stress symptoms and functional health among internally displaced people in myanmar. *Journal of Psychiatric and Mental Health Nursing, 29(4),* 555-567. https://doi.org/10.1111/jpm.12837

Krzysztof, Pikoń., Magdalena, Bogacka., Katarzyna, Piecha-Sobota. (2016). Teacher Motivation - the key to implementation of new pedagogical tools. 2(7):70-75. https://doi.org/10.18844/GJHSS.V2I7.1182

Kusuma, A. (2023). Between covid-19, coup, and conflict: multi-dimensional threats to human security in myanmar. Kne Social Sciences. https://doi.org/10.18502/kss.v8i3.12828

Mbaleka, S. (2014). An instructional design model for better refugee and idp education. International *Journal of Academic Research in Progressive Education and Development, 3(3).* https://doi.org/10.6007/ijarped/v3-i3/947

Ogunode, N., et al. (2022). Challenges of Education in IDP Camps. *Journal of Crisis Education.*

Pāvels, Jurs., Maija, Ročāne., Inta, Kulberga. (2022). Promoting teachers` motivation to teach: the power of values and competences. INTED proceedings, https://doi.org/10.21125/inted.2022.1803

Pink, D. H. (2009). *Drive: The Surprising Truth About What Motivates* Us. Riverhead Books.

Saito, E. (2021). Educational issues in myanmar after the coup in february 2021. *Management in Education, 36(4),* 186-188. https://doi.org/10.1177/08920206211055326

Serdarević, S. (2023, August 1). Teachers` Motivation in The Digital Environment. University of Dubrovnik, 8(1), 128-133. https://doi.org/10.17818/diem/2023/1.13

Shak, M S Y., Yashak, A., Tahir, M H M., Malik, N A., Hasni, N A., Kasmaruddin, N I., & Ibrahim, N. (2022, April 9). Herzberg's 'Hygiene' Factor and Secondary Islamic Studies Teachers' Motivation Level., 12(4). https://doi.org/10.6007/ijarbss/v12-i4/12980

Thein, K. (2023). Revolutionary Challenges of The Myanmar Generation Z Students and the Impact on the Rapidity of the 2021 Spring Revolution. *Jurnal Sosiologi Dialektika, 18(2)*, 124-135. https://doi.org/10.20473/jsd.v18i2.2023.124-135

https://doi.org/10.3311/BICE2024-020

Student Assessment and Vocational Teacher CPD in Kenya: Roots of a Vicious Cycle

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ABSTRACT

Examinations are part of the institutional framework that influences teaching and learning. However, the influence of examination practices on the professional development practices of vocational teachers remains under-researched and more so in developing country contexts. Viewing teachers as ecologically rational, this study investigated how examination practices influence the teaching and professional development practices of vocational teachers in Kenya. Interview and questionnaire survey data were collected from TVET teachers in six vocational institutions in the Nairobi Metropolitan area and analysed using thematic and statistical analysis.

A simplified mode of assessing students' practical skills was found to have led to a narrowing down of instruction. The simplified assessment method, relying exclusively on pen-and-paper tests to assess mastery of practical skills, acts to dis-incentivize both teachers and students from improving their practical skills. In addition, examination-oriented teaching, inadequate Initial Teacher Education (ITE), and limited learning resources work together to reinforce the teaching and learning of theoretical content at the expense of practical content. The interaction of these factors demonstrated the need to adopt multi-pronged approaches to improve the quality of teaching and learning in vocational education.

KEYWORDS

continuing professional development (CPD), vocational education, student assessment, vocational teachers, Kenya

INTRODUCTION

The Continuing Professional Development (CPD) of teachers plays a critical role in ensuring the quality of education (Darling-Hammond et al., 2017). Teacher CPD has also been shown to be context bound and therefore influenced by institutional conditions and practices (Appova & Arbaugh, 2018; Njenga, 2022; Sancar et al., 2021).

In addition, research findings from different educational contexts demonstrate the power of student assessment practices to influence teaching and learning practices. Assessment practices have been found to influence the pedagogical practices teachers adopt (Brown et al., 2019; Lau, 2015) and may lead to a divergence between the stated and enacted curriculum (Sultana, 2018).

However, researchers have rarely focused on how student assessment practices influence teachers' professional development. Within the vocational education context, the interactions between curricular, student assessment practices and vocational teacher CPD remains unexamined. While research has focused on how student assessment practices influence student learning and teachers' teaching practices, relatively little research has focused on how student assessment practices influence how vocational teachers learn and improve their knowledge and skills. It therefore remains unclear how student assessment practices (especially in the form of large-scale exit examinations) influence vocational teacher CPD. Research on this topic is particularly scarce in developing country contexts where research on vocational teacher CPD remains limited (Haßler et al., 2020; Njenga, 2024; Zhou et al., 2022).

This study therefore investigated how exit examinations influence the professional development practices of vocational teachers in Kenya. Specifically, the study focused on how post-secondary vocational education teachers in Kenya view exit examinations (conducted by the Kenya National Examinations Council) and how those views influence their teaching and professional development practices.

Before presenting the context of the study, a brief overview of literature on the impact of student assessment practices on teaching and learning practices is presented. Thereafter, the study design is presented followed by a discussion of the findings. The article concludes with recommendations drawn from the study findings.

LITERATURE REVIEW

IMPACT OF EXAMINATIONS ON TEACHING AND LEARNING

Given the strong impact of educational assessment on teaching and learning, a significant amount of research has focused on these effects (Pedulla et al., 2003; Shih, 2009; Sultana, 2018; Tsagari & Cheng, 2017). The effects of student assessment on teaching and learning processes have been referred to as backwash, wherein the testing of learning influences teachers and learners to alter teaching

and learning practices in ways that they would otherwise not do. The alterations in teaching and learning practices may promote or inhibit learning (Lau, 2015; Messick, 1996). Backwash has also been defined as the influence of public examinations on the attitudes, behaviours and motivations of teachers, learners and parents. Other authors note that the effects of examinations extend to the entire educational system including school policies and practices within classrooms. Other terms used to describe backwash are washback, test impact and curriculum-alignment among others (Cheng et al., 2015; Pan, 2009; Sultana, 2018).

The effects of examinations may be intended or unintended and may be positive or negative. Positive effects include inducing teachers and students to teach more, work harder, or more effectively, while negative effects include inducing teachers and learners to reallocate instructional and learning resources to elements being tested while avoiding untested elements, teaching to the test and cheating (Darling-Hammond & Rustique-forrester, 2005; Koretz et al., 2001).

These effects are more likely in contexts where examinations are high-stakes. High-stakes examinations often lead teachers and students to focus on passing the examinations rather than on critical understanding. High stakes examinations also pressure students and teachers to rush through material and make teachers anxious and unsure about their jobs (Pan, 2009; Somerset, 2011; Sultana, 2018). In general, when teachers feel under pressure to raise examination scores, they are less likely to use assessment as tools to improve teaching and learning; rather, they are more likely to adopt teaching and learning practices that merely lead to improved assessment scores (Brown et al., 2019; Brown & Michaelides, 2011).

Research in different educational contexts has shown that the effects of the tests differ depending on the severity stakes attached to the tests. Pedulla et al. (2003) found teachers' responses to state mandated testing programmes differed depending on the severity of the stakes attached to the tests. Where the stakes are higher, the effect of the test is stronger and leads to a stronger response from teachers. In Canada, Slomp et al. (2020) investigated the consequences of policies governing medium-stakes large-scale exit examinations. They found that despite changes in the weightings for course work, exit examinations impacted on teaching practices leading to a narrowing of planning and assessment practices.

Other studies show that how teachers respond to tests depend on teachers' beliefs about the tests. For example, in Hungary, Tóth & Csapó (2022) investigated teacher's beliefs about the effects of the assessment system and resulting changes in teaching practices. They found that assessment programmes compel teachers to revise their teaching practices. However, while some teachers make meaningful changes, others adopt practices that are not conducive for improved learning and instead focus on assessment scores.

Teachers as ecologically rational

This study seeks to uncover how vocational teachers in Kenya view and respond to national exit examinations. The posing of the research problem evidences that this study is based on an interpretivist worldview. Specifically, it is taken that perceptions matter and influence how individuals act and respond to the world. Aligned to this world view is the ecological rationality model. The ecological rationality model adopts a broad view of the environment to include the social context and institutional environment in which people live, and posits that humans tend to be ecologically rational, that is, human reasoning, choice taking and behaviour are adapted to the environment in which they live. Being rational therefore means more than just following abstract rules of logic, but it includes adapting reasoning and behaviour in ways that enable one to thrive in their environment. The environment thus shapes how people view the world and consequently how they respond to the world. A second implication of ecological rationality is that since environments are characterized by constraints, choices taken reflect the incentives, sanctions and constraints a person faces (Brown & Michaelides, 2011; Lejarraga & Pindard-Lejarraga, 2020; Polonioli, 2016; Rieskamp & Reimer, 2007).

Based on this model, educational processes and policies, and in particular student assessment practices, shape teachers' conceptions of their roles as well as the pedagogical practices teachers adopt. The practices adopted are those that enable teachers to successfully function within the context they work in. The context is characterized by the institutional practices such as rewarding teachers for students' examination performance (Njenga, 2022). Teachers therefore take up pedagogical practices that are consistent with the priorities, constraints and incentives that existing policies and practices produce (Brown et al., 2009, 2019; Wasanga & Somerset, 2013). Specifically, teaching practices and teacher CPD practices can be expected to conform to assessment practices.

According to the ecological rationality model, individuals adopt practices based on their perceptions of their environment. The practices teachers adopt are therefore based on their perceptions of examinations, purposes and outcomes. However, other perceptions may moderate adopted practices. For example, due to the perception that teaching should lead to more than just passing examinations, teachers may desire to teach beyond the minimum required by the examinations. A tension can thus be expected between helping students pass their examinations and helping students get ready for the real work and life situations students are expected to face. However, in contexts where examinations are high-stakes, the focus will be towards helping students pass their examinations, after which some supplemental teaching and learning towards the expected real work and life situations can be offered. Finally, characteristics such as career stage, educational qualifications, level of students taught and prior work experience may result in teachers conforming to examination practices in different ways.

Vocational education and testing in Kenya

In Kenya, vocational education, often referred to as Technical, Vocational Education and Training (TVET) consists of both formal and informal TVET. Formal study programs are many, with the majority of students enrolling for engineering and business studies in both public and private institutions. As an alternative to university education, students who have completed their secondary education can join technical and vocational colleges (TVCs) for two-year programmes that lead to the

award of craft certificates or for three-year programmes that lead to the award of diploma certificates. Students without secondary education can join vocational training centres (VTCs) for short courses leading to the award of artisan certificates. Apart from the diploma level studies, National Polytechnics offer Higher National Diploma studies to students with diploma level certificates (UNESCO-UNEVOC, 2018). This study focused on vocational teachers in public TVCs and who teach craft and diploma level students.

Vocational teachers working in public TVCs, often referred to as TVET teachers, are responsible for providing both theoretical and practical instruction to their students. While all TVET teachers in Kenya are required to have received Initial Teacher Education (ITE) before being employed as teachers, some teachers have not received such training. ITE for TVET teachers may be received at the Kenya School of TVET (formerly Kenya Technical Teachers College) or in universities offering teacher education (UNESCO-UNEVOC, 2018).

In the TVET sector in Kenya, different agencies have been tasked with assessing and certifying non-university learning. Among these are the Kenya National Examinations Council (KNEC) and the National Industrial Training Authority (NITA). Kariuki (2013) found that for the majority of TVET courses, KNEC is the main examining body. For example, from his sample of recent TVET graduates, 98 per cent had been examined by KNEC, while NITA had examined only 2 per cent of the graduates.

According to Haßler's et al. (2020) description and classification of TVET systems in Africa, Kenya's formal TVET model adopts a pre-dominantly theory based approach. This approach is however criticized as being overly theoretical and failing to support the development of vital work-related competencies (Mukhwana, 2018). Indeed, in Murungi's (2019) study, participants were of the view that examinations in Kenya are mainly written and testing mastery of theory at the expense of practical skills. As a result, many holders of certificates such as IT, agriculture, and engineering can only demonstrate knowledge of theory but lack the practical skills needed for competent performance.

Murungi (2019) found that a premium is placed on performance in national examinations since students' life outcomes strongly depend on their performance in the national examinations. Teachers and schools are also rated according to how well their students perform in national examinations. For example, teachers' promotions depend on how well their students perform in national examinations. The examinations may therefore be described as high stakes.

As a consequence of the high stakes attached to the examinations, teaching and learning has become examination oriented with significant time and effort spent preparing for the examinations. Wasanga & Somerset (2013) had made similar observations with regard to how national examinations are viewed in Kenya. They noted that student mean scores in national examinations are used as proxy of the quality of teaching that teachers provide, and by extension, their quality as teachers. The mean scores of their students thus have important career consequences for teachers. Teachers are therefore concerned about the mean scores of their students and seek teaching methods that will ensure that students have high mean scores (Somerset, 2011; Wasanga & Somerset, 2013).

While the studies cited above are informative, they did not examine the influence of examination practices on the teaching and professional development practices of vocational teachers in Kenya. Accordingly, and as part of a wider study on TVET teacher CPD practices in Kenya, this study investigated how exit examinations in post-secondary vocational education influence teaching and vocational teacher CPD in Kenya.

AIMS, RESEARCH QUESTIONS AND HYPOTHESES

To guide the study, the following two research questions were posed:

- How do vocational teachers in Kenya view the national exit examinations and their underlying curriculum?
- How do the views influence the teaching and learning practices of vocational teachers Kenya?

METHODS

DATA COLLECTION AND ANALYSIS

To answer the research questions, the study adopted a mixed methods approach involving parallel use of a questionnaire survey and semi-structured interviews. Data collection for the study took place in early 2021 after obtaining ethical approval from the Ethical Committee of Faculty of Education and Psychology at Eötvös Loránd University and research licensing from Kenya's National Council for Science and Technology.

Survey data was collected from a total of 186 TVET teachers in six Technical and Vocational Colleges (TVCs) in Kenya's Nairobi Metropolitan area. A TVC was selected by convenience from each of the six counties that make up the Metropolitan Area. Survey participants were selected by random sampling at the institute level. Random sampling was deemed appropriate since there was no reason to assume that teachers are not homogenous in the institutes. Moreover, data to develop a more detailed sampling plan was not available. Interview participants were selected purposively to ensure a wide distribution in terms of educational qualifications, teaching experience, and teaching area.

Both the questionnaire survey and interviews investigated how teachers view the curriculum and the national exit examinations and how these views influence TVET teacher CPD practices in Kenya. The questionnaire had two parts, both of which used Likert type statements. The first part assessed how strongly teachers agree or disagree with statements describing the national examinations TVET students take. These statements were selected to assess if teachers agree with common claims that the KNEC examinations are overly theoretical, lack sufficient practical content, and that the KNEC examinations do not reflect technological changes.

The second part asked participants to indicate the extent to which they oriented their teaching and personal learning to the examinations. These statements were selected to assess if teachers agree with common claims that teachers are examination oriented in their teaching

and personal learning and that teachers avoid learning and teaching practical skills.

The interviews solicited views on the curriculum and the national examinations as well as a description of how the curriculum and national examinations influence teaching and teachers' learning practices. Interview participants were asked to give their views of the national exit examinations and to describe how the examinations influence their teaching and learning practices with respect to the choice of content and teaching methods.

Survey data was analysed using standard descriptive and inferential statistics. After coding the interviews, analysis was done to identify emergent themes. Findings from both sets of data were then compared and combined to arrive at a unified set of findings.

PARTICIPANTS AND THEIR CHARACTERISTICS

For the questionnaire survey, 178 questionnaires were returned, of which 170 were validly filled for analysis. By gender, 32 per cent of the respondents were female while 68 per cent were male. Majority of the teachers have a Bachelor's degree (57%) and a majority are in the middle career stage (37%), having worked for between six and twenty years. The distribution by educational qualifications and career stages is shown in **Hiba! A hivatkozási forrás nem található.**. Only 20% of the respondents indicated that they had not received pedagogical training.

Table 1
Career Stage by Educational Qualifications

		Educational Qualifications				
		Diploma	Bachelor	Masters	PhD	Total
Career Stages (years worked as a teacher)	New (0-2 years)	4	25	4	-	33
	Junior (3-5 years)	7	31	2	-	40
	Middle CS (6-20 years)	7	35	21	-	63
	Late CS (20+ years)	10	7	15	2	34
	Total	*28*	*98*	*42*	*2*	*170*

With respect to teaching subjects, 72 per cent of the respondents taught STEM related subjects while 28 per cent taught subjects related to business and social sciences. Asked which students they frequently handle, 21 per cent indicated that they handle mainly diploma students while the rest indicated that they handle both craft level and diploma level students. None of the respondents indicated that they handle craft level students exclusively.

Sixteen teachers participated in the interviews (Male=9, Female=7). Their educational qualifications and professional qualifications were diverse: one of the interviewees had a higher national diploma, eight of the interviewees had a Bachelor's degree, six had a Master's degree and one had a PhD; ten taught STEM related subjects and six taught business and social sciences. With respect to teaching experience, three of the participants had worked for less than five years, nine had worked for between six and twenty years and four had worked for more than twenty years. Seven of the interviewees indicated that they had worked elsewhere before they started teaching.

RESULTS

VIEWS ON THE EXIT EXAMINATIONS BY KNEC

With respect to how well the examinations assess practical skills, 48 per cent of the survey respondents held the view that KNEC examinations examine practical skills sufficiently. While this rather positive view would suggest a balance between the theoretical and practical content of the examinations, half of the respondents (51%) held the view that KNEC examinations focus mainly on theoretical content. Opinion was similarly split as to whether KNEC examinations are regularly updated to reflect technological progress: while 40 per cent of the respondents felt the examinations are not regularly updated, 38 per cent felt that the examinations are not regularly updated. The results are summarized in Table .

Table 2
Views on the National Examinations

	Agreement with Statement (%)			
Statements	*Disagree*	*Neutral*	*Agree*	*Mean*
KNEC examinations focus mainly on theoretical content	33	16	51	3.31
KNEC examinations examine practical skills sufficiently	27	25	48	3.21
KNEC examinations are regularly updated to reflect technological progress	40	22	38	2.89

While the survey results above present a rather positive view of the exit examinations, interview participants presented a more critical view of what is examined and how it is examined. According to the interview participants, the examinations and curriculum guiding the examinations are heavy in theory, light in

practical content, and out of sync with what is required in industry. Two teachers described the situation thus:

MaTTi_3:

We have the main exam body, the KNEC, but there is a disconnect between KNEC and industry; you get it. But people have no option, because almost all the courses in Kenya are examined by KNEC.

MuTTi_1:

No. It doesn't reflect changes in the field. Tell me why a student is learning about carburettors today? Why are we still teaching students how carburettors work, yet none of the models in the road are using it? What is in the syllabus is completely out of date.

TEACHING PRACTICES

Asked if teachers make a choice between teaching content that students will be examined on and teaching content deemed important even if such content is not examined, participants indicated that the examined content takes priority. One teacher emphasized that despite the wish to expose students to content known to be important and relevant, the content of the exit examinations guides what is taught:

McTTi_2:

Of course, you think about that, because you do not want to teach students content and then they fail. As much as you would like to expose them to content that you feel is important for them later, you are also guided by what KNEC tests, so that your students are not found off-guard.

The survey results reflected these practices. Thus, with regard to the claims that teachers are examination oriented in their teaching and personal learning, a significant three quarters (77%) of the participants agreed with the statement that they teach content most likely to be examined. Moreover, two thirds of the participants (63%) agreed with the view that they choose to learn content most likely to help their students pass in their examinations. However, survey participants generally disagreed with the claims that they rarely teach practical content or that they do not learn practical skills. The results are summarized in

Table .

Table 3
Views on Teaching and Learning Practices

	Agreement with Statement (%)			
Statements	*Disagree*	*Neutral*	*Agree*	*Mean*
I teach content that is most likely to be examined	10	13	77	3.85
I choose to learn content most likely to help my students pass	24	13	63	3.48
I rarely teach practical skills	66	13	21	2.30
I do not learn practical skills	82	8	10	1.89

EXAMINED CONTENT TAKES PRIORITY

To explain these views, interview participants pointed out that how well students perform in the exit examinations constitutes a primary consideration for teachers and the institutions:

MuTTi_3:

We draw a structure to win, and winning is passing exams.

And as one teacher emphatically put it, when students pass, the teacher also passes:

MuTTi_1:

If a student passes, the teacher passes. End of story.

Thus, since a teacher's excellence is evaluated in terms of student passes, the goal of teachers is to help students pass:

McTTi_3:

Most of the times, you are geared towards helping the students to pass.

This involves helping students learn and master what the examination system requires of them. Teachers thus teach to the exam:

MaTTi_2:

Today, the technical people are starting their exams, if you go round the colleges, you will find teachers will only teach what they expect in the exams. There will be a rush for that.

This extends to the use of past examination papers to guide their teaching:

McTTi_1:

We actually use the past papers. Because if you compare the past papers, you find that maybe for last year, and for this year, the exams are almost the same. The content is the same, almost the same questions. They are similar. So, there is that influence.

ThTTi_3:

And also, with the KNEC exams, I can be able to tell, probably the chances of this or that question coming ...I can be able to tell the setting and the kind of questions that we are likely to get. That way, to me it becomes easier to make students pass.

The interviews revealed that diploma-level students had their practical skills and knowledge evaluated entirely using pen-and-paper tests. That is, instead of requiring students to carry out a task that would demonstrate competency, students are merely required to describe the process of executing the given task:

MaTTi_3:

With KNEC they give you a practical question that you are supposed to tackle theoretically and write an answer. For example, I will give someone a procedure of dismantling a carburettor, or the procedure of servicing [car] brakes. So, you are expected to read it, and be able to memorize and reproduce it during the exam. Because at diploma level, nobody comes to test you on practice, there is no practical exam at the diploma level, just theory.

As a result, teachers rarely teach practical content since practical skills are not evaluated. Participants revealed that practical lessons are sometimes not time-tabled, while some teachers are reluctant to hold practical lessons:

MaTTi_2

And if go to a number of institutions, you will find that those students are not even timetabled for practical lessons. Because it is not examined.

NbTTi_1

For quite a number of years, there are teachers who have not seen the importance of even taking a practical based unit. You could even find as if practical units are only taken by so and so. The others do not bother with them, because they do not see the significance of the practical lessons. You cannot convince them otherwise, when the examination system focuses only on theory.

As a consequence of shifting instruction from practical skills needed by employers towards examined and theoretical content, examination results do not reflect the competencies of learners. One of the participants pointed out this problem:

MuTTi_3:

The KNEC exam generally, if you focus on that and you say that this person has a distinction, maybe in civil engineering, or plumbing, …, I tend to think that KNEC is not telling the truth. … They get As, but it is an A that can't help you in industry. I have trained the student to do the KNEC exam, to read and understand the drawing very fast, and fabricate for the exam. But out there, things are very different.

Reinforcing factors

Participants identified other factors that explain the observed teaching and learning practices. Among these was that many teachers lack the required practical skills due to inadequate prior training. The poor state of prior training of TVET teachers was summarized by one teacher as follows:

MuTTi_1:

Wait, how do I even know them personally, if personally I was taught using this content? How many teachers can maintain an Electronic Fuel Injection engine in Kenya today? Zero! He learnt using the old engine and it is the one he is teaching. How do you expect him to go and learn about the new one?

Another teacher pointed out that teachers coming from the universities are equally challenged when it comes to teaching practical skills and knowledge.

ThTTi_2:

We are having a challenge, whereby, even in the TTIs, we have some of our trainers, especially those who have graduated directly from the university, who are not competent enough in the practical skills, and not unless they take the personal initiative, they will also bend towards just teaching the theoretical part of it. So, if he has a theory lesson, he will ensure to attend it, and attempt to dodge the practical one and put emphasis on the theory.

Apart from the effects of limited initial teacher education, participants also pointed out that limited infrastructure limits teaching of practical content. One teacher pointed out that while they did not avoid teaching of practical content, limited infrastructure hinders them from teaching it:

ThTTi_2:

I wouldn't want to ignore the practical part, but what would hinder me from doing it is if you do not have the facilities. If you do not have the facilities, then it becomes a challenge. You end up focusing on the theory, and then maybe supplement practical lessons with videos.

Further the available equipment is used by a large number of students:

NbTTi_1:

The teachers are not able to teach the practical lessons because the resources are too few for the students. Like only five lathe machines … so you only teach the theory.

MaTTi_3:

You can imagine a class of 40 [students] and only two days to test them. This is made worse by the lack of sufficient facilities to test them, or even train them.

These factors reinforce each other. One teacher observed that after teaching and learning become theory oriented, the availability of machines does not change the practices.

Teacher CPD influenced by examinations

When participants were asked how the exit examinations influence their professional development practices, they indicated that the examinations form the general template that they use to guide what content they learn.

ThTTi_2:

Yes, they do. Because even when I am studying…, I normally have the KNEC questions. They guide me on what to read on. So, I study their pattern of the examinations. So, I know these are the areas to focus on, these are the areas they test on, yeah, that helps.

McTTi_3:

If I know that an area is not going to be examined, then I would cheat you to say that I would stay there. I do not go where the examination will not focus.

In addition, participants further pointed out that they feel constrained to learn and practice what is relevant for preparing students for the exit examinations. As one teacher put it, he is forced to focus less on practical content and more on theory:

KbTTi_1:

I would not say ignoring [practical content], but I have no option, because that is how it has been structured. I am forced to.

Another teacher pointed out that teachers have limited time to learn such skills owing to the amount of theory content they are expected to teach:

NbTTi_1:

We have looked forward to improving our practical skills. But again, now that you have a lot of theory time with them, even your time to learn and practice practical skills is also limited. You want to learn the skills but you do not have time for them.

According to the ecological rationality model, individuals adopt different views and practices based on their prior experiences. This led to the expectation that the expressed views could be influenced by different teacher characteristics such as gender, prior educational qualifications, and work experience. To verify this assumption, the means of the survey questions were compared across different categories of teachers. No statistically significant differences were found based on age, gender, career stage, teaching subjects and educational qualifications.

However, the mean differences with respect to the level of students the respondents frequently teach were instructive. Teachers who teach mainly diploma students agreed more strongly with the statement '*I rarely teach practical skills'* compared to other teachers. A Mann-Whitney test indicated that this difference was statistically significant, U (Mainly diploma students= 37, Both craft and diploma students = 133) =1808, z=-2.565, p<.05.

While the mean differences were not statistically significant for the other statements, teachers who mainly teach diploma level students agreed more strongly with the statements that KNEC examinations are overly theoretical and out of date. They also agreed more strongly with the statements that they do not focus their individual learning on practical content. In line with the ecological rationality model, these findings suggest that the diploma-level examinations, which are more theoretical in content compared to craft-level examinations, likely influence teachers towards examination-oriented teaching while simultaneously encouraging teachers to focus less on practical content.

To further explore the influence of the curriculum and national examinations on teacher CPD, correlations between the statements with regard to the examination system and teaching practices were taken. The pattern of correlations is shown in Table **.**

Table 4
Correlation Table: Views on the National Examinations and Teaching and Learning Practices

	Variable	a.	b.	c.	d.	e.	f.	g.
a.	KNEC examines theoretical content mainly	1						
b.	KNEC examines practical skills sufficiently	-.342**	1					
c.	KNEC examinations are regularly updated	-.313**	.475**	1				
d.	I teach content likely to be examined	0.077	-0.003	0.013	1			
e.	I learn content likely to help my students pass	0.136	-0.116	-.180*	.284**	1		
f.	I rarely teach practical skills	0.118	-0.127	-0.103	.173*	.378**	1	
g.	I do not learn practical skills	-0.009	-0.100	-0.122	0.017	.201**	.500**	1

***. Correlation is significant at the 0.01 level (2-tailed).*
**. Correlation is significant at the 0.05 level (2-tailed).*

The pattern of correlations suggested that the variables were uniquely correlated with each other. To verify this, exploratory factor analysis was carried out. While the results of the exploratory factor analysis did not render themselves to a clear-cut identification of distinct factors, they suggested that:

Teachers hold either positive or negative views of the examinations.

Teachers are either weakly or strongly orientated towards examinations-based teaching

Teachers are either weakly or strongly oriented towards teaching and learning of practical content.

To test these hypotheses, cluster analysis of the variables was undertaken. Gore's (2000) recommendations on conducting cluster analysis were adopted to guide the analysis. The recommendations included a two-step process starting with hierarchical clustering to identify the appropriate number of clusters followed with K-Means clustering. Hierarchical clustering was done using Wards method with squared Euclidian distances. From the resulting dendrogram and agglomeration schedule, three clusters were identified. The clusters were identified by studying the agglomeration schedule for large jumps in the coefficients (large jumps in the coefficient reflect the joining of dissimilar clusters) as well as the rescaled cluster distance in the dendrogram. From the dendrogram, at the rescaled distance value of approximately 18, three clusters were identified.

Hiba! A hivatkozási forrás nem található. shows the dendrogram obtained with the three identified clusters highlighted. To ensure that the results were not a feature of the method adopted, hierarchical clustering using the average method and Pearson's similarity matrix was done, resulting in a similar dendrogram and cluster

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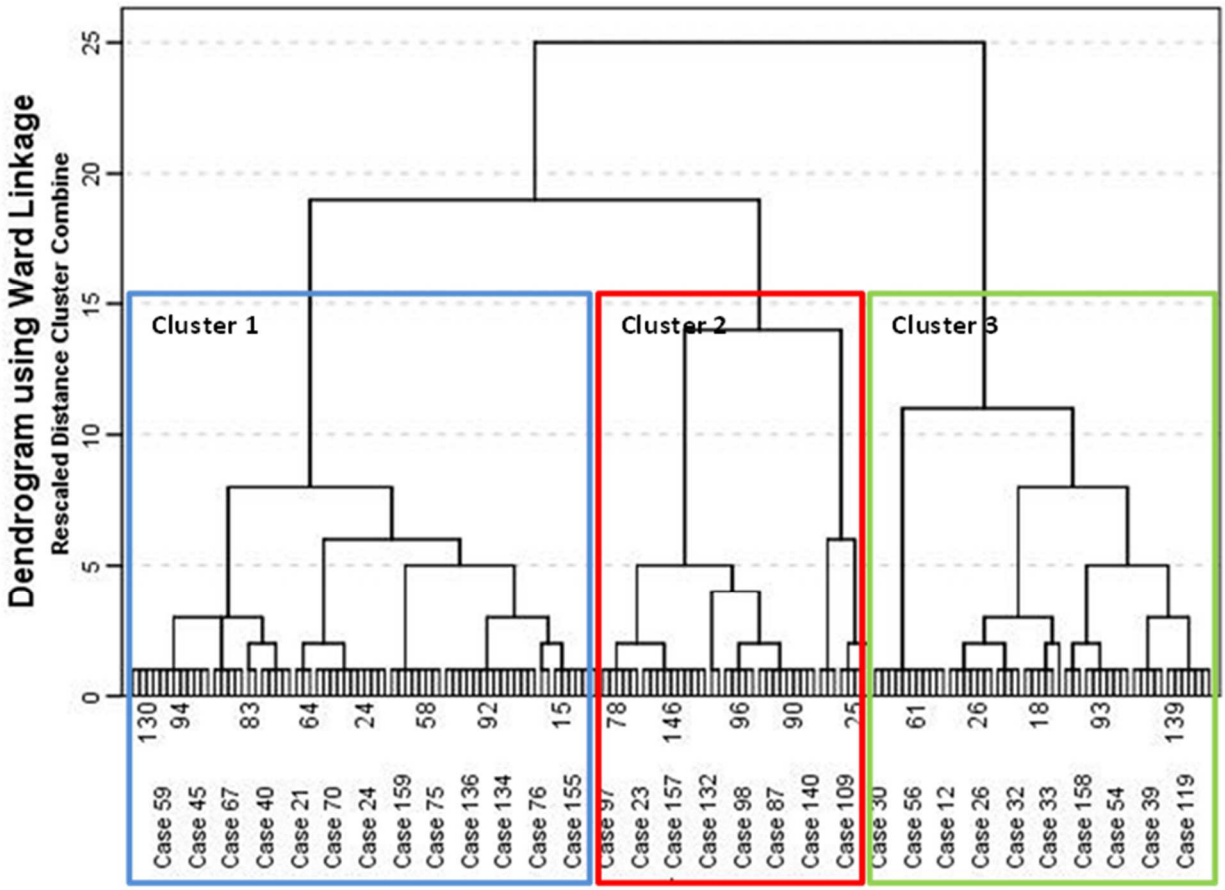
solution. Based on this, K-Means cluster analysis was conducted with the number of clusters set to three.

Figure 1
Views on KNEC and Teaching and Learning Practices Dendrogram Using Wards method with Squared Euclidean distances



Three clusters were thus identified. Table shows a summary of the cluster sizes and their means, standard deviations and eta-squared values for the variables used to identify them. To aid description of the clusters, Fig was generated showing the differences in the cluster means on views of KNEC examinations and teachers' teaching and professional development practices. Teachers in the first category hold a more positive view of the KNEC examinations, viewing the examinations as balanced and not overly theoretical, regularly updated and examining practical content sufficiently). This positive view of the KNEC examinations is associated with a lower-than-average orientation towards teaching and learning for the examinations. These views are further associated with a higher likelihood for teaching and learning practical content.

Table 5
Cluster Sizes, Means (Standard Deviations) and Eta Squared Coefficients for the Views on KNEC Examinations and Teaching and Learning Practices

Views of KNEC examinations and teaching practices		**Cluster X (N = 33)**	**Cluster Y (N =78)**	**Cluster Z (N = 59)**	**Total (N =170)**
	Eta Squared	*Mean (SD)*	*Mean (SD)*	*Mean (SD)*	*Mean (SD)*
KNEC examinations focuses on theory	.42	2.64 (1.29)	3.53 (1.00)	1.63 (0.76)	2.69 (1.3)
KNEC examinations are regularly updated	.26	2.94 (1.14)	3.44 (.95)	2.15 (0.91)	2.89 (1.13)
KNEC examines practical skills sufficiently	.19	3.21 (1.32)	3.68 (.76)	2.59 (1.07)	3.21 (1.11)
I teach content most likely to be examined	.08	4.26 (0.68)	3.58 (.98)	3.96 (.96)	3.85 (.96)
I learn what is most likely to help my students pass	.22	4.39 (.7)	2.9 (1.28)	3.75 (1.11)	3.48 (1.27)
I rarely learn practical content	.34	2.85 (1.35)	4.4 (0.73)	4.44 (0.73)	4.11 (1.07)
I rarely teach practical content	.56	1.82 (0.73)	4.28 (0.74)	3.98 (1.01)	3.7 (1.25)

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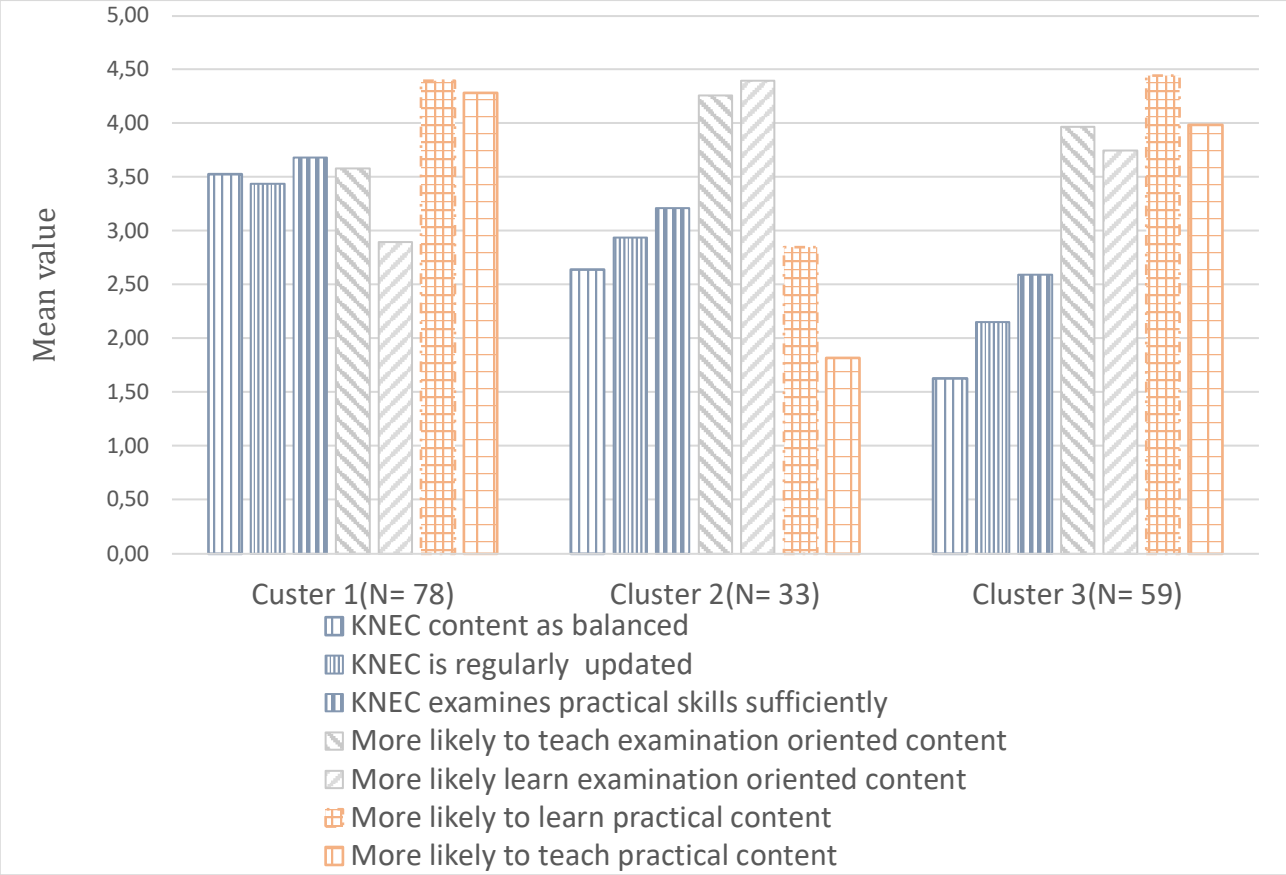
Teachers in the second category hold a more neutral view of KNEC examinations. However, teachers in this category are the most examination oriented and focus their teaching and learning towards content expected to feature in the examinations. This view is further associated with the lowest likelihood of teaching or learning practical content.

The third cluster consists of teachers who are the most critical of the KNEC examinations (i.e., they are more likely to view the examinations as overly focused on theory, not regularly updated and examining practical content insufficiently). This critical view is associated with a higher-than-average orientation towards teaching and learning for the examinations and a slightly higher than average likelihood to teach and learn practical content.

Figure 2
Cluster Means for Views on KNEC Examinations and Teaching and Learning Practices



DISCUSSION

The study findings revealed that examined content takes priority. Accordingly, teachers make extensive use of examinations to structure both their teaching and the content of their professional development content. Murungi (2019) made a similar finding on the extensive use of past examination papers to guide teaching in Kenyan secondary schools. The use of past examinations to guide teaching represents a form of coaching as identified by Koretz et al. (2001), whereby teachers focus on and emphasize particular elements to align with the style or emphasis of the examinations. In the present case, theory-based examinations were found to limit the teaching and learning of practical content. Interview results revealed a reluctance to teach practical lessons by some vocational teachers, while diploma-level students are not keen to attend practical lessons. These findings mirror earlier findings. In their study, Ronoh et al. (2013) found that a third of the sampled automotive engineering teachers preferred to teach theory content only. The limited teaching of practical content, especially to diploma-level students, reflects what Koretz et al. (2001) refers to as 'narrowing of instruction'. Narrowing of instruction occurs when teachers reallocate teaching resources from elements that have low test weights to curriculum elements that have high test weights. Since practical skills are important in vocational education, practical content has high inference weight. The shifting of learning resources to theoretical content (that has high test weights) away practical content (that has low test weights but have high inference weights) thus represents a narrowing of instruction. Because teaching and learning behaviour has been aligned with test weights rather than with inference weights, test scores get inflated: students have high test scores but lack competence in practical skills. As a result, students may not develop competencies that are generalizable to items beyond what is frequently examined.

Similar narrowing-down of instruction in response to simplified assessment, and consequent effects, has been observed before in Kenya. In the 1960s, KNEC had converted the entire primary school leaving examination into a set of objectives, forced-choice questions. However, it soon became apparent that the faster and cheaper examination mode led to a decline in both the learning and teaching of written prose. Both teachers and learners regarded effort spent in learning how to construct prose as a waste of time and effort (Somerset, 2011;

Wasanga & Somerset, 2013). And in a study on the development of English literacy among school children in Kenya, Vikiru (2011) found that learners performed poorly on skills that were not tested directly by conventional examinations. In the present case, it is likely that the simplified assessment method, relying exclusively on pen-and-paper tests to assess mastery of practical skills, dis-incentivises teachers and students from spending time and effort to learn practical skills. Instead, teachers and student adopt a "*read it…memorize [it] and reproduce it"* approach. Diploma level students therefore rarely take practical lessons despite the formal curriculum expecting them to learn and practice practical skills.

Vicious Cycle

Other factors act to reinforce the observed teaching and learning practices. Among these was that many teachers lack the required practical skills due to inadequate prior training. Since the enacted and real curriculum, based on what KNEC chooses to examine, happens to be the same one that many TVET teachers went through as students, they never learnt the practical skills that they are now required to teach. On the other hand, universities rely on a theory based curriculum that has not been updated (Ronoh et al., 2013). Thus, many teachers lack the practical skills that they ought to teach to their students and therefore opt to teach the theory-based content they learnt in their student days.

Results also revealed that the lack of equipment and supplies limited their ability to teach practical content. Other than limited funding of vocational education by the government (Akala & Changilwa, 2018; TVETA, 2020), an overly examination-oriented curriculum that adopts teacher-centred and theory-focused learning, acts to dis-incentivise investing in teaching resources needed to teach practical content. In turn, KNEC is forced to adopt theory-based testing because the training institutions lack the infrastructure to conduct practical examinations.

The beliefs about the curriculum, evaluation practices, and institutional conditions related to the curriculum and student evaluation were thus found to interact and strongly influence teaching and teacher CPD. A key outcome was that teachers focus their teaching on what they expect students will be examined on and therefore seek to improve their ability to teach that content. The above findings support the observation that the professional development practices of TVET teachers in Kenya are guided by motives relating to improved task-performance competence and career progress (Njenga, 2023).

The above finding agreed with the theoretical framework guiding the study. As ecologically rational actors, TVET teachers adopt practices that align with institutional practices. Since teachers are evaluated in terms of how well their students perform in the exit examinations, TVET teachers focus their teaching on content that is regularly examined while content that does not get examined falls out of focus. Further, they align their teaching methods with the mode of the examinations since doing so ensures that their students perform well in the examinations. Kenyan TVET teachers can thus be described as ecologically rational with respect to existing examination practices and related policies.

In line with the above findings, cluster analysis led to the identification of distinct views towards the national exit examinations and resulting teaching and learning practices. While some teachers are critical of the examination system, they still orient their teaching and learning towards the examinations. Other teachers retain a high orientation towards practical content and put an effort to learn and teach practical content despite the limitations imposed by the curriculum and availability of resources. Tóth & Csapó (2022) identified a similar bifurcation of responses to examination practices when they investigated teacher's beliefs about the effects of the assessment system and resulting changes in teaching practices in Hungarian VET.

Conclusion

This study investigated how the national exit examinations conducted by the Kenya National Examinations Council (KNEC) influence the teaching and learning practices of vocational teachers in Kenya. The examinations and the curriculum were found to influence the content vocational teachers teach and learn. In particular, majority of the surveyed teachers agreed that they teach and learn content most likely to be examined in order to help their students pass in the examinations. To ensure that they focus their teaching and learning on examined content, vocational teachers in Kenya were found to rely extensively on past examinations papers to guide their teaching and learning.

It was also found that while the formal curriculum for diploma-level students requires students to learn practical skills, the enacted curriculum leaves little room for the students to learn practical skills, that is, instruction has been narrowed-down towards theoretical content. This was attributed to the simplified assessment of practical skills, wherein pen-and-paper tests are used to assess practical skills. The simplified assessment appears to dis-incentivise teachers and students from spending time and effort to teach and learn practical skills. In addition, limited funding and theory-based teaching and assessment practices dis-incentivise TVET institutions from investing in equipment needing for teaching and assessing practical skills . Moreover, TVET teachers, whose training was under similar conditions, lack the requisite practical skills and prefer to teach theoretical content only. These factors work together to reinforce the preference for teaching, learning and assessment of theoretical content at the expense of practical content, resulting in a vicious cycle that only gets stronger with time.

From the findings of the study, it can be concluded that examination practices are indeed part of the institutional framework that influences how vocational teachers teach and learn. It is also clear that despites its epistemological, pedagogical, and teleological aspects, vocational education is not immune from the pervasive effects of examination practices. In the present case, a poorly designed examination system has been shown to have produced strong and persistent effects that undermine the full realization of TVET's episteme of technical and practical knowledge, limit the use of TVET's pedagogy of experiential and practical learning, as well the subvert the attainment of TVET's teleology of occupational preparation and task performance (Njenga, 2020).

The interaction of the examination practices, the initial-teacher-education curriculum for vocational teachers, and availability of learning resources demonstrates the need to adopt multi-pronged approaches to improve the quality of teaching and learning in TVET. For the present case, it is recommended that TVET teachers in Kenya are supported to develop practical competencies and the curriculum reviewed to include more relevant content and practical competencies. Further, the mode and focus of student assessment should be changed from summative evaluation to the use of formative evaluation, including student portfolios, to encourage holistic evaluation of students. Finally, it is recommended that the institutions are supported to acquire the required infrastructure and equipment.

Limitations

The study focused on examination practices by the Kenya National Examination Council. It is therefore not clear if similar practices and effects can be expected from other examining bodies. Moreover, due to the limited scope of the study, this study did not involve examiners from KNEC or other examining bodies. The study also relied extensively on the views of vocational teachers. Future studies involving a wider set of TVET practitioners and utilizing broader research methods are therefore called for.

References

Akala, W. J., & Changilwa, P. K. (2018). Status of technical and vocational education and training (TVET) in post-secondary education in Kenya. *Journal of Popular Education in Africa, 2(7)*, 15–25. http://www.jopea.org/index.php/current-issue

Appova, A., & Arbaugh, F. (2018). Teachers' motivation to learn: implications for supporting professional growth. *Professional Development in Education, 44(1)*, 5–21. https://doi.org/10.1080/19415257.2017.1280524

Brown, G. T. L., Gebril, A., & Michaelides, M. P. (2019). Teachers' Conceptions of Assessment: A Global Phenomenon or a Global Localism. *Frontiers in Education, 4*, 16. https://doi.org/10.3389/feduc.2019.00016

Brown, G. T. L., Lake, R., & Matters, G. (2009). Assessment Policy and Practice Effects on New Zealand and Queensland Teachers' Conceptions of Teaching. In *Journal of Education for Teaching: International Research and Pedagogy* (Vol. 35, Issue 1, pp. 61–75). https://doi.org/10.1080/02607470802587152

Brown, G. T. L., & Michaelides, M. P. (2011). Ecological rationality in teachers' conceptions of assessment across samples from Cyprus and New Zealand. *European Journal of Psychology of Education, 26(3),* 319–337. https://doi.org/10.1007/s10212-010-0052-3

Cheng, L., Sun, Y., & Ma, J. (2015). Review of washback research literature within Kane's argument-based validation framework. *Language Teaching, 48(4),* 436–470. https://doi.org/10.1017/S0261444815000233

Darling-Hammond, L., Hyler, M. E., & Gardner, M. (2017). *Effective Teacher Professional Development.* Learning Policy Institute. https://learningpolicyinstitute.org/sites/default/files/product-files/Effective_Teacher_Professional_Development_REPORT.pdf

Darling-Hammond, L., & Rustique-forrester, E. (2005). The Consequences of Student Testing for Teaching and Teacher Quality. In *Yearbook of the National Society for the Study of Education* (Vol. 104, Issue 2, pp. 289–319). John Wiley & Sons, Ltd. https://doi.org/https://doi.org/10.1111/j.1744-7984.2005.00034.x

Gore, P. A. (2000). Cluster Analysis. In *Handbook of Applied Multivariate Statistics and Mathematical Modeling* (pp. 297–321). Academic Press. https://doi.org/10.1016/B978-012691360-6/50012-4

Haßler, B., Haseloff, G., Adam, T., Akoojee, S., Allier-Gagneur, Z., Ayika, S., Bahloul, K., Changilwa Kigwilu, P., Da Costa, D., Damani, K., Gordon, R., Idris, A., Iseje, F., Jjuuko, R., Kagambèga, A., Khalayleh, A., Konayuma, G., Kunwufine, D., Langat, K., … Winkler, E. (2020). *Technical and Vocational Education and Training in Sub-Saharan Africa*. https://doi.org/10.5281/zenodo.4264612

Kariuki, S. I. (2013). *Technician Engineering Training and Employability in Kenya: Focus on Thika and Meru Technical Training Institutes* [Catholic University of Eastern Africa]. https://www.academia.edu/87058501/Technician_Engineering_Training_and_Employability_in_Kenya_Focus_on_Thika_and_Meru_Technical_Training_Institutes

Koretz, D. M., McCaffrey, D. F., & Hamilton, L. S. (2001). Toward a framework for validating gains under high-stakes conditions. Center for the Study of Evaluation, National Center for Research on …. https://cresst.org/wp-content/uploads/TR551.pdf

Lau, A. M. S. (2015). 'Formative good, summative bad?' – A review of the dichotomy in assessment literature. *Journal of Further and Higher Education, 40(4)*, 509–525. https://doi.org/10.1080/0309877X.2014.984600

Lejarraga, J., & Pindard-Lejarraga, M. (2020). Bounded Rationality: Cognitive Limitations or Adaptation to the Environment? The Implications of Ecological Rationality for Management Learning. *Academy of Management Learning & Education, 19(3),* 289–306. https://doi.org/10.5465/amle.2019.0189

Messick, S. (1996). Validity and washback in language testing. *Language Testing, 13(3),* 241–256. https://doi.org/10.1177/026553229601300302

Mukhwana, E. J. (2018). Untangling the Complex Training and Qualifications System in Kenya (No. 16; RUFORUM Working Document Series, Issue 16). http://repository.ruforum.org

Murungi, J. M. (2019*). Kenyan Education System And Self-Reliance: A Decolonizing Perspective* [Chuka University]. http://repository.chuka.ac.ke/handle/chuka/306?show=full

Njenga, M. (2020). A Practical Conceptualization of TVET. In I. Csehné Papp & M. Kraiciné Szokoly (Eds.), *Felnőttkori Tanulás: Fókuszban a szakképzés és a munkaerőpiac* (1st ed.). Akadémiai Kiadó. https://doi.org/10.1556/9789634545903

Njenga, M. (2022). Teacher participation in continuing professional development: A theoretical framework. *Journal of Adult and Continuing Education, 0(0)*. https://doi.org/10.1177/14779714221123603

Njenga, M. (2023). Continuing professional development of vocational teachers in Kenya: Motivations, practices and teacher profiles. International *Journal of Educational Research Open, 5*, 100282. https://doi.org/10.1016/J.IJEDRO.2023.100282

Njenga, M. (2024). Continuing professional development of vocational teachers in Kenya: Challenges and coping strategies. *Journal of Adult and Continuing Education.* https://doi.org/10.1177/14779714241232595

Pan, Y. (2009). A review of washback and its pedagogical implications. *Journal of Science, Foreign Languages, 25(February)*, 257–263. https://js.vnu.edu.vn/FS/article/view/2441

Pedulla, J. J., Abrams, L. M., Madaus, G. F., Russell, M. K., Ramos, M. A., & Miao, J. (2003). *Perceived Effects of State-Mandated Testing Programs on Teaching and Learning: Findings from a National Survey of Teachers.* https://eric.ed.gov/?id=ED481836

Polonioli, A. (2016). Adaptive Rationality, Biases, and the Heterogeneity Hypothesis. *Review of Philosophy and Psychology, 7(4),* 787–803. https://doi.org/10.1007/s13164-015-0281-0

Rieskamp, J., & Reimer, T. (2007). Ecological rationality. In R. F. Baumeister & K. D. Vohssand (Eds.), *Encyclopedia of social psychology* (pp. 273–274). Sage.

Ronoh, J. K., Okinyi, H. D., & Wanyonyi, J. S. (2013). Preparation of graduate automotive teachers for the world of work in Kenya. *African Journal of Education, Science and Technology, 1(1),* 205–218. http://www.ajest.info/index.php/ajest/article/view/146

Sancar, R., Atal, D., & Deryakulu, D. (2021). A new framework for teachers' professional development. *Teaching and Teacher*

Education, 101, 103305. https://doi.org/10.1016/J.TATE.2021.103305

Shih, C. M. (2009). How tests change teaching: A model for reference. *English Teaching, 8(2),* 188–206. https://eric.ed.gov/?id=EJ859684

Slomp, D., Marynowski, R., Holec, V., & Ratcliffe, B. (2020). Consequences and outcomes of policies governing medium-stakes large-scale exit exams. *Educational Assessment, Evaluation and Accountability, 32(4)*, 431–460. https://doi.org/10.1007/s11092-020-09334-8

Somerset, A. (2011). Strengthening educational quality in developing countries: the role of national examinations and international assessment systems. Compare: *A Journal of Comparative and International Education, 41(1),* 141–144. https://doi.org/10.1080/03057925.2011.534851

Sultana, N. (2018). Investigating the Relationship between Washback and Curriculum Alignment: A Literature Review. *Canadian Journal for New Scholars in Education, 9(2)*, 151–158. https://cjc-rcc.ucalgary.ca/index.php/cjnse/article/view/53107

Tóth, E., & Csapó, B. (2022). Teachers' beliefs about assessment and accountability. *Educational Assessment, Evaluation and Accountability, 1–23*. https://doi.org/10.1007/s11092-022-09396-w

Tsagari, D., & Cheng, L. (2017). Washback, Impact, and Consequences Revisited. In *Language Testing and Assessment* (pp. 359–372). Springer International Publishing. https://doi.org/10.1007/978-3-319-02261-1_24

TVETA. (2020). *National TVET standards* (p. 221). TVETA. https://www.tveta.go.ke/wp-content/uploads/2021/02/National-TVET-Standards-Kenya-Report-2020-5.12.-2020-2.pdf

UNESCO-UNEVOC. (2018). TVET country profiles: Kenya. UNESCO-UNEVOC. https://unevoc.unesco.org/wtdb/worldtvetdatabase_ken_en.pdf

Vikiru, L. I. (2011). From Assessment to Learning: The Teaching of English Beyond Examinations. *The Educational Forum, 75(2),* 129–142. https://doi.org/10.1080/00131725.2011.552685

Wasanga, P., & Somerset, A. (2013). Examinations as an instrument for strengthening pedagogy: lessons from three decades of experience in Kenya. *Assessment in Education: Principles, Policy & Practice, 20(4),* 385–406. https://doi.org/10.1080/0969594X.2013.833499

Zhou, N., Tigelaar, D. E. H., & Admiraal, W. (2022). Vocational teachers' professional learning: A systematic literature review of the past decade. *Teaching and Teacher Education, 119,* 103856. https://doi.org/10.1016/J.TATE.2022.103856

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Regional Pedagogical Support Centres: A Strategy for Advancing Teacher Development in Slovakia

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ABSTRACT

The evolving demands of the 21st-century classroom require innovative approaches to support teachers in their professional development. In Slovakia, the establishment of Regional Pedagogical Support Centres (RPSCs) responds to this need by providing ongoing development, introducing new teaching strategies, and building stronger teacher networks. Since 2023, the RPTK system has been aligned with national educational reforms, addressing curricular updates and promoting digital competencies among educators. Out of 40 RPSCs, four bilingual centers offer tailored mentoring in Slovak and Hungarian, catering specifically to minority-language educators and reflecting broader European strategies that prioritize localized, language-sensitive support systems. This study assesses the one-year impact of these bilingual RPSCs on teaching quality and teacher development, based on feedback from participating educators. The findings highlight the effectiveness of mentoring as a crucial tool for fostering both professional and personal growth.

KEYWORDS

teacher mentoring, professional development, minority education, bilingual support, feedback analysis

INTRODUCTION

The 21st century has brought a set of unique challenges to education, calling for fresh strategies, particularly in how we support teachers' professional growth. Teacher quality is directly tied to student outcomes, emphasizing the need for educators to continually evolve with new methods and technologies. One of the most effective ways to aid teachers is through well-structured mentoring programs, which foster both personal and professional development. Although mentoring is not a new concept, it has become increasingly prominent in teacher training systems worldwide as experienced teachers provide guidance, advice, and emotional support to newer or less-experienced colleagues. This process not only supports teachers' development but also fosters collaboration and a sense of community among educators.

The European Union has underscored the importance of mentoring as a part of its Education and Training 2020 strategy, highlighting the continuous professional development of teachers as essential to improving educational quality. Many European countries have implemented successful mentoring programs that contribute to improved teaching quality and better student outcomes (OECD, 2021; European Commission, 2014).

In Slovakia, recent educational reforms have made teacher development a priority. To achieve this, Regional Pedagogical Support Centres (RPSCs) were established to offer localized support and development for teachers. The aim of these centers is to provide effective, day-to-day support for educators, contributing to the overall quality of the Slovak education system.

Drawing from the annual operations of RPSCs and feedback from teachers, this study aims to assess the effectiveness of these mentoring programs and explore further areas for improvement. Through quantitative and qualitative analysis, the study presents the effects of these programs and offers recommendations to enhance future development.

LITERATURE REVIEW

MENTORING AS PART OF TEACHER PROFESSIONAL DEVELOPMENT

Teacher professional development is a cornerstone of modern education, enabling teachers to renew their knowledge, improve skills, and adapt to evolving educational demands. Research consistently shows that mentoring, as a form of professional development, effectively meets these goals. It helps shape teachers' professional identities, enhances their instructional skills, and proves particularly effective within structured support systems (Feiman-Nemser, 2001; Kennedy, 2014; Richter et al., 2013).

THE ROLE AND IMPORTANCE OF MENTORING IN TEACHER DEVELOPMENT

Mentoring offers less-experienced teachers support from experienced colleagues, sharing valuable knowledge, methodologies, and personal insights. This guidance helps new teachers integrate more smoothly into the profession while allowing experienced educators to continue their own growth through self-reflection (Smith & Ingersoll, 2004; Feiman-Nemser, 2001). Mentoring nurtures a sense of belonging among teachers and helps them navigate classroom complexities, especially in diverse environments. This creates a supportive network that enriches the educational community (Hobson et al., 2009; Kennedy, 2014; Rippon & Martin, 2003).

Mentoring is crucial for helping new teachers translate theory into classroom practice. By offering a supportive environment, mentoring builds confidence and skills, setting the stage for long-term professional success (Hobson et al., 2009). Mentoring also helps bridge the gap between theoretical teacher training and real-world classroom demands, which ultimately enhances educational quality (Ingersoll & Strong, 2011). Further research indicates that a three-dimensional mentoring approach—combining personal, professional, and methodological support—helps novice teachers

become more adaptable, bolstering both personal growth and practical skills (Selinenkova & Zenkina,2024).

Mentoring Programs for Teachers in Europe

Across Europe, mentoring is recognized as a crucial element of induction for new teachers, playing a significant role in supporting their professional growth. The European Commission highlights the importance of mentoring in maintaining high educational standards by nurturing teachers' development (European Commission, 2014). Different countries have adopted diverse mentoring models, tailored to their unique educational landscapes. Some nations have national frameworks mandating mentoring for all new teachers, while others allow local regions and schools the flexibility to design programs that meet their specific needs (OECD, 2014).

In Finland and Estonia, mentoring is embedded within a comprehensive teacher support system that includes ongoing professional development and opportunities for collaborative learning (Sahlberg, 2011). These systems are essential for upholding high teaching standards and fostering a culture of continuous improvement.

European Experiences with Teacher Mentoring

Across Europe, educational systems increasingly prioritize teacher support through mentoring, aiming to strengthen teacher commitment, create professional communities, and improve education quality. Notable examples include Scandinavia, Estonia, the Netherlands, the UK, France, Spain, Portugal, and Slovakia's neighboring countries.

Scandinavian mentoring systems, especially in Denmark, Sweden, and Finland, are globally respected. Finland's model integrates mentoring into teacher training, pairing novice teachers with experienced mentors to help them confidently manage classroom challenges (Aspfors & Fransson, 2015). Denmark's "Induktionsprogrammet" and Sweden's "Introduktionsprogram" offer similar support, focusing on professional guidance during teachers' early years (Jokinen & Välijärvi, 2006).

Estonia's "Induction Programme" emphasizes mentoring as part of its educational reforms, with a strong focus on digital teaching tools to help teachers adapt to technological advancements (Santiago et al., 2016).

In the Netherlands, the "Leraar in Ontwikkeling" (LiO) program provides structured mentoring, with a personalized approach that adjusts to each teacher's needs, helping them integrate smoothly into the education system (Geijsel et al., 2019).

The UK's "Early Career Framework" (ECF) is a nationwide program that supports new teachers through structured mentoring during their first two years, ensuring they receive essential professional guidance as they start their careers (DfE, 2019).

Though European mentoring approaches vary, the shared goal is to ensure teachers receive the support they need for a successful, long-term career. Scandinavia's comprehensive programs, Estonia's digital emphasis, and the personalized mentoring in Western Europe all exemplify effective support strategies.

Regional Pedagogical Support Centres in Slovakia

Regional Pedagogical Support Centres (RPSCs) are key elements of the educational system, providing teachers with tailored support, development, and mentoring. The Ministry of Education of the Slovak Republic launched the first RPSCs in 2021, and since then, 40 centres have been established nationwide. Their goal is to provide essential professional assistance to all teachers, with a particular focus on implementing the new State Educational Program.

The primary aim of the mentoring programs is to facilitate the professional development of teachers, supporting them in effectively applying new educational methods and technologies in the classroom. Mentoring not only provides professional guidance but also promotes teachers' personal growth by helping them identify and develop their strengths. RPSC mentors organize regular meetings, classroom visits, and professional discussions for their mentees.

Additionally, RPSCs organize workshops, lectures, academic discourse and professional training sessions focusing on critical educational topics such as inclusion, digitalization, and assessment of learning. These sessions are practice-oriented to allow participants to immediately apply their newly acquired knowledge (Berta, 2024).

The centres also focus on networking, connecting teachers and schools to promote the exchange of experiences and inspiration. The goal of RPSCs is to create learning environments that facilitate student development and support teachers' professional commitment.

The mission of RPSCs is to promote quality education, support teachers in continuous development, and contribute to the ongoing improvement of Slovakia's educational system. The success of these programs is essential for maintaining teachers' long-term commitment and for the continuous improvement of the educational system (Berta, 2024).

One Year of Experience from the Four Bilingual Regional Pedagogical Support Centres

During the 2023/24 academic year, we monitored the work of RPSCs in four different regions. We drew conclusions regarding the centres' effectiveness and their impact on teachers' work based on mid-year and end-of-year feedback questionnaires completed by teachers who utilized the centres' services. This article primarily examines the effectiveness of RPSCs and their influence on teachers' work, as well as the demand for mentors and the extent of teachers' participation in activities offered by the centres.

Aims, Research Questions and Hypotheses

This study investigates the effectiveness of bilingual Regional Pedagogical Support Centres (RPSCs) in Slovakia, focusing on how native-language mentoring in these centres influences teacher development and educational outcomes. Specifically, the research addresses the following questions:

- How do mentoring programs within the RPSCs impact teaching quality and teacher development?

- Does mentoring in a teacher's native language (Slovakian or Hungarian) enhance their professional growth, classroom confidence, and instructional strategies?
- What specific aspects of mentoring in RPSCs contribute to increased teacher satisfaction and improved educational practices?

The research aimed to examine the effectiveness of educational mentoring programs and group sessions in terms of teachers' professional development and satisfaction.

METHODS

SAMPLE

The study used two questionaries: feedback from participants of group sessions and the experiences and opinions of mentored teachers. The sample was not randomly selected; participants voluntarily took part in the program, and feedback submission was also voluntary. All teachers involved in individual mentoring filled out a questionnaire and provided feedback on this form of support at the end of the mentoring process.

QUESTIONNAIRES

The study utilized two types of questionnaires:

Group Session Participants' Questionnaire

This questionnaire measured participants' satisfaction and the usefulness of the program on a 10-point Likert scale (1 = not satisfied at all, 10 = completely satisfied). Participants also had the opportunity to provide textual feedback on the most valuable and least useful aspects of the sessions, along with further recommendations.

Mentored Teachers' Questionnaire

This questionnaire also employed a 10-point Likert scale to measure the effectiveness of mentoring and satisfaction with the mentor's work. Additionally, open-ended questions aimed to identify the most significant benefits of mentoring.

DATA COLLECTION PROCESS

Data collection was conducted via online questionnaires, allowing participants to respond quickly and easily. Feedback from group sessions was collected immediately after each session, while mentored teachers provided feedback at the end of the mentoring process.

ANALYSIS APPROACHES

In this study, we employed two distinct data collection and analysis approaches:

Quantitative Data Collection and Analysis

Quantitative data were gathered using a questionnaire-based methodology. The questionnaires included closed-ended, Likert-scale questions to quantify participants' satisfaction, experiences, and perceptions of program effectiveness. Based on the collected data, statistical analyses were conducted, including the calculation of means, standard deviations, and the frequency distribution of responses. SPSS software was utilized to process the data.

Qualitative Data Collection and Analysis

Qualitative data collection was conducted through open-ended questions in the questionnaires, along with feedback forms. The feedback captured participants' experiences, recommendations, and any critiques regarding the programs in textual form. The qualitative analysis employed a thematic analysis method, where responses were coded to identify recurring themes and patterns. The findings helped pinpoint areas needing further improvement and highlighted positive aspects to maintain.

RESULTS

SELECTED RESULTS OF GROUP SESSION PARTICIPANTS' QUESTIONNAIRE

Table 1 reveals that participants rated the activities (lectures, facilitations, and workshops) highly, with all categories surpassing their expected completion rates. On average, participants found the programs helpful for their teaching practice and were very satisfied with the presenters.

The average satisfaction score across activities was 9.44 out of 10, with a small standard deviation of 0.3, showing consistent satisfaction across the board. Scores for usefulness and expectation fulfillment were also high, averaging 8.6 and 8.78, with standard deviations of 0.58 and 0.57, respectively, indicating uniformly positive feedback.

Each activity type exceeded its expected quantity, with lectures, facilitations, and workshops reaching completion rates of 128.33%, 139.75%, and 144.04%. Workshops attracted the most participants (3,884), followed by lectures (1,291) and facilitations (429), suggesting strong interest, especially in the more interactive formats.

Workshops received high ratings, especially for presenter satisfaction (9.5) and usefulness (8.76), highlighting participants' appreciation for hands-on activities. Facilitations also performed well, scoring 9.24 for expectation fulfillment, 9.1 for usefulness, and an impressive 9.74 for presenter satisfaction, reflecting participants' appreciation of the guidance provided.

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Table1
Summary of activities

Activity	Expected Quantity	Number of Activity	Completion	Number of Participants	To what extent were your expectations met? (1-10)	How useful do you find this activity in your teaching practice? (1-10)	How satisfied are you with the presenter(s)' work? (1-10)
Lecture	41	52	128,33%	1291	8,13	7,96	9,14
Facilitations	51	70	139,75%	429	9,24	9,1	9,74
Workshops	174	242	144,04%	3884	8,95	8,76	9,5
Sum	*266*	*364*	*136,84%*	*5604*	*8,78*	*8,6*	*9,44*
STDEV					*0,57*	*0,58*	*0,30*

SELECTED RESULTS OF MENTORED TEACHERS' QUESTIONNAIRE

Quantitative Analysis of Mentoring Sessions:

The data in Table 2 highlights a very positive outcome for the mentoring sessions, both in engagement and participant satisfaction:

Mentoring hours totaled 3,885, surpassing the expected 3,120 hours by 24.62%, showing a strong commitment and delivery well beyond initial goals.

A total of 424 mentees took part in the program, with 2,728 consultations and 1,157 classroom observations. These numbers reflect a comprehensive, hands-on approach with ample time for individual support and feedback.

Participants rated the sessions highly: the average score for meeting expectations was 9.53 out of 10 (standard deviation of 0.046), and satisfaction with mentors' work scored even higher at 9.79 (with an exceptionally low standard deviation of 0.011).

The minimal variation in both expectation fulfillment and satisfaction scores shows consistently positive feedback across all participants, reinforcing the program's effectiveness and the high-quality mentoring provided.

Table2
Summary of mentoring

	Expected Quantity	Number of Mentoring Hours	Completion	Number of Mentees	Number of Consultations	Number of Classroom Observations	To what extent were your expectations met? (1-10)	How satisfied are you with the presenter(s)' work? (1-10)
Mentoring Sessions	3120	3885	124,62%	424	2728	1157	9,53	9,79
STDEV							0,05	0,01

Qualitative Analysis of Mentoring Sessions:

The qualitative analysis of mentoring sessions, gathered in Slovak and Hungarian, reveals key themes from participants' experiences. First, regarding satisfaction with mentors, participants frequently emphasized mentors' professionalism, describing them as highly skilled and knowledgeable. Additionally, they valued mentors' personal qualities, noting their friendliness, approachability, and supportive demeanor. Practical guidance was another significant theme, with feedback highlighting the usefulness of actionable advice applicable to teaching practices. Many participants appreciated the mentors' encouragement, fostering critical thinking and professional growth. Constructive feedback was especially valued, as it allowed mentees to improve in a supportive, non-critical way.

In terms of mentoring impact, the analysis showed that participants experienced both professional and personal growth, largely due to the mentors' blend of expertise and warmth. The practical insights shared by mentors were considered highly beneficial, directly enhancing mentees' classroom methods. Furthermore, the mentors created a supportive environment that encouraged exploration and implementation of new techniques. Compassionate, constructive feedback contributed positively, allowing mentees to evolve their practices without feeling criticized. Overall, the thematic analysis underscores a unified appreciation for mentors' professionalism, supportive approach, and practical contributions to teaching.

In Table3 is shown how the themes are organized in a matrix format to visualize the shared experiences:

Table3
Thematic matrix for question: How satisfied are you with the work of the mentor?

Theme	Examples from Responses	Frequency
Professionalism	"Professional approach," "knowledgeable," "experienced"	High
Personal Qualities	"Friendly," "kind," "supportive," "approachable"	High
Practical and Applicable Knowledge	"Useful advice," "practical guidance," "provided concrete suggestions"	High
Supportive Environment	"Encouraged me," "helped me to see new perspectives," "created a comfortable learning atmosphere"	Medium
Constructive Feedback	"Empathetic feedback," "didn't feel critical," "motivating and encouraging"	Medium

Most participants expressed being "completely satisfied" with their mentors, as reflected in high scores of 9.53 for meeting expectations and 9.78 for satisfaction with the mentors' work. Qualitative feedback often highlighted mentors' kindness, professionalism, and personalized support. Participants particularly valued the practical, applicable advice that mentors shared, which significantly enhanced teaching practices. Constructive feedback and motivational support were also considered crucial, boosting mentees' confidence and skills. Although satisfaction was generally high, a few responses mentioned a need for more frequent sessions or more tailored mentoring to meet specific needs, with one participant noting that "too few sessions" limited the ability to assess progress continuously.

The analysis of responses revealed several ways participants benefited from mentoring. Many valued the exposure to new teaching methods and innovative techniques, which they found essential for enhancing student engagement. Increased confidence and encouragement to experiment were also frequently highlighted, as mentoring bolstered teachers' willingness to try new strategies. Additionally, the practical application and classroom management advice was appreciated, particularly in handling challenging student behaviors. Participants noted that mentoring fostered reflective practice and perspective shifts, helping them critically assess their teaching and identify areas for improvement. Mentoring further supported teachers in curriculum development and planning, assisting them in understanding curriculum reforms and aligning with current standards.

Key themes included professional growth through new methods, which enhanced lesson interactivity; confidence building and encouragement that empowered teachers to innovate; enhanced classroom strategies for managing diverse classroom dynamics; self-reflection that enabled teachers to recognize both strengths and growth areas; and guidance in professional challenges, such as conflict resolution and adapting to reforms. Collectively, these themes indicate that mentoring played a significant role in fostering teachers' personal and professional development.

Table 4 shows how the themes are organized in a matrix format to visualize the shared experiences:

Table4
Thematic matrix for question: In what ways has mentoring helped you the most?

Theme	Example Responses	Frequency
Professional Growth with New Methods	"I learned new innovative teaching methods," "Mentoring helped me introduce new techniques and tools that improved interactivity," "Gained ideas for interactive and practical activities."	High
Confidence Building and Experimentation	"It helped me stop being afraid to try new things," "Encouraged me to experiment with various methods," "Provided motivation for future teaching."	High
Enhanced Classroom Strategies	"Helped me work with problematic students," "Provided practical tips for immediate use," "Enhanced my classroom management skills."	Medium
Self-Reflection and New Perspectives	"It allowed me to see my work from different angles," "Helped me understand that I can't control everything," "Encouraged me to look at my teaching from an outside perspective."	Medium
Guidance in Professional Challenges	"Guided me in creating the school's education program," "Helped in understanding curriculum reform," "Provided assistance with personal and professional questions."	Medium

Overall Benefits of Mentoring: Qualitative responses reveal that mentoring offered substantial benefits in various areas of professional growth. Participants frequently noted the exposure to new teaching methods as a valuable outcome, with innovative strategies enriching lesson engagement and dynamics. Mentoring also contributed to building participants' confidence, encouraging experimentation and the adoption of fresh ideas.

Shift in Teaching Approach: Mentoring supported a transition to a more dynamic, interactive teaching style, appealing to those aiming to move beyond traditional approaches.

Reflective Practices: The responses suggest that mentoring fostered a reflective approach, enabling teachers to reassess their strengths and recognize growth areas.

Addressing Professional Challenges: Responses indicate that mentoring offered practical solutions to educational challenges, including managing classroom conflicts, navigating curriculum changes, and meeting diverse student needs.

DISCUSSION

The questionnaire results provide strong evidence of the positive impact of mentoring programs within Regional Pedagogical Support Centres (RPSCs) on both teaching quality and teacher development. High satisfaction scores across various quantitative and qualitative measures, especially for practical workshops and facilitation sessions, reflect the programs' success in meeting and even surpassing participants' expectations. The low standard deviations suggest consistent, positive engagement, highlighting the effectiveness of these professional development initiatives.

Mentoring programs contributed significantly to teachers' professional growth by introducing innovative teaching methods and providing structured guidance for implementing them. Participants frequently reported that mentoring helped them expand their teaching techniques, make lessons more interactive, and engage students more effectively. The extensive hours completed and the numerous consultations and classroom observations underscore the program's practical, hands-on approach, which fostered a collaborative environment centered around real-world skill application. These findings

reinforce the idea that structured mentoring effectively enhances teaching quality and supports teacher growth.

A unique feature of the RPTK program is its bilingual support for Slovak and Hungarian-speaking teachers, allowing mentorship in their native language. This culturally relevant guidance helped mentees feel more confident in their instructional approaches, offering them a chance to discuss challenges and receive feedback in their first language. This personalization contributed to the high satisfaction and expectation-fulfillment scores, as well as positive qualitative feedback that underscored the value of mentors' supportive and empathetic approaches.

Qualitative feedback highlighted the value mentees placed on their mentors' expertise, constructive feedback, and the non-judgmental environment. Mentees appreciated mentors' practical, directly applicable advice, which helped them improve specific teaching techniques and build the confidence to experiment with new approaches.

Overall, the data demonstrates that a supportive, collaborative mentoring environment significantly enhances professional development for teachers. By upholding high standards of professionalism while fostering open, reflective dialogue, mentors created a safe space for teachers to recognize strengths and work on improvement areas. This blend of professional guidance and personal support proved essential in helping teachers develop a reflective mindset, equipping them to adapt to evolving educational demands.

The data highlights that fostering a supportive and collaborative mentoring environment greatly enhances the professional development experience for teachers. By maintaining high standards of professionalism while encouraging an open, reflective approach, mentors were able to create a safe space for teachers to identify their strengths and address areas for improvement. This combination of professional guidance and personal support proved instrumental in helping teachers build a reflective mindset, equipping them to adapt to changing educational demands.

The results of this study provide compelling evidence for the positive impact of mentoring programs within the Regional Pedagogical Support Centres (RPSCs) on teaching quality and teacher development in Slovakia.

Despite these promising results, it is essential to critically evaluate the methodological limitations raised by the study's design. The one-year analysis period represents only the initial phase of the organizational innovation cycle, where enthusiasm and immediate effects are most prominent. As organizational innovation often unfolds over multiple years, with potential fluctuations in outcomes as challenges emerge, this short timeframe may not fully capture the program's sustainability or systemic impact. Consequently, while the findings indicate high initial satisfaction and effectiveness, the conclusions should be contextualized within the early stages of the innovation process.

Conclusion

This study demonstrates the significant impact of the Regional Pedagogical Support Centres (RPSCs) mentoring programs on teacher development and teaching quality in Slovakia. Through both quantitative and qualitative analysis, the research highlights that structured mentoring programs not only met but often exceeded teachers' expectations, supporting their growth, confidence, and instructional strategies.

A key factor in the program's success is its bilingual support, which provides mentoring in Slovak and Hungarian. This language alignment has been especially valuable for minority-language teachers, allowing them to engage fully and comfortably in the mentoring process. Such linguistic inclusivity fosters a sense of belonging and enables teachers to improve their instructional methods in a culturally relevant context, aligning with European educational policies on localized support.

The positive relationship between mentors and mentees also played a critical role. Mentees appreciated the mentors' professional, empathetic, and non-judgmental approach, which created a safe space for reflection and experimentation with new teaching methods. The program's emphasis on reflective practice empowered teachers to assess their methods critically and make continuous improvements, enhancing their adaptability to classroom challenges.

The study confirms that mentoring programs in RPSCs contribute positively to both teaching quality and teacher satisfaction. By fostering a collaborative, culturally sensitive, and supportive environment, the RPSCs have set a model for effective professional development. This approach not only empowers educators but also positively impacts classroom dynamics and student engagement, suggesting that similar mentoring models could be successfully adopted in other regions to enhance educational outcomes.

However, this research also raises methodological limitations. The one-year analysis period coincides with the early stages of organizational innovation, a period often characterized by enthusiasm and rapid change. While the findings indicate high satisfaction and effectiveness, this short timeframe may not fully capture the long-term impacts of mentoring programs or the broader innovation process within the educational system. A longer longitudinal study could provide deeper insights into the sustainability and systemic effects of these innovations. Therefore, the conclusions should be interpreted with this limitation in mind, as the initial phases of innovation often do not fully represent the cycle's later dynamics.

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References

Aspfors, J., & Fransson, G. (2015). Research on mentor education for mentors of newly qualified teachers: A qualitative meta-synthesis. *Teaching and teacher education, vol.48* 75-86. https://doi.org/10.1016/j.tate.2015.02.004

Berta, T. (2024): *Mentorok helye és szerepe a pedagógusok munkájában*, Katedra XXXI./(8.): 10-12. https://katedra.sk/folyoirat/wp-content/uploads/2024/03/Katedra-folyoirat_31_08_10-12.pdf

European Commission. (2012). *Supporting teacher competence development for better learning outcomes.* Directorate-General for Education and Culture. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52012SC0374

European Commission. (2014). Developing coherent and system-wide induction *programmes for beginning teachers: A handbook for policymakers.* Directorate-General for Education and Culture. Available at: https://school-education.ec.europa.eu/en/discover/publications/developing-coherent-and-system-wide-induction-programmes-beginning-teachers

European Commission. (2015). *Improving the quality of teacher education: European teacher education policy and practice.* Directorate-General for Education and Culture. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52007DC0392

European Commission. (2017). *School development and excellent teaching for a great start in life.* Directorate-General for Education and Culture. Available at:https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2017:248

Feiman-Nemser, S. (2001). From preparation to practice: Designing a continuum to strengthen and sustain teaching. *Teachers College Record, 103(6)*, 1013-1055. https://doi.org/10.1111/0161-4681.00141

Selinenkova, A. & Zenkina, S. (2024). Three-Dimensional Mentoring Model for the Personal and Professional Development of Young Teachers in Educational Organizations. *Standards and Monitoring in Education. 12*. 40-42. https://doi.org/10.12737/1998-1740-2024-12-3-40-42

Hargreaves, A., & Fullan, M. (2000). Mentoring in the new millennium. *Theory into Practice, 39(1),* 50-56. https://doi.org/10.1207/s15430421tip3901_8

Hobson, A. J., Ashby, P., Malderez, A., & Tomlinson, P. D. (2009). Mentoring beginning teachers: What we know and what we don't. *Teaching and Teacher Education, 25(1),* 207-216. https://doi.org/10.1016/j.tate.2008.09.001

Ingersoll, R., & Strong, M. (2011). The impact of induction and mentoring programs for beginning teachers: A critical review of the research. *Review of Educational Research, 81(2),* 201-233. https://doi.org/10.3102/0034654311403323

Jokinen, H., & Välijärvi, J. (2006). Making Mentoring a Tool for Supporting Teachers' Professional Development. In R. Jakku-Sihvonen, & H. Niemi (Eds.), Research-based Teacher Education in Finland (pp. 89-101). Finnish Educational Research Association. *Research in Educationa Sciences, 25,* ISBN 952-5401-24-3

Kennedy, A. (2014). Understanding continuing professional development: The need for theory to impact on policy and practice. *Professional Development in Education, 40(5),* 688-697. https://doi.org/10.1080/19415257.2014.955122

Little, J. W. (1990). The mentor phenomenon and the social organization of teaching. *Review of Research in Education, 16,* 297-351. https://doi.org/10.3102/0091732X016001297

Loughran, J. J. (2002). Effective Reflective Practice: In Search of Meaning in Learning about Teaching. *Journal of Teacher Education, 53(1),* 33-43. https://doi.org/10.1177/0022487102053001004

OECD (2014), *TALIS 2013 Results: An International Perspective on Teaching and Learning*, TALIS, OECD Publishing, Paris, www.oecd-ilibrary.org/education/talis-2013-results_9789264196261-en https://doi.org/10.1787/9789264196261-en

OECD (2021), Education Policy Outlook 2021: *Shaping Responsive and Resilient Education in a Changing World*, OECD Publishing, Paris, www.oecd.org/en/publications/education-policy-outlook-2021_75e40a16-en.html, https://doi.org/10.1787/75e40a16-en.

Richter, D., Kunter, M., Lüdtke, O., Klusmann, U., Anders, Y., & Baumert, J. (2013). How different mentoring approaches affect beginning teachers' development in the first years of practice. *Teaching and Teacher Education, 36,* 166-177. https://doi.org/10.1016/j.tate.2013.07.012

Rippon, J., & Martin, M. (2003). Supporting induction: Relationships count. Mentoring and tutoring, 11(2), 211-226.

Sahlberg, P. (2011). Finnish lessons: *What can the world learn from educational change in Finland?* Teachers College Press.

Smith, C., Salinitri, G., & Hart, K. (2024). Professional insights for the successful implementation of peer-mentoring programs for undergraduate teacher candidates. International Journal of Mentoring and Coaching in Education. https://doi.org/10.1108/ijmce-08-2023-0080

Santiago, P., Levitas, A., & Bell, J. (2016*). OECD reviews of school resources: Estonia* 2016. OECD Publishing. https://doi.org/10.1787/9789264251731-en

Smith, T. M., & Ingersoll, R. M. (2004). What are the effects of induction and mentoring on beginning teacher turnover? *American Educational Research Journal, 41(3)*, 681-714. https://doi.org/10.3102/00028312041003681

Wolfe, A.D. and Hartman, S.L. (2024), "Remote teaching and learning for teacher candidates: mentor teacher perspectives", *PDS Partners: Bridging Research to Practice, Vol. 19 No. 2*, pp. 96-107. https://doi.org/10.1108/PDSP-12-2023-0041

TALIS. (2018). *Teaching and Learning International Survey*. OECD Publishing. https://doi.org/10.1787/1d0bc92a-en

Wang, J., & Odell, S. J. (2002). Mentored learning to teach according to standards-based reform: A critical review. *Review of Educational Research, 72(3),* 481-546. https://doi.org/10.3102/00346543072003481

Walters, W & Robinson, D. & Walters, J. (2019). Mentoring as meaningful professional development: The influence of mentoring on in-service teachers? Identity and practice. *International Journal of Mentoring and Coaching in Education.* ahead-of-print. https://doi.org/10.1108/IJMCE-01-2019-0005.

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