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CONTENT:

THE ROLE OF PARENTS IN SUPPORTING STUDENT ENGAGEMENT IN DIGITAL LEARNING ENVIRONMENTS

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ABSTRACT:

This paper examines the role of parents in supporting student engagement in digital learning environments. It analyzes how parental involvement, digital competence, and home–school communication influence students' behavioral, emotional, and cognitive engagement in online and hybrid learning. The study highlights thatparents increasingly serve as facilitators of technology use, mediators between teachers and students, and organizers of the home learning environment. Their ability to provide technological guidance, structure daily learning routines, and offer emotional and motivational support significantly enhances students' participation, focus, and learning outcomes in digital settings. Insights from contemporary research and experiences in North Macedonia indicate that parental involvement has become a crucial component of effective digital education. The paper emphasizes the need for educational institutions to strengthen collaboration with families and develop strategies that empower parents to engage confidently and effectively in their children's digital learning.

Keywords: *parental involvement, student engagement, digital competence, digital learning environments, home–school collaboration*

Introduction

The rapid development of digital technologies has profoundly reshaped educational systems worldwide, influencing how teaching is delivered, how students interact with content, and how learning is supported at home. The transition toward online and hybrid models during the COVID-19 pandemic accelerated these changes, positioning the home as a central site of learning and expanding the responsibilities traditionally held by schools. In this context, the role of parents shifted significantly as they became facilitators of technology use, organizers of daily learning routines, and key emotional and motivational supports for their children.Student engagement—

encompassing behavioral, emotional, and cognitive dimensions—is a critical determinant of learning outcomes in any educational setting.

However, maintaining engagement in digital environments presents particular challenges, especially for younger learners who depend on adult guidance to structure their learning, manage distractions, and sustain motivation. As a result, parental involvement has emerged as an essential factor influencing students' ability to participate meaningfully and successfully in digital learning.

While the importance of parental support in traditional schooling is well established, its role within technology-mediated environments is less clearly defined and remains underexplored, particularly in contexts where digital competence varies widely among families. The shift toward digital learning has highlighted new demands on parents, including the need to navigate online platforms, ensure access to digital resources, maintain communication with teachers, and support their children's self-regulation skills. These expanded expectations underscore the need to better understand how parents contribute to student engagement in digital settings and what conditions enable them to do so effectively.

This paper addresses these issues by examining the evolving role of parents in supporting student engagement within digital learning environments. It examines essential aspects of parental involvement, the influence of parental digital proficiency, and the methods by which families facilitate students' cognitive, emotional, and behavioral engagement in online learning. By synthesizing recent research and contextual insights from North Macedonia, the paper aims to clarify the mechanisms through which parents influence digital learning experiences and to highlight implications for educational practice and policy.

Purposeand Significance of the study

The purpose of this paper is to examine how parental involvement supports student engagement in digital learning environments. It explores the forms of parental support—technological, academic, emotional, and organizational—that influence students' behavioral, emotional, and cognitive engagement in online and hybrid settings.The significance of this study lies in clarifying the changing role of parents as digital learning becomes more integrated into education. While parental involvement in traditional schooling is well established, its function in technology-mediated contexts remains less clearly defined. By addressing this gap, the study offers insights that can help educators and policymakers strengthen home–school collaboration and create more supportive and equitable digital learning environments.

Theoretical Framework

We are already witnessing that the increased presence of digital technologies is not only transforming the way teaching is conducted and the way students learn, but changes are also occurring in the way parents participate in the academic lives of their children. To understand this

dynamic, three key aspects must be emphasized: student engagement, parental involvement, and digital competence.

Considering the problem separately from the three perspectives, a comprehensive basis for analyzing the relationship between parental roles and student engagement in digital environments is provided. In this context, we refer to the conceptualization of Fredricks et al. (2004), where student engagement is considered as a multidimensional construct consisting of behavioral, emotional, and cognitive components. The behavioral engagement section includes the student's visible participation in learning tasks (presence, effort, and involvement in class activities). On the other hand, there is emotional engagement, which reflects students' feelings in the learning process, including interest, motivation, and sense of belonging. The most important part of acquiring knowledge is considered to be the cognitive engagement of students, which includes active mental investment in what is being learned, i.e., setting goals, applying strategies and self-regulating ongoing learning habits.

In digital environments, maintaining engagement can be challenging, as students themselves are often required to work more independently. When it comes to carrying out activities from home with the support of technology, the importance of the so-called external support of parents is particularly emphasized, which plays a vital role in maintaining the focus and motivation of students (Alamsyah, 2021). Parents' capacity to support their children's learning in digital environments is in turn strongly mediated by their digital competence. Parents with greater knowledge about the use of digital technologies and higher levels of digital competence appear to be better prepared to help their children use digital platforms, assess digital resources, and model responsible environments for technology use. In contrast, the lack of prior knowledge about using technology hinders parents' ability to effectively engage and coordinate students' learning processes (Livingstone et al., 2015). Parental involvement has long been recognized as a key factor influencing student engagement in the learning process, emotional well-being, and achievement of academic goals, which is directly linked to cognitive development. The complex role of parents in facilitating student engagement in digital learning environments can be better understood by consulting well-established theories that provide light on the interplay between parental involvement and student engagement. In this section, we will refer to four well-known theories, through whose prism we build the theoretical framework of this scientific paper:

- **Epstein's Theory of Family-School-Community Partnerships**
  This theory places particular emphasis on collaboration between parents, schools, and communities for encouraging student achievement. In the context of digital learning, parents play an important role in building a supportive home environment that complements school-based educational initiatives. Epstein (1995) defines six modes of involvement: parenting, communicating, volunteering, learning at home, making decisions, and working with the community. Each sort of involvement can be tailored to the digital learning environment, where parents can assist their children by creating a conducive learning atmosphere,

maintaining regular communication with teachers, and engaging in school choices regarding digital education. In this context of digital learning, Epstein's six dimensions take on new forms. Parents often act as learning facilitators, helping children navigate digital platforms, manage time, and interpret online instructions correctly. At this stage, they are also emotional supporters who encourage and create a positive climate for learning at home.

- **Hoover-Dempsey and Sandler's Model of Parental Involvement**

  This model provides a comprehensive understanding of the factors that influence parental involvement by identifying three key questions that parents most often ask: "Do I think I can help?" (perceived efficacy), "Do I want to help?" (role construction), and "Do I think my help will make a difference?" (outcome expectations). In digital learning environments, parents may face a variety of other challenges that have a certain impact on their perceived efficacy (for example, insufficient knowledge of technology or online learning platforms). Answering the questions, i.e. dealing with the given challenges, includes providing appropriate resources and support through which parents will feel more effective and confident, which will ultimately improve the engagement of students in digital environments (Hoover-Dempsey & Sandler, 1997).

- **Self-Determination Theory (SDT)**

  This theory argues that each individual has three basic psychological needs: autonomy, competence, and relatedness. Initially, these needs in children are encouraged by parents. In the context of digital learning environments, parents can support their children's autonomy by encouraging them to set and achieve learning goals, as well as make decisions and plan the learning process itself. Competence on the part of parents can be encouraged by providing resources and giving guidance on the correct use of technology, mastering digital tools and making learning strategies. In this part, relatedness comes through building positive learning environments and effectively using technology to achieve learning outcomes, which means that by satisfying these psychological needs, parents can create supportive environments that promote student engagement and motivation.

- **Self-Regulation Theory**

  According to self-regulation theory, individuals may manage their learning by setting goals, assessing their own progress, and adapting tactics to their specific needs. Parental support is essential for helping children develop self-regulation skills, which are especially vital in self-directed digital learning contexts. Parents may assist their children create achievable goals, provide feedback on their progress, and encourage them to reflect on their learning strategies. By encouraging self-regulation, parents can help their children take responsibility for their learning and stay engaged in digital learning environments (Farrell, 2025; Li & Rahman, 2025; Song et al., 2024).

In summary, the reviewed theories collectively illustrate that parental involvement in digital learning environments is a multifaceted construct shaped by digital competence, motivational

support, and active participation in the learning process. Student engagement—behavioral, emotional, and cognitive—depends not only on individual learner characteristics but also on the quality of support provided at home. Parents who possess the confidence and skills to navigate digital tools, maintain communication with teachers, and promote self-regulated learning significantly enhance their children's ability to participate meaningfully in online and hybrid education. By integrating insights from models of engagement, family–school partnerships, parental involvement, and motivation, this framework provides a comprehensive foundation for understanding how parents influence student success in technology-mediated learning contexts. It also highlights the importance of empowering parents through guidance, resources, and collaboration to ensure that digital learning becomes both equitable and effective.

Parental Roles in Digital Learning Environments

The expansion of digital technologies has significantly redefined what parental involvement means in contemporary education. Traditionally, parents supported learning by attending school meetings, supervising homework, and maintaining communication with teachers. The "learning-at-home" dimension included assisting with tasks, establishing routines, and engaging children in academic discussions. In traditional contexts, parents provided support within a structure created by the school. In digital environments, however, these roles expanded substantially—parents must now assist with digital platforms, troubleshoot technology, monitor online safety, and organize the entire learning routine at home. This shift demonstrates that parents are no longer peripheral to learning; they have become central co-facilitators in technology-mediated education. However, when learning shifted into home-based digital environments—particularly during periods of distance learning—these forms of involvement required reconceptualization. Parents were not only supervisors but also mediators of communication, facilitators of technology use, coordinators of learning routines, and supporters of self-regulated learning.

Research consistently shows that active parental involvement enhances students' motivation, engagement, and learning outcomes (Goodall & Montgomery, 2014). It is necessary to find a balance between providing excessive assistance with assigned tasks and neglecting or postponing responsibilities to the child. The first extreme causes a negative effect of the student's dependence on the parent, phlegmatic behavior, loss of interest, stagnation in knowledge and motivation for self-improvement. While the other extreme causes disinterest and placing other priorities before learning, which is reflected in the student's failure and mental exclusion in the educational process. These changes highlight that learning in digital environments not only repositions students as self-regulated learners, but also places parents in active, multidimensional roles that directly impact learning success. This watershed role of parental involvement began during periods of distance learning (during the COVID-19 pandemic), where parents became co-educators, fully responsible for structuring the learning environment and facilitating access to digital resources. In other words, parental involvement extends beyond traditional roles, bridging the gap between teachers and

students in the online classroom (Dong et al., 2020; Garbe et al., 2020). We realize that we are actually viewing today's involvement of parents in digital environments through the prism of their involvement during distance learning and are gradually developing a picture of the new role they find themselves in today.

Recent empirical research confirms that parental support for digital learning is complex and strongly influenced by parents' digital competence. A study conducted across 19 countries showed that parents' confidence in using technology was one of the strongest predictors of their willingness to support home-based digital learning, even when socioeconomic factors were considered (Taniguchi, 2023). From the perspective of teachers in North Macedonia, data from Ikonomoska (2022) demonstrate that parents primarily acted as communicators and mediators during distance learning. The highest percentage of parental activity involved sending comments on students' work (26.49%), indicating that parents often served as channels of feedback between children and teachers. Another significant form of involvement was informing teachers about students' interests and affinities (24.44%), supporting the personalization of teaching—an increasingly important element in digital education. Parents also frequently monitored digital learning resources (22.79%), reflecting responsibility for maintaining a safe and supportive digital environment, consistent with Epstein's "learning at home" dimension. Online parent meetings (19.51%) further illustrate how communication practices adapted to virtual formats, while the high level of parental availability (70.24%) confirms their readiness to collaborate during challenging conditions.Although these roles emerged during distance learning, they remain relevant in contemporary digital settings.
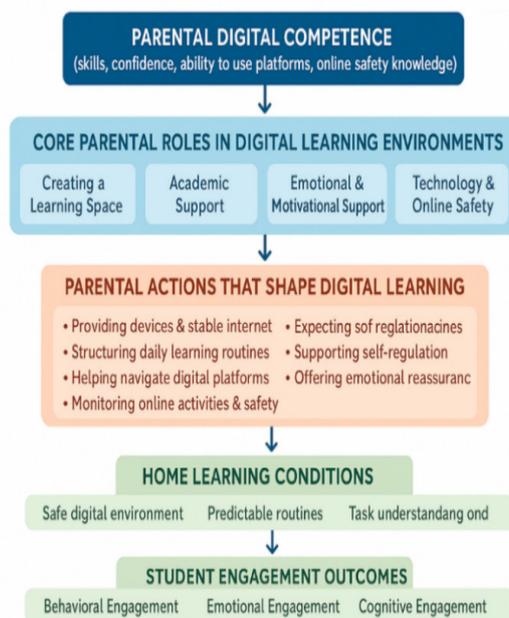
Figure 1. Integrated model of parental roles, actions, and student engagement in digital learning environments

Parents now frequently act as facilitators of technology-mediated learning by helping children navigate digital platforms, manage time, maintain focus, and practice responsible digital behavior. They play a central role in establishing daily routines, supporting self-regulated learning

strategies, and reinforcing motivation—factors closely tied to behavioral, emotional, and cognitive engagement in digital environments.

Below, we will highlight some of the essential roles of parents in supporting their children's engagement in virtual and hybrid learning environments:

- **Creating a Supportive Learning Environment**

  Parents have an important part in creating a suitable learning environment at home. This entails designing a dedicated, quiet, and comfortable place along with the required equipment and resources. In this context, providing technological support, including reliable access to technology, is essential. Parents need to ensure that their children have access to the necessary devices and a stable internet network (Knopik et al., 2021).

- **Academic Support**

  Monitoring academic achievement and offering feedback might help students stay on the right path. Parents can help their children by setting reasonable goals, recognizing accomplishments, and having a positive attitude about learningin digital learning environments, parents often need to take a more active role, especially for younger students who may have difficulty learning independently. Effective communication with teachers is key to keeping parents informed about their child's learning outcomes, in line with the curriculum (Proff et al., 2025).

- **Emotional and motivational support**

  Parents should be the first to offer encouragement, stability, and security (necessary factors for maintaining emotional and cognitive engagement). This type of support maintains a sense of belonging and persistence among students in the learning process in digital environments.

- **Digital literacy and competence**

  In these circumstances, parental digital competence emerges as a critical element in determining how well parents can support their children's learning. Parents who understand digital technologies and learning platforms are more equipped to engage with teachers, monitor student progress, and provide timely assistance with online activities. In contrast, a lack of digital literacy can cause challenges to students' motivation, engagement, and learning continuity. Parents can teach their children how to use digital tools effectively, conduct online research, and communicate safely online. This also highlights the importance of parents' confidence in using technology, which is largely linked to their ability to support learning in digital environments. This leads us to contemporary perspectives on digitally mediated parental involvement, which emphasize that parents' technological skills, attitudes, and approaches directly shape their capacity to engage in meaningful support within a digital educational environment.

Conclusion and Recommendations

The evolution of education toward digital learning environments has significantly reshaped the relationship between schools, families, and students. In this context, the role of parents extends far beyond traditional supervision and now encompasses technological support, emotional stability, and the creation of a structured home environment that encourages effective engagement. Based on the theoretical perspectives discussed, parental involvement in digital learning emerges as a multidimensional construct influenced by internal factors such as digital competence, confidence in technology use, and willingness to collaborate with teachers.

Parents who demonstrate these capacities play a key role in strengthening students' behavioral, emotional, and cognitive engagement. By bridging the gap between school and home, they help ensure continuity in learning—especially during periods of disruption, as demonstrated during the COVID-19 pandemic. However, the increasingly complex expectations placed upon parents highlight the need for schools and educational institutions to offer clearer guidance, supportive resources, and ongoing communication.

Overall, strengthening parental involvement in digital learning should be viewed not as an optional addition but as a fundamental component of contemporary education. As technology continues to shape pedagogical practice, strong partnerships between teachers, parents, students, and policymakers will remain essential for ensuring equitable, inclusive, and high-quality learning environments.

To strengthen the role of parents in encouraging student engagement in digital learning environments, we recommend the following measures:

- **Develop structured digital competence programs for parents** - Schools and educational institutions should organize regular trainings and workshops focused on using digital tools, online safety, and learning management platforms. Improved digital literacy will increase parents' confidence and ability to support learning at home.

- **Strengthen communication between teachers and parents** - Establishing consistent digital communication channels—such as scheduled online meetings, progress briefings, and timely feedback—will ensure that parents remain informed and able to respond to students' needs.

- **Promote inclusive practices and reduce digital inequalities** - Competent institutions and schools should adopt strategies that ensure equal access to devices, internet connectivity, and technical support, particularly for families with limited resources

- **Provide clear guidelines for parental involvement** - Schools should offer practical instructions outlining what types of parental support are appropriate in digital learning contexts to avoid both over-involvement and disengagement.

- **Encourage collaboration through school–family initiatives** - Parent clubs, digital literacy communities, or collaborative workshops can foster continuous dialogue and strengthen the partnership between educators and families.

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ARTIFICIAL INTELLIGENCE IN EDUCATION, GLOBAL PRACTICES, FUNCTIONAL TYPOLOGY, AND QUESTIONING ALGORITHMIC LOGIC

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ABSTRACT:

This paper presents an analysis of the development, typology, and application of artificial intelligence (AI), with particular emphasis on its practical implementation within the contemporary educational system. It begins with a brief overview of AI's evolution, which has unfolded in parallel with humanity's pursuit to understand and model its own capacity for thinking. The paper then examines global practices from countries such as China, Finland, the United States, South Korea, and India, highlighting diverse implementation strategies and pedagogical approaches.

The paper offers a typology of AI tools based on their function: generative, productivity-oriented, tutoring, visual, and audio tools, with an assessment of their potential to foster critical thinking. The central message is that teachers must raise students' awareness of the need to re-evaluate the algorithmic logic behind AI-generated responses. AI should not be used merely to retrieve information, but as a means to analyze, compare, and construct arguments. Through the approach of "questioning the answers," educators can promote autonomous, responsible, and ethically grounded learning.

The paper concludes with a selection of tools that Macedonian educators can adopt, emphasizing the role of AI as a didactic mediator rather than an infallible authority.

Keywords: *artificial intelligence, educational system, global practices, AI tool typology, critical thinking, questioning the answers, algorithmic logic*

Introduction

In contemporary society, digital literacy and technological competence have become essential components of primary education. Artificial Intelligence (AI), asnow probably the fastest-evolving technology in human history, is already transforming the way students learn, teachers teach and schools operate. Although AI is most commonly associated with higher education and industrial applications, its integration into primary education opens new possibilities for interdisciplinary learning that is both interactive and personalised.

Primary education is a critical phase in the development of students' cognitive, social and communication skills. Integrating AI at this stage requires a pedagogically thoughtful approach that considers students' age and developmental needs, as well as some reflection on the learning context. Teachers are key actors in this process, as their appropriate use of AI tools can foster

creativity and critical thinking. As Yim and Su (2025) emphasize, successful AI literacy in primary education must be grounded in constructivist methodologies and ethical awareness, while deep cognitive engagement can also be facilitated by the use of project-based learning. Furthermore, Holmes et al. (2022) warn that without pedagogical training, teachers risk using AI merely as technical support rather than as a tool for developing critical thinking. According to Luckin et al. (2016), the role of the teacher in the age of AI is not diminished but transformed—from a transmitter of knowledge to a mediator of meaning and analysis.

However, in an era where answers are instantly accessible through a simple query to an algorithm, a new pedagogical responsibility arises: teaching students not only to ask questions, but also to challenge the responses received. This process - referred to in this paper as *questioning the answers* - represents a vital step toward cultivating autonomous, responsible and critically engaged learners. Rather than treating AI as an infallible source of truth, it should be used as a tool that provokes students to think, compare, analyse and formulate new questions.

The aim of this paper is to provide a systematic overview of the practical application of AI in primary education, through an analysis both of its historical development and its current global usage as well as some scrutiny of many of the concrete recommendations for teachers from across disciplines. Special emphasis is placed on the need for educators to convey the message that AI should not be used for passive answer retrieval, but as a means to encourage critical analysis, argumentation and independent thinking. In this sense, *questioning the answers* is not merely a method - it is a pedagogical imperative for the 21st century.

An Abbreviated Analysis of the Development of Artificial Intelligence

The development of artificial intelligence (AI) has unfolded in parallel with humanity's pursuit to understand and model its own capacity for thinking. As early as 1950, Alan Turing posed the question "Can machines think?" and proposed the Turing Test as a criterion for intelligent behaviour (Turing, 1950). In doing so, he not only initiated a technological debate but also opened an epistemological dilemma: are the answers provided by machines sufficient, or should they be critically examined?

In 1956, during the Dartmouth Conference, researchers formalized the term 'artificial intelligence' and defined it as the science of creating machines capable of human-like reasoning. Over the following decades, AI evolved through symbolic systems, expert programs and problem-solving algorithms. Yet even then, some scientists warned that machine-generated answers should not be treated as final truths, but rather as starting points for critical analysis.

In the 1980s and 1990s, with the emergence of neural networks and machine learning, AI began learning from data instead of relying solely on predefined rules applied to a discrete tranche of information. This led to significant advances in speech, image and text recognition, but also intensified concerns about the verifiability of results amidst issues of bias and transparency.

Educators and researchers working with educational technologies began emphasizing that students should not simply make unquestioning use of AI tools but also to critically evaluate their outputs.

In the past decade, generative models - such as transformers and large language models - have enabled AI to produce text, images, code and other forms of content with impressive precision. However, this has also increased the risk of passively accepting automated responses. Instead of fostering dialogue with knowledge, there is a real danger that students may become accustomed to accepting ready-made solutions. For this reason, educators have increasingly pointed to the need for a new educational paradigm - one that teaches students to question the answers, not just to ask the questions.

As Seymour Papert noted, "The best computer is not the one that gives answers, but the one that provokes questions" (Papert, 1980). Viewed through a pedagogical lens, the history of AI is not merely a technological evolution, but a continuous opportunity to cultivate critical thinking - especially when teachers use AI not as an authority, but as a prompt for dialogue, anal and inquiry.

A Brief Overview of the Current State of AI in Education

Over the past decade, artificial intelligence (AI) has gradually been integrated into educational systems worldwide, spanning all levels - from primary to higher education. Educational institutions have applied AI for automated assessment, adaptive learning, teacher support and content creation. Generative models such as ChatGPT, Claude and Gemini have enabled students to receive fast, structured, linguistically precise responses to open-ended questions (Department for Education, 2025 GOV.UK).

In primary education, AI tools have been used to develop language, mathematical and logical skills. Students received feedback through intelligent tutors, while teachers monitored individual progress. However, without a clear pedagogical framework, there was a risk that students would accept answers as final without questioning their logic or validity (Xu, 2025).

In secondary education, AI has been applied to academic writing, text analysis and exam preparation. Students used generative tools to create essays, presentations and research projects. Teachers who emphasized the process of *questioning the answers* succeeded in fostering discussions, comparisons and argumentation - activities that strengthened students' critical thinking and autonomy (Harouni, 2023).

In higher education, AI has been used for scientific research, data processing, academic writing and professional communication. Students had access to advanced tools for synthesis, citation and the structuring of arguments. At this level, however, the need for epistemological maturity became evident - the ability not only to use AI, but also to critically examine its logic, biases and contextual validity became critical (UNESCO, 2023).

As Harouni (2023) and Xu (2025) have pointed out, teachers must convey the essential message: AI is not an authority but a tool. Students should be encouraged to question the answers,

compare them with other sources, challenge them and develop their own arguments. Only then can AI become a means for fostering autonomous, responsible and critically engaged learning.

The implementation of artificial intelligence in education began as early as the 1970s, through intelligent tutoring systems (ITS) for individualized learning (Carbonell, 1970). In the 1980s and 1990s, AI was used for adaptive testing and diagnostic tools, mainly in specialized institutions (Woolf, 2010). With the development of machine learning and neural networks, the 2000s saw more intensive integration of AI into digital learning platforms, including automated evaluation, content recommendations and progress tracking (Luckin et al., 2016). Today, generative AI enables new forms of interaction, creative expression and critical thinking, with the potential to redefine the educational process (UNESCO, 2023).

According to a systematic review of 25 empirical studies published in the International Journal of Technology and Design Education, AI in primary education has most commonly been applied through intelligent agents, project-based learning, human-agent interaction and mixed evaluation methodologies (Yim & Su, 2025). This review showed that constructivist approaches, critical literacy and ethical awareness were key components of successful AI programs.

Global Experiences

China began integrating AI around 2018 through platforms such as Squirrel AI, which adapted lessons based on student progress. The Ministry of Education set a goal for AI to be present in all schools by 2030 (Zhang et al., 2021). Teachers received training to monitor student engagement and emotional responses, while parents accepted the technology with moderate concerns about privacy.

Finland introduced the Elements of AI course for teachers, developed by the University of Helsinki. AI was used for personalised learning and creative activities, especially in early childhood education (Finnish Ministry of Education, 2022). Teachers embraced the technology as a support tool, and parents viewed it as an opportunity to develop digital ethics.

The United States used platforms such as Khanmigo (Khan Academy), Gradescope, and Duolingo. Implementation was supported by institutions such as MIT and Stanford, with a focus on automated assessment and interactive boards (Holmes et al., 2022). Students showed high motivation, while parents demanded transparency in data usage.

South Korea introduced AI-based teaching programs focused on language learning and 5G-supported virtual classrooms. Teachers were actively involved in pilot programs, and students used AI for interactive learning (Lee & Kim, 2023). Parents supported the technology, especially in urban areas.

India used AI for accessible and scalable education, particularly in rural areas. Platforms such as BYJU'S enabled personalised learning and career guidance (NITI Aayog, 2021). Teachers in urban areas embraced the technology, while rural regions required additional resources and training.

Challenges and Potentials

Despite positive outcomes - such as increased motivation, improved academic performance, and the development of critical thinking - significant challenges remain:

- Lack of pedagogical training for teachers (Holmes et al., 2022)
- Ethical dilemmas related to privacy and automated assessment (UNESCO, 2023)
- Technological inequalities between schools and regions (NITI Aayog, 2021)

At this stage, AI should not be viewed as a replacement for teachers but as a tool that supports the learning process. A key factor is that students develop the ability not only to ask questions, but also to question the answers - to critically analyse, compare and contextualise them. This positions AI as a didactic instrument for cultivating autonomous and responsible learning.

A Succinct Typology of Artificial Intelligence

Artificial intelligence (AI) today is evolving in diverse forms, tailored to specific purposes, users, and educational contexts. AI-based tools are used for process automation, creative support, data analysis and interaction with students and learners. Most commonly, they are built on machine learning, natural language processing, computer vision, and generative models (Luckin et al., 2016; Holmes et al., 2022).

In education, AI tools are categorized according to their **function** and **pedagogical application**. Some are oriented toward productivity and organization, others toward learning and tutoring, and still others toward creative expression. However, their true value does not stem solely from technical capabilities, but from how they are used in teaching practice. Teachers who integrate these tools with activities that require analysis, comparison, and argumentation succeed in transforming learning from reproductive to critical - again the process referred to in this paper as *questioning the answers* (Harouni, 2023).

For example, generative tools such as ChatGPT, Claude and Gemini enable rapid generation of text, ideas and explanations. Yet without pedagogical guidance, students may accept the generated responses as accurate without examining their logic or origin, or even the context in which they are given. Therefore, teachers should encourage students to analyse the outputs, compare them with other sources, and pose additional questions - activities that strengthen critical thinking and learner autonomy (Xu, 2025).

Tutoring and learning tools such as Khanmigo, Squirrel AI, and Duolingo are used for adaptive learning, language practice and interactive exercises. They offer individualised approaches, but their educational value increases when students are prompted to question the explanations they receive, to challenge them and to discuss them with teachers or peers (Yim & Su, 2025).

Table 1. General Categories of AI Tools

Category	Examples of AI Tools	Potential for *questioningtheanswers*
Generative Tools	ChatGPT, Claude, Gemini, Jasper	High – enable analysis and comparison of content
Productivity Tools	Notion AI, Microsoft Copilot, Grammarly	Medium – support organization but require additional critical framing
Learning & Tutoring Tools	Khanmigo, Squirrel AI, Quill, Duolingo	High – enable interaction and independent verification
Visualization Tools	Midjourney, Canva AI, AutoDraw	Medium – foster creativity but require interpretation
Audio & Speech Tools	Murf.ai, Descript, ElevenLabs	Medium – useful for communication but limited in analytical depth

In the category of visual and creative tools, such as Canva AI, AutoDraw, and Midjourney, students can create presentations, graphics and visual representations. These tools encourage creativity but simultaneously require interpretation and argumentation - why a particular visual structure was chosen, what message is being conveyed and whether it is appropriate for the intended audience.

Productivity tools such as Notion AI and Microsoft Copilot are used for organizing ideas, planning, and managing information. Although not directly designed for learning, they can be integrated into instructional activities that require argument structuring, reflection and re-evaluation of generated suggestions.

Table 2. Categories of AI Tools and Their Potential for Re-Evaluation

Category	Examples of AI Tools	Potential for Re-Evaluation
Generative Tools	ChatGPT, Claude, Gemini, Jasper	High – analysis of structure and arguments
Productivity Tools	Notion AI, Microsoft Copilot, Grammarly	Medium – requires critical interpretation
Learning & Tutoring Tools	Khanmigo, Squirrel AI, Duolingo	High – enable interaction and verification
Visualization Tools	Canva AI, AutoDraw, Midjourney	Medium – requires aesthetic and communicative analysis
Audio & Speech Tools	Murf.ai, Descript, ElevenLabs	Medium – useful for communication but limited in analysis

As UNESCO (2023) emphasises, AI tools can enrich learning only when used within a framework that promotes critical thinking, ethical evaluation and learner autonomy. Teachers play

a key role in this process—not as technical operators but as pedagogical mediators who convey the essential message: not every answer is final, and every answer deserves to be questioned.

Domains of AI Tool Application

AI tools have a transformative impact on nearly every domain of contemporary life. In technology, they are used for software development, automation and cybersecurity. In economics and industry, AI supports market analysis, risk forecasting and optimization of production processes. In healthcare, it is applied in diagnostics, medical image processing and personalized therapy amongst other areas.

Categories and Examples:

Table 3. Categories of AI Tools by Domain

Domain	Examples of AI Tools
Technology	GitHub Copilot, Replit, DeepSeek
Economics	BloombergGPT, AlphaSense, FinGPT
Industry	Siemens AI, IBM Watson, Runway
Education	Khan Academy, Coursebox, GrammarlyGo
Healthcare	DeepMind Health, Aidoc, BioGPT
Creativity	Canva AI, Murf.ai, Gamma, Descript
Law & Ethics	Harvey AI, Luminance, Lexica
Tourism & Travel	Hopper AI, Tripnotes, GuideGeek

In education, AI tools enable adaptive learning, automated assessment and teacher support. In the creative industries, they are used to generate music, video, graphics and text. In law, marketing, tourism and public administration, AI is applied to document processing, behaviour prediction and enhancing user experience.

Creative Potentials of AI Tools in Education

In contemporary education, AI tools enable students, learners, and educators to create various forms of content - texts, presentations, videos, music, applications and academic papers. The creation process is interactive: the user submits a prompt and the AI generates content that can be edited, analysed or shared. These tools are accessed through web platforms, mobile applications or integrations within existing educational systems (Holmes et al., 2022).

However, without a clear pedagogical framework, the process of creating with AI can be reduced, as we have noted, to obtaining ready-made results without critical analysis. Students often accept the generated responses as accurate without questioning their source, logic, structure or originality. As already noted, teachers who emphasize the process of *questioning the answers*

succeed in transforming these tools into instruments for critical thinking, argumentation, and independent evaluation (Harouni, 2023).

For example, when students use ChatGPT to write an essay, teachers might encourage them to compare the generated text with other sources, analyse its style, identify potential biases and suggest improvements. When students use Canva AI for presentations, instructors could prompt them to explain why they chose a particular structure, visual style or argumentative flow. In all these cases, AI is not the endpoint but a starting point for dialogue and re-evaluation (UNESCO, 2023).

Categories and Examples:

Table 4. Categories of AI Tools by Type of Creation

Type of Creation	Examples of AI Tools	Potential for Re-Evaluation
Text and Essays	ChatGPT, Claude, Jasper	High – analysis of structure and arguments
Presentations	Gamma.app, Canva AI	Medium – requires visual interpretation
Videos and Podcasts	Pictory, Descript, Murf.ai	Medium – encourages content discussion
Music and Sound	Suno, Beatoven.ai	Medium – requires aesthetic and technical analysis
Applications and Web	Lovable, Replit	High – enables technical re-evaluation
Academic Papers	SciSpace,Consensus, NotebookLM	High – requires source and logic verification

As Xu (2025) emphasizes, AI can enrich learning when used to deepen existing time for reflection, rather than replace it. Teachers who are able to integrate the process of *questioning the answers* into their instructional practice succeed in transforming learning from passive to active, from reproductive to analytical and from technologically dependent to cognitively autonomous.

AI Tools and Career Building for Students

In today's educational environment, AI tools not only transform the way students learn but also open new pathways for professional development. The use of AI in the classroom is already influencing students' career aspirations - especially when teachers encourage them to question the answers they receive, analyze the algorithms behind them and reflect on how they themselves might improve or create such systems.

As Holmes et al. (2022) emphasize, AI should not be treated merely as a productivity tool, but as a platform for developing digital competencies, algorithmic thinking and technological creativity. When students learn how generative models work, how algorithms are trained and what ethical questions are associated with their use, they begin to see AI not only as a user-facing technology but also as a professional opportunity.

Teachers must play a key role in raising students' awareness that the future of work will require not only the ability to use AI tools, but also to understand, modify and create them. Students who develop skills in *questioning the answers* - through analysis, comparison, and argumentation- are preparing for roles such as**Visionary Careers for Students Using AI**

Table 5. Categories of AI Tools and Potential Careers for Students

Category	Example Profession	Role of AI in the Career	Recommended AI Tools for Students
Machine Learning and Algorithms	Machine Learning Engineer, AI Researcher	Designs models, trains algorithms, develops intelligent systems	Replit, Google Colab, Hugging Face, Teachable Machine
Space Technologies	Space Center Designer, Astronaut-Engineer	AI for navigation, data analysis from space missions	NASA Eyes, Orbital AI, SpaceML
Bioinformatics and Genetics	Genomic Analyst, AI Biologist	DNA analysis, disease prediction, personalized medicine	DeepMind AlphaFold, BenchSci, BioRender
Robotics and Autonomous Systems	Robotics Engineer, Autonomous Vehicle Designer	Real-time control, perception, decision-making	VEXcode VR, NVIDIA Jetson, OpenAI Gym
Creative Industries	AI Music Composer, Digital Artist	Generates music, visual art, interactive experiences	Suno AI, Runway ML, DALL·E, Beatoven.ai
Education and Pedagogy	AI Tutor Designer, AI Literacy Educator	Creates adaptive platforms, teaches critical thinking through AI	Khanmigo, Talkpal.ai, LangBuddy.ai, Socratic
Climate Science and Ecology	Climate Data Analyst, AI Ecologist	Climate modeling, risk prediction	ClimateGPT, Earth Engine, ClimAI
Cybersecurity and Ethics	AI Ethicist, Security Analyst	Threat detection, development of ethical frameworks and policies	IBM Watson AI Ethics, SecAI, Lighthouse AI
Neuroscience and Cognitive Tech	Brain Interface Designer, AI Neuroscience Researcher	Brain process simulation, human-machine interface development	Neuralink (simulations), BrainCraft, Cognitivescale
Law and Digital Justice	AI Legal Analyst, Legal Algorithm Designer	Case analysis, automation of legal processes	CaseText, Harvey AI, DoNotPay

UNESCO (2023) stresses that education must prepare students not only to use technology but also to critically evaluate and transform it. This requires a shift in the teaching paradigm—from passive use to active creation, from reproduction to innovation. Harouni (2023) notes that "the teacher is not here to replace the algorithm, but to surpass it"—by encouraging students to imagine what a better algorithm, a more poetic answer or a more efficient and effective piece of code might look like. In this sense, *questioning the answers* becomes not only a pedagogical approach but also a professional calling for teachers.

Overview of AI Tools with Support for the Macedonian Language

AI tools that support the Macedonian language are expanding rapidly, especially in education. Their true value emerges when students are encouraged to analyse, question and improve the outputs - not simply consume them.

Language Learning and Communication Tools

Several AI platforms now support Macedonian for speaking, pronunciation, grammar and comprehension. These are especially useful for students, teachers and foreign language learners:

LangBuddy AI – Offers personalized conversations in Macedonian, tailored to the learner's level. Ideal for practicing dialogue and pronunciation langbuddy.ai.

Talkio AI – An interactive AI tutor that provides feedback on pronunciation, sentence structure and fluency talkio.ai.

Talkpal AI – Gamified learning with challenges and interactive questions. Supports reading, listening and speaking talkpal.ai.

Duolingo – Includes Macedonian as a foreign language with visual and audio exercises.

Teachers should use these tools not only for linguistic support but also to foster *critical thinking*—encouraging students to question explanations, compare sources and challenge assumptions.

Generative Tools with Macedonian Support

These tools can generate text, translations, ideas, and content in Macedonian:

- **ChatGPT** – Supports Macedonian for essays, explanations, and dialogue generation.
- **Gemini (Google)** – Understands and responds in Macedonian, especially for short tasks and translations.
- **Claude** – Handles basic communication and textual analysis in Macedonian.
- **DeepL Translator** – Offers high-precision translation to and from Macedonian.

Their educational value increases when students are prompted to *analyse, revis, and discuss* the accuracy and logic of the generated content (Holmes et al., 2022).

Educational and Productivity Tools

Some tools are not fully localized but can process Macedonian text or be used with Macedonian interfaces:

- **Grammarly** – Does not support Macedonian grammar correction, but is useful for English writing by Macedonian students.
- **Canva AI** – Allows creation of presentations and visual content with Macedonian text.
- **Curipod** – Can generate interactive lessons and debates in Macedonian if content is manually entered.

These tools are valuable for *visual organization*, but teachers should encourage interpretation and argumentation—why a structure was chosen, what message is conveyed, and whether it suits the audience.

Creativity and Visual Expression Tools

- **AutoDraw** – Converts sketches into graphics, independent of language.
- **Pictory** – Can create videos with Macedonian text if manually input.
- **Descript** – Supports audio editing, though Macedonian support is limited.

Application in Primary Education

The strongest Macedonian support is found in language tools (LangBuddy, Talkio, Talkpal) and generative models (ChatGPT, Gemini, Claude). In primary education, these tools can be used for:

- Developing language skills
- Creating texts and projects
- Visual presentation and creativity
- Independent learning and communication

Yet their *true educational value* is unlocked when students are encouraged to *'question the answers'*—to analyse, compare, and contextualise. Only then does AI become a tool for autonomous, responsible and critically engaged learning. Sources: langbuddy.ai talkio.ai talkpal. ai

Questioning Algorithmic Logic - *Questioning the Answers*

Modern generative artificial intelligence (AI) provides access to automated responses, synthesized information, and personalized solutions. While this marks a significant advancement in educational technology, a fundamental question arises: are students learning to think, or merely to accept? In this context, critical thinking becomes not just desirable, but essential (Holmes et al., 2022).

Asking questions to AI is a starting point but should not be the ultimate goal. True educational value emerges when students consider the responses they receive, compare them with other

sources, challenge them and contextualize them. This process - *questioning the answers* - forms the foundation of digital literacy, epistemological maturity and autonomous learning (UNESCO, 2023).

As American philosopher John Dewey emphasized, "If we teach today's children as we taught yesterday's, we rob them of tomorrow" (Dewey, 1938). In the age of AI, this means that educators must prepare students not only to use technologies, but also to critically examine their outputs, logic and implications. This approach requires dialogue, analysis and argumentation - not passive acceptance.

Similarly, Neil Postman warned that "every technology is both a burden and a blessing; every tool is both a solution and a problem" (Postman, 1992). AI can facilitate learning, but it can also lead to passivity if critical interaction is not encouraged. Therefore, teachers must promote the process of re-evaluation - not only of answers, but of the questions, algorithms and assumptions themselves.

In contemporary pedagogy, Paulo Freire highlights dialogue as the foundation of critical education: "To ask questions is an act of freedom" (Freire, 1970). In the context of AI, this means that students should be encouraged to question the authority of the algorithm, analyse its assumptions and develop their own perspectives. Teachers, in this sense, are not merely transmitters of knowledge but facilitators of critical awareness.

Classroom Activities That Foster *Questioning the Answers*

To cultivate critical thinking in the age of AI, educators create environments where answers are not endpoints but starting points for analysis, dialogue and re-evaluation. AI tools, when used with pedagogical guidance, become catalysts for argumentation, comparison and self-reflection (Holmes et al., 2022; Harouni, 2023).

Here are five classroom activities designed to foster the *questioning the answers* process:

1. **AI Response Analysis**
   - **Activity:** Students pose a question to an AI tool (e.g., ChatGPT or Khanmigo) and receive a response. In groups, they analyse: Is it accurate? Complete? Biased?
   - **Goal:** Develop skills in information verification, logical evaluation and reasoned thinking.
   - **Pedagogical Value:** Encourages doubt as a healthy cognitive mechanism, not resistance to technology (UNESCO, 2023).

2. **Comparing Responses from Different AI Tools**
   - **Activity:** Students ask the same question to two different AI tools (e.g., ChatGPT and Gemini) and compare the responses. If responses are the same of similar, ask a third or fourth AI tool.
   - **Goal:** Promote understanding of algorithmic variability, bias and the importance of multiple sources.

- **Pedagogical Value:** Students learn that different models may offer different interpretations, requiring critical assessment.

3. **Reflective Journal: "What Did I Learn, What Did I Re-Evaluate?"**
   - **Activity:** After each AI interaction, students write a short journal entry: What did they learn? What surprised them? What would they double-check?
   - **Goal:** Foster metacognitive awareness, self-reflection and development of personal epistemology.
   - **Pedagogical Value:** Builds a habit of re-evaluation, which is the foundation of autonomous learning (Freire, 1970).

4. **Debate: "Is AI Always Right?"**
   - **Activity:** Students are divided into two groups - one defends the accuracy of AI, the other challenges it. They use real examples from school assignments.
   - **Goal:** Develop communication skills, argumentation and ethical reasoning.
   - **Pedagogical Value:** Students learn that AI is not infallible, and that critical discussion is essential to digital literacy (Postman, 1992).

5. **Project: "I Am AI – Respond and Explain"**
   - **Activity:** Students are tasked with writing a response as if they were an AI, then explaining and re-evaluating it from a student's perspective.
   - **Goal:** Encourage empathy, understanding of algorithmic reasoning and critical analysis.
   - **Pedagogical Value:** Students gain awareness of how knowledge is constructed and how algorithms can shape - but also limit - it.

This approach not only develops students' cognitive and communication skills, but also prepares them for a future in which critical evaluation of digital content will be a core life competency. Recall Harouni's (2023) statement that, "The teacher is not here to replace the algorithm, but to surpass it" - by encouraging students to think, to doubt and to create.

Conclusion

The implementation of artificial intelligence (AI) in education began as early as the 1970s, but today it has acquired a new and immensely powerful dimension through generative tools that enable interactive, personalized and creative learning. The history of AI in education demonstrates that technological advancement must be accompanied by pedagogical maturity and critical awareness.In its current state, AI is used across all levels of education, but its value depends on whether students are encouraged to critically re-evaluate the answers they receive. Teachers who integrate the *questioning the answers* approach are likely to succeed in transforming AI from a tool of automation into a medium for critical thinking (Harouni, 2023; UNESCO, 2023).

Different types of AI tools -generative, visual, linguistic, and productivity-focused - have varying potential to stimulate analysis and argumentation. When used with clear pedagogical

intent, they become catalysts for autonomous learning and ethical evaluation (Xu, 2025; Holmes et al., 2022).

Creating with AI tools should not be reduced to obtaining ready-made results, but should instead foster dialogue, comparison and re-evaluation. Teachers who encourage this process create classrooms where students not only learn, but also reflect on what it means to know (Freire, 1970).

In the context of career development, students should be encouraged not only to use AI tools but also to understand, modify and create them. This prepares them for future professions such as AI engineers, ethicists, educational technology designers and data analysts (UNESCO, 2023; Holmes et al., 2022).

The use of AI varies by educational level, but in all cases, critical re-evaluation of answers is essential. Teachers must convey the message that AI is not an authority but a tool that requires analysis and argumentation (Yim & Su, 2025).

Although support for the Macedonian language in AI tools is limited, there are linguistic and generative platforms that can be integrated into instruction. Their value is amplified when students are encouraged to re-evaluate outputs, compare them and improve them (Talkpal.ai, 2025; LangBuddy.ai, 2025).

Critical thinking in the age of AI is not a luxury - it is a necessity. Students should be encouraged to question the authority of the algorithm, analyse its assumptions and develop their own perspectives (Postman, 1992; Harouni, 2023).

Pedagogical activities such as response analysis, tool comparison, debates and reflective journals foster the process of *questioning the answers*. These not only develop students' cognitive and communication skills, but also prepare them for a digitally mature and responsible life (UNESCO, 2023; Freire, 1970).

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Use of Generative AI

For reasons of transparency, please note that the LLM Copilot was used to check and correct grammar and syntax in the text

STRESS, ANXIETY AND DEPRESSION AMONG TEACHERS IN INCLUSIVE EDUCATION

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ABSTRACT:

Teachers working in inclusive classrooms experience numerous challenges that make them especially vulnerable to psychological difficulties such as stress, anxiety, and depression. The aim of this study was to examine the levels of stress, anxiety, and depression among teachers working in inclusive classrooms. The sample consisted of 31 teachers employed in mainstream primary schools, and symptoms were assessed using the Depression, Anxiety and Stress Scale (DASS-21). The research results showed that teachers working with children with disabilities exhibit a certain level of stress, anxiety, and depression, which are beyond or at the limit of acceptable values. Although no statistically significant gender differences were found, female teachers reported slightly higher levels of symptoms. The results highlight the need for continuous support and professional development of teachers in inclusive settings. Ensuring adequate training, reducing workload, and improving support systems may significantly contribute to the mental well-being of teachers. The study suggests that mental health should be considered a priority within inclusive education policies to ensure high-quality teaching and positive outcomes for both students and educators.

Keywords: *teachers, inclusion, children with disabilities, stress, anxiety, depression*

Introduction

The teaching profession is characterized by a high susceptibility to the development of mental health problems (Asa & Lasebikan, 2016) and is often described as one of the most stressful and most depression-prone occupations (Biernat et al., 2022; Galaterou & Antoniou, 2017; Garrick et al., 2014; Marooj et al., 2022; Othman & Sivasubramaniam, 2019). Within the field of teachers' mental health, numerous studies have examined professional stress, whereas considerably less

attention has been devoted to the combined influence of depression, stress, and anxiety on the psychological well-being of educators (Marooj et al., 2022). Interest in the phenomenon of stress in the teaching profession emerged from evidence demonstrating that professional stress can significantly contribute to the occurrence of mental and physical health problems among teachers, negatively affecting their quality of life as well as the quality of the teaching process (Desouky & Allam, 2017; Galaterou & Antoniou, 2017; Krnjajić, 2003).

Empirical findings consistently confirm that elevated levels of stress in teachers have serious consequences for their job performance, overall health, and mental state (Krnjajić, 2003), with anxiety, depression, and emotional exhaustion representing some of the manifestations of prolonged professional stress (Agyapong et al., 2022; Galaterou & Antoniou, 2017; Krnjajić, 2003; Stanković-Đorđević, 2018). Some of the professional stressors commonly experienced by teachers include low salaries (Desouky & Allam, 2017; Ratanasiripong et al., 2022), problematic student behavior, lack of motivation for learning, discipline issues, insufficient professional recognition, and complex interactions with colleagues, students, and parents (Koludrović et al., 2009). Excessive pressure from educational institutions, students, and parents; negative attitudes within the community; conflicts arising from the numerous roles teachers must assume (Desouky & Allam, 2017); heavy workloads; lack of administrative support; and deteriorated classroom discipline contribute to teachers feeling overwhelmed, which can lead to the development of anxiety (Agyapong et al., 2022; Desouky & Allam, 2017). An unfavorable psychological work environment also significantly increases the likelihood of depression among teachers (Desouky & Allam, 2017). Depression may substantially affect a teacher's health, productivity, and functioning (Besse et al., 2015), both personally and professionally (Agyapong et al., 2022). High levels of stress, anxiety, or depression in teachers negatively influence the quality of their academic engagement, whereby students may show lower motivation and poorer academic performance (Marooj et al., 2022; Ratanasiripong et al., 2022).

Work environments characterized by structural changes and increased expectations regarding job performance may heighten the risk of professional stress (Engelbrecht et al., 2003; Krnjajić, 2003). Educational reforms place numerous demands on teachers, originating from educational authorities as well as parents and students (Stanković-Đorđević, 2018). Teachers are expected to possess multiple competencies (Stanković-Đorđević, 2018), which require them to adopt diverse roles. They must simultaneously take on the role of supportive parents, motivators who encourage students (Brkić & Rijavec, 2011), and skilled pedagogues and psychologists who acknowledge the individual differences in children's abilities and personal characteristics (Grubačić & Čabarkapa, 2013).

A particular challenge for teachers is the implementation of inclusive education. While inclusion enables every child to have equal access to education, it also imposes an additional responsibility on teachers to work with students with disabilities. In such an educational system, the role of the teacher becomes increasingly complex, and their professional engagement becomes

more demanding (Stanković-Đorđević, 2018). Many teachers who lack prior experience working with students with disabilities approach inclusive practice with hesitation and a certain degree of anxiety (Weiss et al., 2019). Inclusive education may be perceived as an additional burden that can provoke stress and negatively affect students with disabilities (Engelbrecht et al., 2003). Simultaneously working with students with disabilities and typically developing peers, ensuring acceptance among classmates, lack of time (Galaterou & Antoniou, 2017), insufficient training in inclusion-related competencies, behavioral problems among students with disabilities (Brackenreed, 2008; Engelbrecht et al., 2003; Galaterou & Antoniou, 2017; Stauffer & Mason, 2013), and high, often unrealistic parental expectations (Brackenreed, 2008; Stauffer & Mason, 2013) are all factors that may contribute to stress during inclusive education. Teachers report that inclusion would not be perceived as such a significant source of stress if adequate systemic support were provided (Brackenreed, 2008).

However, due to continuous overload and the numerous demands placed upon them, teachers experience heightened emotional pressure that results in dissatisfaction and stress, which may consequently impair their creativity, educational role, and relationships with colleagues, students, and parents (Grubačić & Čabarkapa, 2013).

Sample

The study included 31 teachers from mainstream schools, most of whom were female (93.5%), with an average age of approximately 45 years (M = 44.74). The sample consisted of classroom teachers (22.6%) and subject teachers (77.4%). The majority of participants (90.3%) had previous experience working with students with disabilities, most commonly with children diagnosed with autism spectrum disorders, intellectual disabilities, cerebral palsy, visual impairments, and speech–language disorders.

Istruments and Procedure

To assess the presence of stress, anxiety, and depression symptoms, the Depression, Anxiety and Stress Scale (DASS-21; Lovibond & Lovibond, 1995) was used. The scale contains 21 statements divided into three subscales measuring symptoms of depression, anxiety, and stress. Items are rated using a four-point Likert scale, assessing the degree of agreement from complete disagreement to complete agreement. Relevant sociodemographic characteristics of the teachers were collected through a specially designed questionnaire. Participants were clearly informed about the purpose of the study and were asked to complete the questionnaire honestly.

Data analysis

Data were analyzed using the SPSS statistical package (Statistics for Windows, Version 26) applying descriptive statistical methods. Summary scores were calculated for each subscale of

the Depression, Anxiety and Stress Scale. The nonparametric Mann–Whitney U test was used to obtain the results.

Results

Using the Depression, Anxiety and Stress Scale, the study examined the extent to which teachers experienced symptoms of these conditions. For interpreting the results, it is important to note that, on the Stress subscale, scores higher than 7 indicate levels of stress exceeding the acceptable range. On the Anxiety subscale, scores higher than 3 suggest an elevated level of anxiety, while scores above 4 on the Depression subscale indicate symptoms beyond the acceptable range.

Table 1. Symptoms of Stress, Anxiety and Depression among Teachers (N = 31)

Subscale	M	SD	Min	Max
Stress	7.26	4.28	0	17
Anxiety	4.42	4.54	0	17
Depression	3.65	3.75	0	14

Note: *N – number of participants; M – mean score; SD – standard deviation; Min – minimum score; Max – maximum score.*

Table 1 presents the mean scores obtained on the Stress, Anxiety, and Depression subscales. The mean score on the Anxiety subscale (M = 4.42, SD = 4.54) indicates that teachers experience mild symptoms of anxiety. On the other hand, the mean scores on the Stress (M = 7.26, SD = 4.28) and Depression (M = 3.65, SD = 3.75) subscales suggest the presence of symptoms that fall near the upper boundary of the acceptable range.

Table 2. Severity of Stress, Anxiety and Depression Symptoms among Teachers (N = 31)

	Stress		Anxiety		Depression	
Symptom Severity	f	%	f	%	f	%
Normal	20	64.5	16	51.6	22	71.0
Mild	4	12.9	6	19.4	2	6.5
Moderate	3	9.7	3	9.7	6	19.4
Severe	3	9.7	/	/	/	/
Extremely Severe	1	3.2	6	19.4	1	3.1

Note: *f – frequency; % – percentage.*

The percentage distribution in Table 2 provides insight into the severity of stress, anxiety, and depression symptoms among teachers. A substantial percentage of teachers display elevated

symptoms, with 35.6% experiencing stress, 48.5% anxiety, and 29% depression of varying intensities, all exceeding acceptable thresholds.

Table 3. Stress, Anxiety, and Depression Symptoms by Teacher Gender (N = 31)

Subscale	Gender	N	Min	Max	M	SD
Stress	Female	29	0	17	7.41	4.38
	Male	2	4	6	5.00	1.41
Anxiety	Female	29	0	17	4.66	4.60
	Male	2	0	2	1.00	1.41
Depression	Female	29	0	14	3.79	3.84
	Male	2	1	2	1.50	0.71

Note: *N – number of participants; Min – minimum score; Max – maximum score; M – mean score; SD – standard deviation*

Descriptive indicators show that teachers, regardless of gender, exhibit stress and depression symptoms within the acceptable range. However, female teachers appear to be at the upper boundary of this range on the Stress (M = 7.41, SD = 4.38) and Depression (M = 3.79, SD = 3.84) subscales. Regarding anxiety symptoms, a noticeable difference between male and female teachers was observed. Female teachers reported anxiety symptoms that exceed the acceptable range, while male teachers reported anxiety levels within the acceptable boundaries.

Discussion

The findings of this study indicate that a considerable proportion of teachers exhibit symptoms of stress at varying levels of severity (35.6%). Similar tendencies were observed regarding symptoms of anxiety and depression. Nearly half of the teachers (48.5%) reported elevated anxiety symptoms of different intensities, while 29% exhibited depressive symptoms exceeding acceptable thresholds. These results are consistent with previous research showing a high prevalence of stress, anxiety, and depression among teachers (Biernat et al., 2022; Othman & Sivasubramaniam, 2019; Ratanasiripong et al., 2022). The prevalence of stress in the teaching profession is notably high, as demonstrated in the study by Desouky and Allam (2017), where the entire sample of teachers reported experiencing stress. Additionally, 67.5% of teachers in their study reported anxiety symptoms, while depressive symptoms were present in 23.2% of participants. In the current study, teachers demonstrated mild symptoms of anxiety, whereas symptoms of stress and depression, although near the upper limit, remained within acceptable ranges. Despite the fact that these scores do not reach clinically significant levels, their intensity suggests that teachers may occasionally experience stress and depressive symptoms which, if not recognized and addressed in time, may result in more serious psychological outcomes.

Engelbrecht et al. (2003) identified increased anxiety in teachers working with students with developmental disabilities, as well as five primary sources of stress: administrative demands, insufficient support, challenging student behavior, teachers' confidence in their own competencies, and limited communication with parents. Other studies highlight that inadequate financial compensation, increased workload, and teacher age significantly contribute to heightened stress, anxiety, and depression (Desouky & Allam, 2017). Ferguson et al. (2012) identified work overload and student behavior difficulties as key risk factors for the development of depression and anxiety, and inadequate working conditions have also been shown to contribute to elevated anxiety levels. Several studies have confirmed that professional stress is significantly correlated with both depression and anxiety (Asa & Lasebikan, 2016; Ferguson et al., 2012; Khalifa et al., 2022), and these states can substantially reduce job satisfaction among teachers (Ferguson et al., 2012). Multiple studies have emphasized that professional stress, anxiety, and depression tend to be more prevalent among female teachers (Asa & Lasebikan, 2016; Desouky & Allam, 2017; Khalifa et al., 2022). The findings of this study also indicate that, although both male and female teachers reported stress and depression levels within acceptable ranges, these symptoms were slightly more pronounced among female participants, falling near the upper threshold. Regarding anxiety symptoms, the findings show that female teachers experience anxiety levels exceeding acceptable limits, whereas male teachers demonstrated anxiety symptoms within normal ranges.

Conclusion

Most studies examining the mental health status of teachers indicate that the teaching profession is perceived as highly stressful (Desouky & Allam, 2017) and that teachers rate their mental well-being as significantly poorer compared to the general population (Biernat et al., 2022). The findings of the present study show that teachers working in inclusive classrooms exhibit symptoms of stress, anxiety, and depression which, although within acceptable ranges, may still be meaningful and warrant careful attention. While no statistically significant gender differences were found, the results suggest that female teachers tend to display more pronounced symptoms of the examined conditions compared to their male colleagues. The limitations of this study primarily relate to the sample size and composition, as well as the potential influence of limited societal openness toward mental health issues, which may have affected the honesty of responses. Future research should aim to identify risk factors and key sources contributing to the development of stress, anxiety, and depression among teachers. The significance of this study lies in raising awareness about the importance of safeguarding the mental health of educators, who play a crucial role in the overall functioning and development of children with disabilities.

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ANDRAGOGICAL AND INSTITUTIONAL CHALLENGES FACED BY ADULT EDUCATORS: THE CASE OF NORTH MACEDONIA

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ABSTRACT:

This research explores the challenges faced by teaching and training staff in adult education, focusing on andragogical and institutional difficulties encountered when working with adult learners in the Republic of North Macedonia. Grounded in the theoretical principles of andragogy and lifelong learning, the study examines how educators' prior experiences and engagement in professional development programs influence the quality and effectiveness of adult education practice. The research employs a descriptive and comparative quantitative design, using a Likert-type survey to capture teachers' perceptions of challenges related to learner motivation, learner diversity, time constraints, and institutional support.

The findings reveal that the most prominent challenges are andragogical and motivational rather than disciplinary in nature. Teachers report that adult learners' varied experiences, learning styles, and external commitments require flexible and adaptive approaches—needs not always supported by existing institutional conditions or resources. Although issues of discipline or behavior are rare, respondents emphasize the need for more time, materials, and training in andragogical methods to effectively meet adult learners' needs. Overall, the quality of adult education appears to depend on the dynamic interaction between institutional frameworks, the characteristics of adult learners, and teachers' professional growth as central agents of lifelong learning. Recommendations include strengthening professional development systems, aligning policies with practice, and investing in institutional resources—steps that underscore the need for systemic improvements to empower adult educators in creating relevant, engaging, and flexible learning environments for adult learners.

Keywords: *adult education, adult educators' challenges, andragogical and institutional challenges*

Introduction

This paper examines the challenges encountered by adult education teachers in the Republic of North Macedonia, interpreting these difficulties through the theoretical lenses of andragogy and lifelong learning. The theoretical perspective of **andragogy** highlights how the specific characteristics of adult learners influence teaching requirements. While the European Union's lifelong learning agenda positions adult education as a key strategic goal across Europe , the adult education sector in North Macedonia continues to suffer from systemic weaknesses (European Commission, 2020; OECD, 2020). Thus, strengthening teacher professionalism is crucial to bridging the gap between the ideals of andragogical theory and actual practice—especially in contexts where diverse adult learners are served within limited institutional frameworks (Rizova, 2021).

Consequently, the challenges faced by adult education teachers and trainers in North Macedonia can be understood as the combined outcome of learner diversity, the multifaceted nature of the teaching role, and institutional constraints. This conceptual understanding served as the basis for the empirical study and provided a structured lens for interpreting the results.

Andragogy and Teaching in Adult Education

The concept of andragogy, as introduced by Knowles (1990), posits that adult learners are **self-directed**, bring a wealth of prior **experience**, and expect learning to be immediately **relevant** to their lives. Similarly, Savićević (1999) emphasizes that because andragogy acknowledges adult learners' autonomy and prior life experience, teaching adults demands different competencies than teaching younger learners. In practice, when adult educators struggle to meet diverse learning needs, adapt instructional methods, these difficulties can often be seen as a misalignment between andragogical ideals and the practical realities of their teaching environments.

As participation in adult education grows, the professional role and identity of adult educators have become increasingly complex. Educators must continually adapt to changing student profiles and the demands of digital transformation in education. Despotović et al. (2004) argue that gaps in both initial training and ongoing professional development can leave teachers feeling uncertain and ill-prepared to adjust to diverse adult learner needs. Thus, when adult education teachers in North Macedonia report challenges in adapting lesson plans, managing heterogeneous groups, or effectively using digital tools, these issues may reflect the incomplete professionalization of the adult educator role and a lack of sufficient support for that role.

Teacher Challenges in the Macedonian Adult Education Context

Teaching adult learners is inherently challenging due to the **heterogeneity** of the learner population: adults in a single classroom may vary widely in age, prior education, professional background, motivation, and external responsibilities. Such diversity necessitates differentiated teaching strategies, flexible planning, and continuous pedagogical adaptation. In North Macedonia, there are multiple pathways for preparing staff to work with adult learners, yet many current

teachers have not acquired specialized competencies for adult education. Limited institutional support (in terms of time, resources, technology, and staffing) further hampers the implementation of learner-centered andragogical methods. Indeed, the adult education sector in North Macedonia has historically lacked a sufficient number of qualified teaching staff and remains under-monitored, making systematic assessment and reform difficult (Rizova, 2021).

For analytical clarity, the challenges identified in adult education teaching can be categorized into three broad, interrelated dimensions:

1. **Learner-centered demands:** The heterogeneous characteristics of adult learners (diverse ages, abilities, motivations, and life commitments) require instructors to employ a wide range of engagement techniques and motivational strategies tailored to individual needs.

2. **Teacher-centered professional demands:** Adult educators need specialized andragogical competencies, digital literacy, skills for adaptive planning, and opportunities for continuous professional development in order to effectively address adults' learning needs.

3. **Systemic and institutional constraints:** Practical limitations such as insufficient time for individualized support, scarce teaching resources, large class sizes, inadequate infrastructure, and weak policy support can significantly hinder the application of best practices in adult education.

For example, a teacher's report of insufficient teaching materials or difficulty in integrating digital technology into lessons is symptomatic of systemic constraints rather than an individual shortcoming. Overcoming the full spectrum of challenges requires a multifaceted approach—one that simultaneously strengthens teachers' professional capacity, bolsters institutional support, and aligns educational programs with the life contexts and needs of adult learners.

Research Methodology

This study is part of a broader effort to reform the adult education system by focusing on teaching and training staff as key agents of educational quality. The main goal of the research was to examine the challenges that adult education teachers in North Macedonia face, in relation to the practical realities of diverse learners, complex teaching roles, and institutional constraints.

General hypothesis: The professional development of adult education teaching staff is directly correlated with supportive national education policies, strong professional competencies, and relevant educational needs. These factors are assumed to positively influence the quality of education and training processes, increase the effectiveness of teaching, and improve learning outcomes for both young and adult learners.

Specific hypothesis: There is a statistically significant difference in the challenges faced by teaching and training staff when working with adults, depending on their previous work experience.

To address the research goals, a mixed-method approach was adopted. The primary research instrument was a questionnaire-based survey (using mostly quantitative Likert-scale items and a few open-ended questions) designed to assess the professional development needs of the teaching staff and to identify the challenges they encounter in practice. The research sample comprised 330

participants, including teachers and trainers from secondary schools, workers' universities, and adult basic education institutions across North Macedonia.

Data Analysis

Table 1. Self-reported frequency of challenges faced by adult education teachers. Values indicate the number of teachers reporting each frequency and (in parentheses) the percentage of the sample

Challenge	1 (Always)	2 (Often)	3 (Sometimes)	4 (Rarely)	5 (Never)	Total
Lack of motivation or commitment	25 (7.58%)	159 (48.18%)	104 (31.52%)	26 (7.88%)	16 (4.85%)	330 (100%)
Large and heterogeneous groups of students	27 (8.18%)	103 (31.21%)	117 (35.45%)	59 (17.88%)	24 (7.27%)	330 (100%)
Different learning needs	32 (9.70%)	148 (44.85%)	120 (36.36%)	21 (6.36%)	9 (2.73%)	330 (100%)
Limited time for individual work/ assessment	29 (8.79%)	125 (37.88%)	119 (36.06%)	41 (12.42%)	16 (4.85%)	330 (100%)
Lack of tools or equipment	23 (6.97%)	84 (25.45%)	142 (43.03%)	56 (16.97%)	25 (7.58%)	330 (100%)
Difficulty integrating digital technology	14 (4.24%)	77 (23.33%)	129 (39.09%)	69 (20.91%)	41 (12.42%)	330 (100%)
Lack of teaching materials/resources	17 (5.15%)	81 (24.55%)	135 (40.91%)	59 (17.88%)	38 (11.52%)	330 (100%)
Classroom management or discipline issues	18 (5.45%)	44 (13.33%)	117 (35.45%)	83 (25.15%)	68 (20.61%)	330 (100%)
Designing flexible/ adaptive teaching plans	27 (8.18%)	142 (43.03%)	74 (22.42%)	65 (19.70%)	22 (6.67%)	330 (100%)

Results and Interpretation

Lack of motivation or commitment: This challenge emerged as one of the most frequently encountered. A majority of teachers reported that adult learners *often* (48%) or *sometimes* (32%) exhibit low motivation or commitment to their studies. Only about 13% of teachers indicated that this is rarely or never an issue. These results suggest that maintaining learner motivation is a persistent difficulty in adult education settings, requiring teachers to continuously find ways to engage and encourage adult learners.

Large and heterogeneous groups of students: Managing **large, mixed-ability classes** was another highly reported challenge. Approximately three-quarters of respondents (around 75%) indicated that dealing with large and heterogeneous groups is an issue they face *often* (31%) or

sometimes (35%), with a small subset (8%) saying it *always* occurs. Only about one-quarter of teachers stated that class size and heterogeneity are rarely or never a problem. This highlights class heterogeneity as a common concern, as adult educators must address a wide range of abilities and backgrounds in the same classroom.

Different learning needs: The need to accommodate different learning needs and styles among adults was also a significant and widespread challenge. Around 45% of teachers reported this issue occurs *often*, and another 36% *sometimes*, meaning roughly 80% encounter it regularly. Only a very small fraction (about 9% in total) said they rarely or never deal with diverse learning needs. The low variability in responses for this item (SD ≈ 0.86) indicates broad consensus among teachers regarding its importance. These results underscore that catering to diverse learning styles and needs is an ongoing and universal concern in adult education.

Limited time for individual work and assessment: Time constraints clearly emerge from the data. About 38% of teachers *often* feel they lack sufficient time to work with students individually or to provide personalized feedback, and 36% experience this *sometimes*. Thus, nearly three-quarters of the respondents struggle at least occasionally with inadequate time for individual attention. Only roughly 17% reported this issue as *rare* or *never*. This suggests that many adult educators are pressed for time, which can reduce opportunities for personalized feedback, mentoring, and formative assessment of learners.

Lack of tools or equipment: About two-thirds of teachers reported at least occasional shortages of **teaching tools or equipment** (25% *often* and 43% *sometimes*). Very few (only about 7.5%) *never* face this issue. In other words, resource limitations—such as outdated or insufficient teaching materials, tools, or equipment—are a common obstacle. Many adult education providers appear to have only moderate resources, and this shortage can impede the implementation of effective teaching strategies.

Difficulty integrating digital technology: Integrating and using digital technology effectively in teaching is a moderate but notable challenge. Approximately 23% of teachers indicated they *often* struggle with using information and communication technology (ICT) in their instruction, and 39% *sometimes* do. On the other hand, about one-third (33%) said they rarely or never face this issue, suggesting some variability in digital readiness. These figures imply that while digital competence among adult educators may be improving for some, a substantial number still encounter barriers in training, access, or confidence when it comes to using digital tools in adult education.

Lack of teaching materials/resources: A similar pattern to item (e) is observed regarding **teaching materials and resources**. About 25% of teachers *often* and 41% *sometimes* experience a lack of necessary teaching materials (together roughly 65% at least occasionally). Around 30% report rarely or never having this problem. This reinforces that resource constraints, whether in terms of physical materials, curricula, or institutional support, are a recurring issue. . In combination, items (e) and (g) suggest that inadequate resources (tools, equipment, materials) consistently hinder the teaching process for a majority of adult educators.

Classroom management and discipline: Challenges with classroom management or student discipline are **relatively infrequent** compared to other issues. Only 13% of teachers said they face discipline problems *often*, and 35% sometimes, while a nearly equal proportion (about 46% combined) indicated that such issues are rare or never occur. This aligns with expectations about adult learners, who are generally more self-disciplined and intrinsically motivated than younger students. The data suggest that **behavioral or disciplinary issues** do not constitute a major obstacle in most adult education environments.

Designing flexible and adaptive teaching plans: Developing **flexible, adaptive lesson plans** to suit a diverse group of adult learners is reported as a significant challenge. Nearly half of the teachers (43%) *often* struggle with this, and an additional 22% *sometimes* do, meaning roughly two-thirds find it challenging to design or modify instructional plans to meet varied needs. Only about one-quarter (26%) said they rarely or never have difficulty in this area. This high frequency highlights the andragogical complexity of catering to mixed-ability or mixed-age classrooms. There was also greater variability in responses for this item (some teachers responded "always," while others "never"), suggesting that a subset of teachers have developed effective strategies for differentiation, whereas others feel much less confident. In general, however, the need to **differentiate instruction and remain flexible** in planning stands out as one of the most common and demanding aspects of teaching adult learners.

Discussion of Findings

The results of this study indicate that the most significant challenges adult education teachers face are related to **andragogical differentiation**, sustaining **learner motivation**, and the lack of opportunities for **individualized support**. The highest-frequency challenges – accommodating different learning needs and designing flexible, adaptive teaching plans – underscore the complexity of instructional planning in adult classrooms. These findings confirm that adult educators must continuously balance a wide range of learner characteristics, including varying prior knowledge levels, cognitive styles, and life experiences, when planning and delivering instruction.

The persistent issue of low learner motivation or commitment reflects a central paradox in adult education. While adult learners are often assumed to be intrinsically motivated, their engagement can be heavily influenced by external factors such as employment status, prior educational experiences, work and family responsibilities, and incentives like the prospect of higher salaries. Thus, teachers in adult education are required not only to convey knowledge but also to serve as motivators—fostering self-directed learning habits and keeping learners engaged despite competing outside commitments. In other words, adult educators frequently must take on the dual role of instructor *and* facilitator of motivation.

Challenges related to limited time for individual work and assessment, as well as the lack of teaching resources, point to **constrained institutional environments** in which many adult educators work. When class time is largely consumed by covering curriculum content, there is little opportunity

for providing personalized feedback, coaching, or remedial support to learners. This diminishes the capacity for reflective learning and formative assessment. Similarly, difficulties with integrating digital technology and obtaining adequate teaching materials suggest that adult education in North Macedonia is in a **transitional phase**. Educators increasingly recognize the potential of digital tools and modern resources, but practical barriers in training, access, and institutional infrastructure continue to limit their effective use.

Overall, the findings show that adult education teachers encounter more **pedagogical and organizational** challenges than **behavioral** ones. Issues such as learner diversity, motivation, time constraints, and resource limitations dominate the landscape, whereas classroom discipline problems are relatively rare. This pattern reinforces the need for targeted professional development in **learner-centered and andragogical methods**, as well as improved institutional support (e.g., smaller class sizes, better resources, more flexible scheduling) to allow teachers to implement those methods effectively.

Importantly, the data also reveal significant differences in perceived challenges based on the teachers' **previous work experience**. For example, teachers working primarily in adult education institutions reported challenges like designing adaptive plans and motivating learners as occurring "often" or "sometimes" at a higher rate (over 70% of respondents) compared to their counterparts from secondary education settings (around 65%). A Chi-square test of independence (df = 8) confirmed that these differences are statistically significant for all the listed challenges ($p < 0.05$). In other words, the **specific hypothesis** was supported: educators with extensive experience teaching adult learners perceive the intensity and nature of challenges differently from those whose experience is mainly with younger students. This finding aligns with the andragogical framework, emphasizing that teachers working with heterogeneous adult populations face more complex teaching demands and frequently operate under less structured or resource-rich conditions.

Conclusion

In summary, this study found that adult education teachers most frequently grapple with adapting instruction to **diverse learner needs**, maintaining learner **motivation and engagement**, and providing individualized support—all within the context of constrained institutional resources. The analysis further showed that teachers' professional experience (and likely their participation in professional development programs) is associated with differing perceptions of these challenges, reinforcing the link between teacher professionalization and educational quality. In particular, teachers with substantial experience in adult education settings tended to report higher frequencies of andragogical and institutional challenges, confirming the hypothesis that prior experience influences the type and intensity of challenges faced.

The effectiveness of adult education depends not merely on the competence of individual teachers, but on a **systemic alignment** between andragogical practice, institutional support, and learner characteristics. Addressing the challenges identified in this study – ranging from diverse

learning needs and low motivation to time and resource constraints – requires a multidimensional approach. Such an approach should integrate ongoing professional learning for educators, organizational reforms within adult education institutions, and supportive policy innovations at the national level. By undertaking these improvements, stakeholders can empower adult educators to realize the core values of andragogy in their classrooms – learner autonomy, relevant and participatory learning experiences, and a strong culture of lifelong learning (Knowles, 1984). Ultimately, a concerted effort to strengthen teacher capacity and provide enabling conditions will enhance the quality and effectiveness of adult education in North Macedonia.

Recommendations

Based on the above conclusions, several actions are recommended to strengthen the quality and effectiveness of adult education teaching:

1.**Professional development in andragogical competencies:** Provide continuous training and education for adult educators focused on learner-centered and andragogical teaching methodologies. This should include modules on facilitating self-directed learning and encouraging reflective practice, so that teachers are better equipped to address the specific needs of adult learners.

2.**Institutional and structural support:** Improve the structural conditions of adult education by reducing class sizes (where feasible) and implementing flexible scheduling that allows for more individualized feedback and support. Institutions should establish support mechanisms—such as peer collaboration networks, mentoring programs, or resource centers—to help teachers address challenges and share best practices.

3.**Motivation and engagement strategies:** Adopt teaching strategies that enhance adult learner motivation and engagement. For example, educators should incorporate relevant, problem-based learning tasks that connect with learners' personal and professional lives. By making learning content immediately applicable and meaningful, teachers can better sustain adult learners' interest and commitment.

4.**Investment in resources and digital infrastructure:** Invest in up-to-date teaching materials and robust digital infrastructure for adult education. This includes ensuring reliable access to modern educational resources (textbooks, guides, multimedia) and stable digital platforms for blended or online learning. Simultaneously, support teachers in developing digital literacy and pedagogical skills for integrating technology, so that they can confidently use ICT tools to enhance learning.

5.**Policy and curriculum development:** Strengthen adult education through supportive policies and curriculum design. Educational authorities should emphasize teaching quality, continuous teacher training, and greater institutional autonomy in adult education frameworks. Teacher education curricula (both pre-service and in-service) need to integrate core andragogical competencies, tailoring training programs to the diverse contexts of adult and vocational education. Such policy and curricular initiatives should account for the unique challenges of teaching adults and ensure that educators are equipped to overcome those challenges in practice.

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THE ROLE OF THE PEDAGOGUE IN THE INTERCULTURAL TRANSFORMATION OF THE SCHOOL

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ABSTRACT:

Interculturalism as a global tendency opens a platform for diverse pedagogical approaches aimed at incorporating diverse intercultural elements into the educational process. A series of modern perceptions of intercultural education highlight the need to promote a cross- curricular approach as a reflection of the holistic promotion of a system of values, such as: respect, understanding, tolerance, solidarity, empathy, helping, promoting all kinds of otherness. Intercultural initiatives in schools should contribute to strengthening natural, spontaneous, frequent interaction between cultural, social, linguistic, religious, ethnic differences, which will result in multidirectional networking of the same. In conditions when multicultural school contexts are predominantly encountered, the question arises about the role of pedagogues as visionaries and leaders of intercultural transformation. Through qualitative research, the steps and activities of this complex process led by school pedagogues in three school contexts, i.e. two primary municipal schools in urban areas (Skopje, Tetovo) and one rural primary school (Konche municipality) were followed. The school pedagogues in the three educational institutions have been involved in implementing a range of activities to support intercultural values for more than five academic years. Through analysis of rich pedagogical documentation, participatory observation, semi- structured interviews, the following aspects were followed:

- categories of support and activities implemented by pedagogues during planning, implementation and evaluation of intercultural initiatives,
- the influence of pedagogues on the teaching staff in the process of personal and professional transformation, as a prerequisite for intercultural education and education,
- dynamics of intercultural transformation and overcoming barriers in the school environments.

The results unequivocally emphasize and highlight the crucial role of pedagogues in maintaining a long-term, systematic and planned orientation towards intercultural efforts. The transformation of program goals into the components of the school's mission and vision, i.e., into the ethos of the school, is recognized as the ultimate benefit.

Keywords: *intercultural transformation, school pedagogues, obstacles, intercultural ethos, otherness*

Introduction

Starting from a clear terminological distinction between two concepts: multiculturalism, versus interculturalism, it is necessary to objectively perceive the positions of the Macedonian educational system through the prism of this complex aspect. Taking into account the characteristics

of multiculturalism, as an idea for promoting respect, tolerance, understanding between several cultural groups present in a common territory, but it is extremely important to emphasize that the absence of interaction, connection, spontaneous exchange of cultural values, this concept exposes to critical reflections on its shortcomings. (Barrett, 2013) The same are absolved with the support of intercultural steps, which are based on multi-directional communication, exchange, influences between diverse cultural, social, ethnic, linguistic groups and sub-groups, concentrated in a common space.

Bearing in mind the above-mentioned specifics of the two (social, but also educational) concepts, and in an attempt to outline the contours of the current circumstances in our educational system, it is observed that the ideas for multicultural education are predominantly recognized in primary schools, with rare examples of good, long-term and sustainable intercultural practices. In such an educational environment, a key step is to initiate a process of transformation from multicultural to intercultural school approaches. School pedagogues play a leading role in this complex and sensitive step, taking into account their role as visionaries, strategists, planners, motivators, evaluators of educational practices. With their planned, systematic and long-term engagement in this sphere, the transformation of multicultural elements into intercultural components in school environments can be successfully designed and traced.

Review of the legal framework

The intercultural dimension in the Macedonian educational context is highlighted and emphasized as a paradigm, especially in the past decade, as a response to the current domestic circumstances in a multicultural, multilingual and multi-confessional social community and context. A series of official documents reflect this commitment, starting from the current legal framework, where in the Law on Primary Education the same is emphasized through several formal provisions. Thus, interculturalism is embedded as one of the principles (Official Gazette of the Republic of North Macedonia, Article 4, No. 161/19, 229/20, 3/25) oriented towards the promotion of similarities and the acceptance of differences, which can be correlated with the foreseen anti-discrimination policies defined in the postulates of primary education. They are built in the direction of prohibiting any direct or indirect discrimination, based on gender, race, skin color, national or ethnic origin, disability, citizenship, social origin, education, religion or religious belief, political belief, other types of beliefs, age, family or marital status, property status, health status and social status or any other basis (Official Gazette of the Republic of North Macedonia, Article 5, No. 161/19, 229/20 and 3/25).

The Conception for Primary Education (2021) also emphasizes the importance of promoting inclusion, gender equality and interculturalism, as a prerequisite for social cohesion and the development of intercultural competencies among students. In this direction, the recommendations of the Concept for extracurricular activities in primary education (2020) were created pointing out the need for multi-directional student interaction, as a prerequisite for supporting intercultural

values in educational contexts. Document: Indicators for the quality of work of schools (2019) is in synergy with the stated projections, emphasizing the need for continuous monitoring of students' intercultural competencies, as drivers and indicators in several areas (curricula and programs; student achievements; learning and teaching; student support; school climate; resources; management, leadership and policy making).

All these formal preliminary steps were the basis for synthesizing intercultural initiatives into a detailed presentation through Standards for Intercultural Education (2021), as a cross-section of standards that should be implemented across multiple areas during primary education, i.e.: cultural identity; multiculturalism; interculturalism; social justice and equality; stereotypes and prejudices; peace and peaceful conflict resolution; globalization. It is inevitable to mention the National Strategy for the development of the concept of one society and interculturalism (2019), which includes seven clusters: legal framework,education, culture, media, local self-government, youth, social cohesion and integration. The planned activities in the action plan for the education cluster are closely related and reflect the fragments of all the above-mentioned official and current conceptual sources, which creates space and a platform for dynamic action and increased support for initiatives with an intercultural connotation, especially in primary education.

Intercultural competencies of pedagogues

The development of an intercultural image of primary schools implies a set of competencies that the school pedagogue, as a professional associate, should possess and practice. Modern pedagogical sources emphasize the need for the development and nurturing of competencies in the intercultural domain, and are most often classified into three categories (Huber, 2014): *attitudes* (openness and respect for differences; curiosity to explore cultural specificities; willingness to cooperate, etc.); *knowledge and understanding* (awareness and understanding of sources of stereotypes, prejudices, discrimination against certain categories of people; understanding the specifics of verbal and non-verbal communication in different cultural-social contexts; knowledge of cultural diversity in local conditions, but also at the global level, etc.) and *skills* (empathy; cognitive flexibility; multi-perspectivity; bilingualism, multilingualism; critical assessment, etc.).

The document created in our educational context: Basic professional competencies and standards for professional associates (2016), organized in the following areas: work with students; work with teachers; work with parents; cooperation with the community; professional development and professional cooperation; analytical-research work and school structure, organization and climate, opens space for incorporating intercultural reflections and ennobling them with aspects that refer to the promotion and respect of diversity, otherness. At the same time, another important observation must be emphasized, that is, the intercultural transformation of the school, under the professional guidance of the pedagogues, should unite the program activities that will reflect all the above-mentioned areas, because only with a holistic approach will all stakeholders, factors and pedagogical processes be involved in dealing with multifaceted challenge.

Basics of a research framework

A series of project initiatives and activities in the field of multiculturalism, interethnic integration, bilingual integrated education, intercultural upbringing and education, etc., have been intensively implemented in the past two decades. Some of them have been implemented with observed and clearly established dynamics, while our educational process has also witnessed the organization of short-term, occasional steps in the field of multicultural and intercultural action.

Our research interest was focused on monitoring and precisely detecting and outlining the role of pedagogues in the intercultural transformation of schools. This is where the need arose for clearly defined indicators according to which it would be followed. Modern pedagogical intercultural strategies (UNESCO guidelines on intercultural education, 2015) unambiguously point out the following aspects as indicators of the desired transformation, namely:

- openness of the curriculum for intercultural interventions,
- didactic-methodical articulation,
- didactic resources, sources,
- language/s of instruction,
- school climate,
- support and training of teachers,
- links between the school and the community (parents, local municipal authorities, line ministries, etc.).

Given the complexity and sensitivity of the topic, the research conducted is of a micro qualitative nature. It covered three primary schools, whose intercultural transformation began as part of the Nansen Model for Intercultural Education project, implemented in cooperation with the Ministry of Education and Science, in the period from 2017 to 2022, whose primary goal was to support the design and nurturing of an intercultural ethos in school environments. Two primary schools were from urban areas, namely the city of Skopje and the municipality of Tetovo (western part of the country), while the third school was located in a rural area, the municipality of Konche (eastern part of the country).

The "Bratstvo" primary school from the municipality of Karposh organizes an educational process in Macedonian and Albanian, just like the "Lirija" school from Tetovo, while in the "Goce Delchev" school, municipality of Konche, the teaching process is carried out in Macedonian and Turkish. All three educational institutions are characterized by a heterogeneous ethnic composition of students and teachers, while the difference could only be seen in the number of enrolled students (PS "Lirija", Tetovo - over 1100 students, PS "Bratstvo", Karposh - over 700 students and PS "Goce Delchev", Konche - over 300 students). Women are employed as pedagogues in the three schools, two of them Macedonians, one Albanian. Their work experience, in that period, was of different duration, i.e. the pedagogue from the Tetovo primary school had up to 5 years of experience, the pedagogue from the municipality of Konche had up to 20 years of experience, while the pedagogue from the Skopje school had the longest experience, up to 30 years. All three

were initiators for the inclusion of their home schools in the above-mentioned project activity, in the public call, published in cooperation with the line ministry in 2017. Also, their engagement in supporting the project's intercultural efforts lasted in continuity through the five academic years, which gave them the opportunity for a rich cross-section of the transformative developmental phases in school environments.

The goals of the research were:

- defining the types of activities undertaken by pedagogues in order to managing the intercultural design of the educational environment,
- illuminating the influence of pedagogues on the teaching staff in the process of personal and professional transformation, as a prerequisite for intercultural education,
- identifying sources of barriers to intercultural action in the school,
- perceiving the dynamics of intercultural transformation in a five-year period.

The hypotheses that guided the research are as follows:

- pedagogues continuously undertake a series of diverse activities that reflect different program areas,
- pedagogues have a leading role in motivating, supporting, advising teachers on various aspects of intercultural education,
- the most common barriers arise as a result of political negative influences, such as at the local as well as at the national level,
- an intercultural ethos in schools can be recognized after three years of permanent and planned action.

The qualitative research was conducted through analysis of the intercultural dimension in rich and diverse pedagogical documentation (annual work programs of schools, daily lesson plans of teachers for teaching and extracurricular activities, programs for cooperation with parents, programs for training teachers and professional staff, reports from integral evaluations, international evaluations, etc.), participatory observation (of part of the teaching and extracurricular activities, design of the school space in order to determine the representation of intercultural components, etc.), semi- structured interviews (with school pedagogues throughout the academic years 2017/18-2021/22, as a review of the dynamics with which intercultural transformation is initiated; on barriers, challenges in this process; on the impact they have on the professional and personal change, upgrading of teachers, as drivers of the process).

Research findings

The research made it possible to arrive at a clear picture of the entire range of activities that school pedagogues plan, initiate, implement, monitor and evaluate in order to support intercultural initiatives. In all three schools, the pedagogues confirmed that in their annual work programs they find enough space to incorporate intercultural elements in all defined areas of activity, i.e.:

- work with students (with a range of activities such as: organizing students into groups for extracurricular activities with a bilingual approach; planning and implementing workshops, events, open days to support universal human values, anti-discriminatory school practices, as well as overcoming stereotypes and prejudices; enabling students to peacefully resolve conflict situations; involving students in designing and preparing intercultural design of the school space);

- work with teachers (with a series of activities such as: supporting teachers to monitor pedagogical innovations and modern didactic-methodical approaches enriched with intercultural elements; organizing counseling, workshops, support for professional activities, etc. for cross-curricular planning and operationalization of intercultural educational initiatives; support in cooperation with parents, as partners in intercultural education; sensitizing teachers to   sources of stereotypes and prejudices in ethnically heterogeneous school environments, as well as for applicable pedagogical solutions to overcome them; promoting bilingual component in teaching and extracurricular activities; supporting teachers in developing a positive and safe socio-emotional climate in classrooms and the school, etc.);

- work with parents (a set of activities, such as: presentations, open days, workshops, individual counseling for inclusion, motivating parents for positive perception and proactive attitude towards intercultural initiatives in the school, as well as for supporting an impartial attitude towards the diversity present as in the immediate environment, as well as more broadly);

- cooperation with the community (activities to promote cooperation with representatives of the local business community as promoters and supporters of intercultural steps in the school; cooperation with civil sector organizations in the field of interculturalism; deepening cooperation and relations with cultural, scientific institutions, such as museums, archives, libraries, etc. that can contribute to long-term promotion of intercultural education);

- professional development and professional cooperation (activities that emphasize the importance of continuous personal professional development through participation in relevant trainings, counseling, webinars, forums, professional associations and groups that are profiled in the domain of intercultural education; dissemination of the same among teachers, in order to motivate them, encourage them to do the same);

- analytical-research work (activities dedicated to regular writing and analyzing planned and realized cross-curricular, extracurricular content with intercultural significance; analysis of the socio-emotional climate in the classrooms and groups participating in extracurricular activities; monitoring interpersonal relations and relationships in the collective; analysis and research of sources of stereotypes and prejudices in the school; monitoring categories of diversity present in the school context, etc.);

- school structure, organization and climate (activities that support universal humane values, gender sensitivity, prevention of discrimination, solidarity, etc.).

All these detailed findings obtained through the analysis of pedagogical documentation, as well as through a semi-structured interview, lead to the conclusion that the first hypothesis is fully confirmed, which emphasizes the continuity and diversity of activities undertaken by pedagogues in order to support school intercultural initiatives, as a basis for further transformation of the school from a multicultural to an intercultural micro-community.

In support of this conclusion, it can be emphasized that the pedagogues in all three of the above-mentioned schools had a key, leading, dominant and continuous role in guiding, advising, supporting, organizing the teaching staff in their personal and professional transformation for many sensitive aspects of intercultural education. In the mentioned schools, the pedagogues contributed to the teaching staff being permanently covered for several years with months-long training on intercultural approaches, where a systematic approach was observed through gradual inclusion, first, of class teachers, and then subject teachers. The school pedagogues were the main initiators for the introduction on bilingual extracurricular activities as a form of integration into the home schools, helping with the management of the necessary space, materials, schedule, but above all, with the formation, support, motivation of bilingual teaching teams. With this, the second hypothesis is also confirmed.

Unlike the previous two hypotheses, the third is partially confirmed, that is, through a semi- structured interview with the pedagogues and through participatory observation, insight was gained into other factors that negatively affect intercultural initiatives (in addition to political influences at the local and national level, especially in conditions of pre-election periods, changes in municipal structures, etc.). The pedagogues unequivocally emphasized that negative reflections are also created by media content (especially information that is massively available through social networks used by students), and they also pointed out the influence of stereotypes and prejudices that fluctuate at the level of their local communities, as a kind of transgenerational heritage. In this corpus of causes and challenges for the intercultural transformation of the school, they also highlighted the fact of changes in the structure of the teaching staff, as the bearer and driver of interculturalism in school contexts, as well as a greater number of subjects in subject teaching classes, which organizationally further complicates the steps towards intercultural transformation.

The fourth hypothesis, which emphasized the three-year period as optimal for expecting intercultural changes in the ethos of the school, can also only be partially accepted, because the statements of the pedagogues indicated their caution and awareness that in three years initial efforts can be made to animate the teaching staff, groups of parents and students for initial attempts and establishment of initial dynamics for intercultural educational activities. These efforts, although initial, according to the pedagogues, are key to raising awareness of the importance and need for them, while their continuous promotion and implementation would create more favorable conditions for further deeper transformation. Through a semi-structured interview, the pedagogues

shared their dilemmas regarding the time frame, so the reflections gravitated around a potentially minimum of seven years of practicing this pedagogical approach, in order to obtain the necessary mass and coverage of the majority of students and teachers from classroom teaching and at least half of the total number of teachers and students in subject teaching. The pedagogues also emphasized that they can locate the easiest and fastest change in relation to the intercultural design of the school space, as one of the components of the school ethos, which as a transformation is both easily visible, but also temporally and content-wise amenable to efficient management by the pedagogues who in all three schools, almost independently, led the process (with support from the school administrations).

Concluding observations

Intercultural transformation of schools is an extremely complex and long-term process, which should be an imperative for all school environments, regardless of the ethnic structure of students and teaching staff. The same stems from modern perceptions of intercultural upbringing and education, which emphasize the need for intercultural sensitization of all categories of students, bearing in mind that intercultural education must not be limited only to racial and ethnic issues, but opens a platform for support of all kinds of diversity and otherness, understood as a challenge, and not as a barrier to cultural cooperation, interaction, exchange. All this implies a strategic design of the algorithm for intercultural transformation of the school, which can be one of the pillars in the professional work of pedagogues, as a prepared and called profile for managing a long-term and systematic process of transition of schools from multicultural positions to intercultural ethos.

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TEACHERS' PERSPECTIVES ON THE ROLE OF LEADERSHIP IN SUPPORTING THE INTEGRATION OF STEAM EDUCATION IN EARLY CHILDHOOD SETTINGS

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ABSTRACT:

Early childhood education is undergoing significant transformation as global learning frameworks increasingly emphasize creativity, collaboration, digital literacy, and problem-solving. In Kosovo, schools are aligning with these international standards while navigating structural and developmental challenges. This study examines teachers' perspectives on the role of educational leadership in supporting the integration of STEAM (Science, Technology, Engineering, Arts, and Mathematics) education in early childhood and lower primary settings in Pristina.Using a quantitative approach, data were collected through questionnaires from a sample of 60 teachers to explore how leadership practices influence teacher motivation, professional growth, and readiness to implement STEAM-based learning. The findings indicate that teachers generally hold positive attitudes toward STEAM integration and recognize leadership support as a crucial factor in its success. More than half of the respondents reported that their leaders promote STEAM and encourage interdisciplinary methods, while approximately 77% felt more motivated when supported by their leaders.Despite these positive perceptions, challenges remain, including limited participation in formal STEAM training, insufficient professional development opportunities, and constrained preparation time. The results underscore that effective leadership enhances teachers' motivation, confidence, and readiness to implement STEAM, but sustained institutional support—through continuous professional development, adequate resources, collaborative planning, and a shared school vision—is essential for the successful and sustainable integration of STEAM in early education.

Keywords: *STEAM education, leadership, motivation, professional development, early childhood education*

Introduction

The integration of STEAM education into early childhood and primary education has gained increasing attention in recent years. Kosovo, as a country with a developing education system, is aligning its preschool and primary frameworks with international standards to cultivate lifelong learners and students capable of participating in global knowledge economies. Effective implementation of STEAM, however, as in other countries, as well as in Kosovo, depends not only on curriculum design, but also on leadership practices that guide and support teachers in this process. School leaders play a critical role in shaping institutional culture, fostering collaboration, and providing opportunities for professional learning that enable teachers to adopt innovative pedagogical approaches.

Previous studies (e.g., Harris, 2014; Moomaw, 2020) highlight that supportive leadership positively impacts teacher motivation, willingness to change, and overall teaching quality. However, challenges such as limited training, lack of time, and insufficient institutional support often hinder the full realization of STEAM goals.

This study aims to examine teachers' perspectives on how leadership practices facilitate or constrain the integration of STEAM education in early childhood and lower elementary settings.

Integrated STEAM education

STEAM Education is an approach to learning that uses Science, Technology, Engineering, the Arts and Mathematics as access points for guiding student inquiry, dialogue, and critical thinking (IAI, 2014).

STEAM education fosters creativity, critical thinking, and innovation in students. It equips them with the skills needed to thrive in a rapidly evolving world (Neese, 2023).

Oriented towards developing students' problem-solving abilities, STEAM education is beneficial for students' creative problem-solving ability. STEAM teaching idea has been applied in the curriculum of primary and secondary schools (Xuejiao Yin, 2021). STEAM is a developing educational model of how the traditional academic subjects (silos) of science, technology, engineering, arts and mathematics can be structured into a framework by which to plan integrative curricula (Yakman G. , 2008).

Previous Studies on Teachers' Perceptions about Integrated STEAM Education

The growing importance given to the development of STEAM abilities to address current and future challenges has led to concerns about educational environments, and with it, the relevance of having teachers with the necessary knowledge and skills to design and implement STEAM learning sequences (Marcela Silva-Hormazabal, 2023).

A systematic review of 25 studies highlights that teachers' beliefs, perceptions, and knowledge influence how they design and implement integrated STEAM teaching activities.

Teachers express that the integrative nature of STEAM is beneficial for students and influences their motivation.

Regarding implementation barriers, teachers identify traditional school structures as a challenge when it comes to implementation. Additionally, the integrated nature of STEAM is seen as a challenge in itself by the teachers, both in terms of implementation and evaluation, recognizing factors that influence it, such as the lack of quality assessment tools, planning time, and knowledge of STEAM disciplines. Another factor they perceive is the need for support and guidance from principals, as well as flexibility for implementation. They also mention that a quality curriculum would improve the chances of success for initiatives. Finally, teachers believe that it is important to have continuous teacher development opportunities to successfully implement STEAM initiatives in the school context (Marcela Silva-Harmazabal, 2023).

Despite international efforts and reforms to promote STEM education, many authors still argue it is a challenge to concretize this goal, especially at the primary school level (Breiner, 2012; Osborne & Dillon, 2008). A possible explanation for this challenge is related to the need for a robust Content Knowledge about the subject matters to integrate by teachers (English, 2017; Kim & Bolger, 2016). In this regard, it is necessary to develop adequate PDP (Desimone, 2009), including workshops in a collaborative learning environment, where teachers can practise what they are expected to implement in the classroom (Afonso, Neves & Morais, 2005).

Research shows that leadership in schools is crucial to contribute to the efficacy of teachers' PDP. In fact, it is much more likely that the teachers will use the ideas and strategies of a PDP when they are aligned with the priorities of the respective leaders (Desimone & Garet, 2015).

The district and school leaders' support and enthusiasm in teachers' motivation for PDP is crucial to develop their ability and willingness to innovate their practices (Maria Cristina Oliveira da Costa, Antonio Manuel Dias Domingos, 2019).

Methodology

The objective of this study is to examine teachers' perspectives on the role of educational leadership in supporting STEAM integration.

The research aims to identify the leadership approaches that teachers perceive as helpful in fostering innovation and professional development, as well as the challenges they experience in this process.

<u>Research questions</u>

- How do teachers perceive the role of school leadership in supporting the integration of STEAM education?
- How does school leadership influence teachers' access to and participation in STEAM-related professional development?
- What challenges and opportunities do teachers perceive in the process of integrating STEAM according to current leadership practices?

<u>Research design</u>

A quantitative approach was used. Questionnaires were distributed to kindergarten, pre-primary, and grade 1–5 teachers to assess their perceptions of leadership effectiveness, motivation, and professional development opportunities related to STEAM.

Results

Table 1. Participant Demographics (N = 60)

Characteristic	Category	Frequency (%)
Gender	Female	57 (95%)
Gender	Male	3 (5%)
Experience	0–5 years	23 (38.3%)
Experience	6–10 years	19 (31.7%)
Experience	11–15 years	2 (3.3%)
Experience	Over 15 years	16 (26.7%)
Teaching level	Kindergarten	21 (35 %)
Teaching level	Preschool group	24 (40 %)
Teaching level	Grades 1–5	15 (25 %)

The demographic profile of the participants shows patterns that are consistent with global trends in early childhood and primary education. The overwhelming majority of female teachers (95%) reflects the gendered nature of early childhood education, a tendency widely reported by international data (OECD, 2021). This gender distribution suggests that the findings are strongly representative of the typical workforce in this educational level.

Furthermore, a considerable proportion of teachers possess substantial experience over 26% have more than 15 years of teaching. Previous research has shown that experienced teachers can be either strong adopters of innovation when supported adequately, or more hesitant if institutional structures are weak (Kelley & Knowles, 2016). Therefore, this experience profile may have influenced teachers' perceptions regarding both opportunities and challenges related to STEAM integration.

Table 2. Key questionnaire findings (selected Likert items)

Statement	Agree/Completely Agree (%)	Neutral (%)	Disagree/Completely Disagree (%)
Leader supports STEAM integration	~56%	~30%	~14%
Leader encourages interdisciplinary methods	~73%	~22%	~5%
Teachers more motivated with leader support	~77%	~22%	~1.7%
Leader provides PD opportunities	~36%	~35%	~28%
Have participated in helpful trainings	~14%	~11%	~75% (no)
Motivated to include STEAM in daily plans.	~50%	~25%	~25%

The results of the questionnaire show that teachers generally hold a positive attitude toward the integration of STEAM education and consider leadership support a key factor in its implementation. More than half of the respondents (around 56%) agree that the leader of their institution supports the integration of STEAM education and encourages the use of interdisciplinary methods in teaching, reflecting a leadership approach that promotes innovation and collaboration. Teachers' motivation is closely linked to the support they receive from their leaders: about 77% stated that they feel more motivated to integrate STEAM when they have leadership support. This aligns with the literature on transformational and distributed leadership, which highlights the role of supportive leadership in improving motivation and fostering innovation (Harris, 2014).

However, the data also reveal a significant implementation gap: while motivation is high, only 36% of teachers feel they receive adequate professional development, and 75% report not having participated in any meaningful STEAM-related training. This gap reflects similar challenges documented by (Kelly & Kettler, 2019), who argue that teacher willingness alone is insufficient without structured professional learning, resources, and leadership guidance.

This discrepancy suggests that while teachers' motivation is relatively high—often influenced by leadership encouragement and support—their practical engagement and success with STEAM remain limited. The findings imply that leadership support may enhance teachers' motivation, but sustained and structured guidance, along with professional development opportunities, are essential to translate that motivation into effective implementation. The findings also highlight a discrepancy between what teachers want to do and what they are able to do within current institutional conditions. This reinforces the need for systematic, rather than sporadic, leadership support.

The questionnaire included three open-ended questions that addressed three distinct aspects: the main advantages of integrating STEAM education, the key challenges in its implementation, and the type of support teachers would like to receive from their leader to further develop STEAM-based teaching.

Table 3. Summary of teachers' responses to open-ended questions

Question	Main points from responses
What are the main advantages of integrating STEAM education?	Enhances teaching effectiveness and creativity; promotes critical thinking, collaboration, and real-world problem solving; prepares students for the 21st century and future careers; increases student motivation and interest; connects theory with practice.
What are the main challenges in implementing STEAM education?	Lack of STEAM-related training; insufficient resources and equipment; limited dedicated spaces; rigid curricula and difficulties in assessing practical skills; limited time; inadequate support; overloaded curricula.
What additional support would you like from your leader to develop STEAM teaching?	More professional training, equipment, and planning time; encouragement for innovative projects; continuous motivation; technological support.

Teachers' responses to open-ended questions provide deeper insight into their perceptions of the advantages, challenges, and needs of STEAM. The advantages they identify - enhanced creativity, critical thinking, collaboration, real-world problem solving, and student motivation - are consistent with the benefits highlighted in prior research on STEAM education (Yakman, 2012). This suggests that teachers not only understand the pedagogical value of STEAM but also recognize its potential to enrich student learning.

Nevertheless, teachers note numerous challenges, many of which are structural rather than individual. These include lack of training, insufficient resources, limited physical space, rigid curricula, and lack of time—issues that mirror findings from (Watson, 2013) who argue that STEAM implementation is heavily dependent on institutional readiness and systemic support.

The strong emphasis on the need for leadership support—more training, resources, planning time, and encouragement—indicates that teachers view school leaders as key agents in facilitating or obstructing STEAM integration. This aligns with the broader literature suggesting that leadership plays a central role in creating the conditions necessary for interdisciplinary and innovative instructional practices (Harris, 2014).

Conclusion

This study examines teachers' perspectives on the role of educational leadership in facilitating STEAM integration in early childhood and lower primary settings in Prishtina. The findings directly address the research questions and offer clear insights into how leadership shapes the conditions for effective STEAM implementation.

Regarding the first research question, teachers perceive school leadership as a crucial factor influencing their motivation, confidence, and readiness to adopt interdisciplinary approaches. Many reported increased motivations when leaders encouraged innovation, supported interdisciplinary practices, and acknowledged their efforts—aligning with literature emphasizing the importance of transformational and supportive leadership.

In relation to the second research question, the study shows that limited access to STEAM-related professional development remains a significant barrier. Teachers emphasized the need for structured and continuous training, indicating that leadership plays a central role in enabling or restricting such opportunities.

The third research question is addressed through the identification of both opportunities and challenges within current leadership practices. While teachers recognize the strong pedagogical value of STEAM—particularly in promoting creativity, critical thinking, collaboration, and student engagement—they also face persistent structural barriers such as inadequate resources, limited teaching spaces, time constraints, and inconsistent professional development.

Teachers' responses highlight the need for sustained leadership support, including targeted training, improved resources, dedicated planning time, technological assistance, and opportunities

for collaboration. Such measures are essential to build organizational readiness for meaningful and sustainable STEAM integration.

In conclusion, although teachers show strong motivation and understanding of STEAM's benefits, successful integration depends on consistent and effective leadership support. Strengthening leadership practices, providing structured professional learning pathways, and addressing systemic resource limitations are key steps toward the long-term integration of STEAM in Kosovo's early and primary education systems. These findings carry important implications for policymakers, school leaders, and educational stakeholders committed to advancing STEAM as a central component of contemporary teaching and learning.

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WHAT DOES IT TAKE TO IMPROVE LEARNING OUTCOMES AND QUALITY IN EDUCATION IN NORTH MACEDONIA

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ABSTRACT:

Our country faces a declining school-age population, partly due to internal migration to urban centers and external migration of families and young graduates. This situation requires reshaping the educational landscape and finding efficient ways to deliver school services to all. Children's learning experiences across key domains (language, communication, numeracy and science) at early age are inconsistent and of insufficient quality to promote the development of key readiness for school skills and abilities. Results in international student assessments reveal comparatively weak levels of student achievement in primary grades, suggesting that learning deficiencies start early. Gaps that begin in the early years can be hard to close, especially for children who are vulnerable and/or from poorer communities. The education system fails to provide students with the skills they need to successfully complete each stage and move confidently to the next.

Assessing the level of learning outcomes is of outmost priority, in order to enable improved system and capacities for functional and effective data collection and analysis in a harmonized manner (at school, local/municipal and national levels). Educational system has to create effective feedback mechanisms between institutions responsible for assessment and evaluation, on the one hand, and schools on the other, with a particular focus on developing competencies and defining responsibilities in the evaluation process. This will provide efficient identification of challenges, but at the same time guidelines on priority areas for urgent actions and policy measures.

Key words: *learning outcomes, data analysis, quality, equity, knowledge gaps*

Introduction

A quality education system should result in the acquisition of key competences and professional skills that foster people's social responsibility and civic engagement, convey human values, as well as supporting their personal growth and well-being. Each educational system that strives to achieve quality have to collect data and observe trends according to which it can be assessed. In this paper when discussing about quality in education we rely on available data and analysis of learning outcomes and student achievements that reflect system effectiveness in order to provide the core evidence of where the system is failing or succeeding in delivering knowledge and skills. Part of this analysis was made for the IIEP/UNESCO Education Sector Analysis in

North Macedonia (IIEP-UNESCO, 2024) document prepared in cooperation with the Ministry of education and science of North Macedonia. This document contains data from multiple existing student assessments conducted throughout the general education system (e.g. pre-school, primary, secondary) and data and information collected from different sources: national legislation, policy documents, OECD, Eurydice - European Commission, UNICEF, World Bank, Multi Indicator Cluster Survey – MICS, National Examinations Centre, State Statistical Office and others.

The concerning trend of having our students score bellow their peers in international measurements, initiates thinking in what can be done to bypass the challenges our system faces. The latest Programme for International Student Assessment (PISA 2022) results (OECD, 2023a; OECD, 2023b) show that only 26% of students in North Macedonia attained Level 2 or higher in reading compared to 74% of OECD average, and some 35% of students in North Macedonia attained Level 2 or higher in science in difference to OECD average of 76%, and almost no students scored at Level 5 or higher in reading (OECD average: 7%) similarly to science where almost no students were top performers, meaning that they were proficient at Level 5 or 6 (OECD average: 7%). The data about the achievement in mathematics is similar of having 34% of students attained at least Level 2 proficiency in mathematics, but this was again significantly less than on average across OECD countries (OECD average: 69%). In mathematics we have some 1% of students in North Macedonia being top performers, meaning that they attained Level 5 or 6 in the PISA mathematics test compared to OECD average of 9%.

Many different international and national assessments reveal the pitfalls in learning outcomes and raise concerns about the quality of the education system comparing it to other systems where students attain much higher results. This situation causes concerns and leveled up on the political agenda following many expert discussions and debates on what can assist in changing the overview of the educational sector. This paper addresses facts about having a situation in which our country has achieved near-universal access to education, but is facing systemic quality deficiencies, driven by resource inefficiency and inequity. Another set of factors such as challenge in planning and implementation of a curriculum based on the key competences for lifelong learning, inconsistence with assessment, poor to weak institutional support for ensuring quality due to lack of an independent voice and vital resources, need another type of analysis, but altogether tackle challenges head-on, with an in-depth and cross-sectoral understanding of what is needed to continue to build on the progress and to foster efficiency, accountability, and quality across the sector.

Facts are speaking when looking beyond numbers

Most levels of education have seen a decline in the number of students over the last 10 years, driven by a declining school age population in our country.

Figure 1. Number of students by level and year and percentage change, 2012–2022
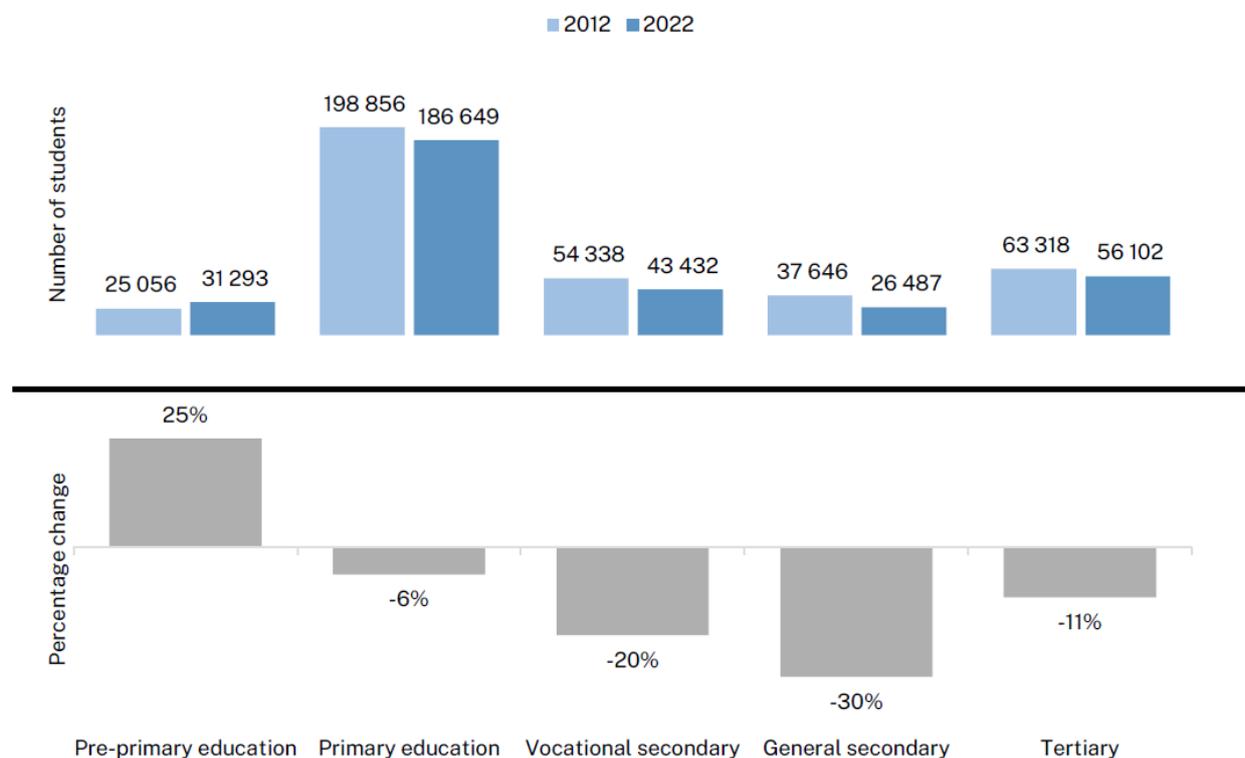
Despite this, North Macedonia has seen a positive increase in enrolment ratios over the last 15 years, with levels almost reaching 100% for primary education in 2022. However, levels for pre-primary remain low (with a coverage of 27% in 2022) despite huge improvements, given its low starting level (11% in 2006).

If we analyze data for the class size, we have an interesting trend over the past decade showing that class sizes have dropped to reach 16.7 (2022) in primary and 19.6 (2023) in secondary education. These levels are below the norm set by the Law on Primary Education, which prescribes that each class should have at least 20 students. Only 17% of municipalities do meet this requirement, with the majority of municipalities (42%) having an average class size of between 11 and 15 students (UNICEF, 2022b). While the number of students in primary education has decreased by 24%, the number of teachers has increased by 43% over 2002–2022. Similar trends are observed in secondary education, with respective figures of -23% and -28%. Decreasing the student teacher ratio makes the running of schools very costly, while not warranting higher learning outcomes as PISA results in the Western Balkans suggest that neither smaller school sizes nor lower student-teacher ratios lead to improvements in learning outcomes.

So, there is a need for a more thorough look at analysis of data from many assessments to provide better evidence of the challenges that our educational system has. Domestic and international student assessments highlight weak foundational competencies. Learning deficiencies start early in the early years, with many children entering primary school not ready, and persist through to later grades. The education system fails to provide all students with the skills they need to successfully complete each stage and move confidently to the next. For example, in pre-primary education, the Measuring Early Learning Quality and Outcomes (MELQO) (Ministry of Labour and Social Policy & World Bank, 2023) instrument for pre-school children aged 3–6 years, implemented in 2022 in our country supported through the World Bank assistance, shows that, as children grow older, their progression in learning increases, with more and more children moving away from 'emerging readiness' and towards 'demonstrates readiness'. However, many children at the end of pre-primary are not fully school-ready. Four per cent of children aged 5–6 are still falling below 'emerging readiness' and 52% are 'developing readiness', which could highlight some quality issues.

In primary education, the Multiple-Indicator Country Survey (MICS) 2019 data(UNICEF, 2019a) shows that only 28.5% and 60.4% of children in second and third grades respectively had foundational reading skills. Even more worrying facts relate to children's numeracy skills, with only 11.1% and 38.4% of children in second and third grades respectively having foundational numeracy skills. This means that pupils tend to retain their weaknesses as they move to the next grades. Of major worry is that, by the end of primary education, not all children master full early literacy and numeracy skills, entailing that weakness tends to remain as they move to the next grades. By Grade 9, 79.7% of children demonstrated foundational reading skills, and 46.9% demonstrated foundational mathematics skills (IIEP-UNESCO, 2024).

At secondary level of education our students confirm the pattern of scoring lower than the OECD average in the PISA testing in core subjects: reading, science and mathematics:

Table 1. PISA scores by region, 2015, 2018 and 2022

Year	Science	Reading	Mathematics
OECD average (2018)	493	493	490
EU (2018)	484	482	489
WB (2018)	408	402	414
North Macedonia (2022)[2]	380	359	389
North Macedonia (2018)	413	393	394
North Macedonia (2015)	384	352	371
Differences			
2018-2015	29	41	23
2018-OECD average	-76	-94	-95

Source: National Examinations Centre, 2018, and OECD 2023b (for 2022).

When observing the results, it is noticeable that there are disparities in the level of skills development and achievements that exist among students due to several factors that are external

to the school system but have a major effect on the skills and learning outcomes of children. These include students' gender, the socioeconomic status of the families, the education level of parents, the place where they live, and the ethnic and linguistic background of the family.

These factors tend to shape children's outcomes, which may necessitate active policy interventions to narrow and eliminate existing gaps. Table 2 offers a recap of disparities across the various assessments available from preprimary until entering secondary school, using a parity index.

The paucity of disaggregated data in reports did not allow for a proper mapping of disparities by equity dimensions. In addition, few statistical analyses to assess whether the differences observed were significant could be performed, limiting the scope of the analysis. With these limits in mind, few observations can be made. Girls outperform boys in most assessments, yet differences are in many cases small or marginal. As often seen in the literature, girls systematically outperform boys in reading and literature. In mathematics, the pattern is less clear.

Table 2. Recap of disparities across the various assessments using a parity index

Year/grade	Source	Indicator	Parity index				
			Sex Girls/ boys	HH wealth rich/ Poor	Location urban/ Rural	Linguistic Macedonian/others	Mother's education Higher/ primary and less
3-6 years old	MELQO 2022	Achieved, %			1.20	1.29	
3-4 years old	MICS 2021	ECD Index, %	1.18	1.35	0.97	1.43	1.26
6-14 years old	MICS 2019	Literacy, %	1.20	1.69	1.08	2.41	1.74
		Numeracy, %	0.76	2.03	1.13	2.71	1.82
Grade 3	EGRA 2015	Macedonian, %	1.06				1.43
		Albanian, %	1.03		1.98		1.27
Grade 3	EGMA 2015	Maths, %	0.99		2.00	1.02	1.27
Grade 4	TIMSS 2019	Score Maths	1.00	1.10		1.11	
		Score Science	1.03	1.13		1.13	
	PIRLS 2021	Score Reading	1.06	1.23			
15 years old (Grade 9)	PISA 2018	Score Reading	1.14	1.22			1.17*
		Score Maths	1.02				1.19*
		Score Science	1.05	1.15		1.13	1.20*
Grade 12	Matura 2021 /2022	Score	0.97				

Source: Authors calculations based on data from various assessments. See Table A3.2 in the annex for the underlying scores.

Note: Gender Parity index of 0.85: for 100 boys who are developmentally on track, there are 85 girls developmentally on track. A parity index between 0.97 and 1.03 entails parity. * PISA reconstructed results are related to *parents'* education.

Socioeconomic status is one of the strongest predictors of performance, with socioeconomically advantaged students outperforming disadvantaged students. Household wealth is positively correlated with higher levels of achievement, starting at ECE level, and continuing across the various education cycles. The effect on learning can be sizeable: in the PISA 2022 testing, socio-economically advantaged students (the top 25% in terms of socio-economic status) outperformed disadvantaged students (the bottom 25%) by 76 score points in mathematics (OECD,

2023a, OECD 2023b). Higher socioeconomic status is associated, among other things, with parents having a higher level of education and better-paid professions that lead to the availability and use of more education resources (books, games, etc.) at home, systematically associated with higher performances[1]. The positive effect of education resources at home is at play for all education levels, starting at pre-primary and through to secondary, as highlighted in all assessments reviewed.

The level of education of parents, and of mothers, is among the most prominent predictors of skills and learning achievements, positively affecting learning outcomes of children throughout their school career. The higher the level of parents' education, the higher the child's level of achievement; the effect is linear.

The urban-rural location is an important factor affecting children's achievement, although it may be compounded by other factors such as the socioeconomic status and education level of parents, and the quality of the school supply. All assessments reviewed, show that children living in urban settings tend to outperform their peers living in rural settings. This pattern prevails from ECE to secondary. Linear regressions conducted on TIMSS 2019 confirmed the importance of location in shaping the learning outcomes of students for mathematics, but not for science.

The ethnic and linguist gap persists throughout the education system and in general tends to favor Macedonian speakers over other linguistic groups. Roma children are also consistently lagging behind their peers, with significant gaps. Data shows the level of disparities in children's learning and development outcomes among 3-6-year-olds across ethnic and linguistic groups. Differences exist between ethnic and linguistic groups and inconsistencies across domains, with Roma children lagging behind in all domains. Ethnic and linguist disparities continue until the end of secondary, with some evidence suggesting that they tend to increase as students move up the education ladder. For example, in the TIMSS 2019 study, students taking the test in the Macedonian language score 24 and 39 points more in mathematics and science respectively, compared to students taking the test in the Albanian language. PISA results display a similar conclusion.

Factors affecting learning and skills development

A well-performing school is a school that first and foremost ensures that its students acquire what is expected of them at each school level. Beyond the availability of pedagogical inputs and school organization methods, it is the school's ability to help students progress that counts. In order to better identify, from among the various factors, those that are at play in affecting students' achievement, for the purpose of this analysis, there is a recap of factors that positively and negatively affect learning outcomes among 15-year-old students, using the PISA 2018 data.

School factors, such as the quality of the school environment, teachers' qualifications, and the organization of teaching and learning at school are positively affecting learning outcomes but are not that prominent. A quality educational environment (i.e. an advantaged school (assessed by

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[1] This pattern remains valid across countries and could partially explain the lower scores observed in North Macedonia, compared to OECD countries

the school's socioeconomic and cultural status, adequate level of infrastructure and equipment, adequate staffing in both number and quality)) is generally associated with more diverse and quality opportunities being offered to students to practice skills and develop higher capacities in learning, as is the school's teaching and learning organization (i.e. class size, student-teacher ratio). These all combine to offer students quality and diverse learning experiences that support educational success.

Table 3. Factors affecting students PISA score, by subject, 2018

Positive effect	Negative effect
Reading	
Student is female	Share of teachers with a master
Household socioeconomic status	Lack of teaching staff
Level of education of parents*	
Language at home is Macedonian	
Preschool (start age at 3 or 4)	Lack of educational material*
General stream (over VET stream)	Lack of physical infrastructure*
School socio-economic and cultural status	
Class size (small effect)	School size (small effect)
	STR (small effect)
Teacher fully certified	Starting preschool at 6 years old
STR2 (small effect)	
Math	
Household socioeconomic status	Student is female
Level of education of parents*	
Language at home is Macedonian	Share of teachers with a master*
General stream (over VET stream)	School size (small effect)
Teacher fully certified	STR (small effect)
Class size (small effect)	Lack of physical infrastructure*
STR2 (small effect)	Starting preschool at 6 years old
Science	
Student is female*	
Household socioeconomic status	Share of teachers with a master*
Language at home is Macedonian	School size (small effect)
General stream (over VET stream)	STR (small effect)
Teacher fully certified	Lack of physical infrastructure*
Class size (small effect)	Starting preschool at 6 years old
STR2 (small effect)	

Source: PISA 2018, Linear regressions. Authors' computation.

Note: * statistically significant at 10%, otherwise is at either 5% or 1%.

Discussion and conclusion

Our country has seen steady increase in levels of enrollment for all levels of education, although the biggest challenge continues to be enrollment in preschool age. At this age, children's learning experiences across key domains are inconsistent and of insufficient quality to promote the development of key readiness for school skills and abilities.Gaps that begin in the early years can be hard to close, especially for children who are vulnerable and/or from poorer communities. Disparities are identified at an early age, so it is very important to plan for continued efforts to broaden access to quality preschool education to ensure that children arrive ready for school. This could help consolidate progress by addressing disparities when they first emerge. Data that was analyzed pointed out that the readiness of children for primary school and their school performance later on can be improved through attendance on ECE programs. In addition, data confirmed that students who attend schools with many resources have higher achievements than those who attend schools with fewer resources.It is of the utmost importance to address factors (gender, urban-rural settlement, language of instruction, etc.) in curricula, teaching and assessment, schooling conditions, etc., to overcome existing gaps in students' achievement and prevent these becoming more pronounced as students progress through the system. Providing support for students from families with a lower socioeconomic background in theform of scholarships, free meals, school supplies, etc. could be of assistance in the short term, but in the long run the Government should establish an effective model for supporting low-achieving students to avoid children and students being left behind. This model must provide teachers with specific training to support students with learning loss through tutoring and one-to-one activities and introduce specific measures for learning recovery. This should start with identifying students with the highest learning loss and helping understand what students are missing, so that teachers can teach at the right level and cater to the specific learning needs of students (especially for key competencies such as literacy and mathematics).

In increasing quality, the emphasis should be put on equipping students with high-level cognitive and socio-emotional skills, while ensuring that the learning process is enjoyable and engaging for students so that they become lifelong learners. As part of this effort, the curriculum must be delivered in a way to help students develop into critical and reflective thinkers, as well as active and relevant participants in social and civil life.

The home learning environment and parental support in children's learning are important dimensions to consider, as favorable conditions can positively stimulate children's learning and foster higher learning outcomes, while poor conditions can be detrimental, starting already during the early years. Beyond learning activities at home, parental involvement in school activities can play a significant role in enhancing the learning outcomes of children, regardless of social and technical background. There is need to enable more efficient parent involvement in education through activities they are interested in, and which fit their schedule, which they are comfortable with and feel benefit their child and also provide support to parents to adequately support their

children's learning experience at home through various services: home visit services, helplines, community services and ensuring an equity approach in making support available to all parents and families with children, especially young parents and families in vulnerable situations.

Another important step is to deepen the analysis of factors influencing learning and development needs and strengthen coordination across all levels of education. Improving the system and capacities for functional and effective data collection and analysis in a harmonized manner (at school, local/municipal and national levels can contribute to evidence-based policy-making that is prerequisite for meaningful change and improvement.

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APPLYING MULTISENSORY APPROACHES FOR STUDENTS WITH DYSLEXIA

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ABSTRACT:

Dyslexia, a neurobiologically-based specific learning disability characterized by difficulties in accurate word recognition, spelling, and decoding, presents significant challenges in reading, writing, phonological awareness, and student self-esteem. Traditional, predominantly visual or auditory instructional methods often prove ineffective for these learners. This paper examines the application of multisensory approaches as a critical intervention strategy. Rooted in the Orton-Gillingham (OG) method and supported by neuroscience, multisensory learning integrates visual, auditory, kinesthetic, and tactile modalities to engage multiple neural pathways simultaneously. This approach addresses the core phonological processing deficits in dyslexia by leveraging individual learning strengths, enhancing information processing, memory retention, and motivation. The paper details specific multisensory techniques within each modality (visual aids, auditory tools, kinesthetic activities, tactile manipulatives) and discusses their efficacy in improving literacy skills. Successful implementation requires teacher training, appropriate resources, and collaborative support systems. While research confirms the effectiveness of multisensory strategies, the paper concludes by highlighting the need for further investigation into long-term outcomes, integration across subjects and age groups, and the role of emerging technologies. Multisensory approaches offer a transformative, inclusive framework for empowering students with dyslexia to overcome learning barriers and achieve their academic potential.

Keywords: *Dyslexia, Multisensory Learning, Specific Learning Disabilities (SLD), Reading Difficulties, Inclusive Education*

Introduction

The definition of specific learning disabilities has caused controversy and controversy among the scientific community (Sandravelis, 2015), especially in the fields of school psychology and neuropsychology (Decker et al., 2013). Thus, it is observed that depending on the scientific point of view, the definition differs significantly, while variations of the definition are found even within the same scientific field. Many researchers use the terms specific learning disabilities and dyslexia as identical. Furthermore, it has been observed that the terms learning disabilities and specific learning disabilities, depending on the geographical and communication context in which they are used, sometimes end up with the same or very different things. In the United Kingdom, the term learning disabilities refers to cognitive or intellectual disorders, while in Australia and

America, the term learning disabilities is synonymous with specific learning disorders (McDowell, 2018). Moreover, sometimes the term "dyslexia" is overused in an attempt to find an appropriate word to describe any difficulty in the process of learning and producing written speech. It has been empirically observed that all students who face difficulties in their studies, especially when they do not have interdisciplinary consultations, are often labeled as students with learning difficulties, regardless of the specific type of difficulty.

It is often observed that students with learning disabilities often face challenges in more than one cognitive subject. Specifically, according to research by Moll et al. (2019) and Willcutt et al. (2019), learning difficulties in reading often coexist with learning difficulties in mathematics, but the underlying cause of this comorbidity is not clearly defined (Viesel-Nordmeyer, 2023)

The term learning disabilities is general and defines cognitive difficulties, and more specifically difficulties in the acquisition of listening, speaking, reading, writing and reasoning or mathematical abilities (Darvis, 2001) that an individual faces throughout school life. This term refers to a heterogeneous set of problems related to the functioning of learning and comprehension of speech, reading comprehension, and mathematics (NRCLD, 2007). The causes of generalized learning disabilities are secondary symptoms of another difficulty or disorder. There is a potential coexistence of learning disabilities with problems with self-control behavior, social perception, and social interaction, but this does not imply that such problems in themselves constitute learning disabilities.

Dyslexia and the importance of a multisensory approach in children

The question "What is dyslexia?" although simple and simplified, is complex and complicated to answer and there is no single, definitive diagnosis or definition for it (Neil, 2017).

The word "dyslexia" - in Greek δυσλεξία - etymologically comes from the Greek words [{δυς} + {λέξη}]. The preposition "dys" has a negative meaning and indicates either a bad attribute, for example, δυσ-οσμία (unpleasant smell), or a difficulty δυσκαμψία (inflexibility) (Babiniotis, 2004). Thus, looking back to the Greek language, we find that the word dyslexia can be literally understood as a difficulty in words. The above literal translation, which aims at semantic completeness, could be enriched as follows: difficulty in using, recording and reading words. According to Stein (2018), the term dyslexia was first used in 1887 by Rudolf Berlin, a German ophthalmologist, who coined the term "dyslexia" to apply to stroke patients who selectively lost the ability to read without losing basic vision or hearing and retaining most other cognitive skills. However, Pringles Morgan managed to associate his name with the term because he gave it human characteristics. Dyslexia was originally described as word blindness, and the reason was Morgan's patient who, although not cognitively impaired, nevertheless learned to write and read at the age of 14 with systematic training. However, he seemed unable to hold any visual structure and/or representation of words. Over the course of the century, the term blindness was replaced by the term dyslexia as it became clear that visual acuity was not responsible for the difficulties and

deficiencies in these individuals (Stein, 2018). Later, in the 1950s, with the introduction of Noam Chomsky's revolutionary concepts of general grammaticality and repetitive genetic phonology (1955), dyslexia was fully perceived as a problem with the acquisition of phonological skills. Many years later, in the 20th century, with the introduction of functional magnetic resonance imaging, it was realized that readers with poor skills have clear differences in the activity of their cerebral cortex and especially in the left hemisphere, which is particularly important for language (Shaywitz, 1997). As already mentioned, there are many different views and definitions of specific learning difficulties and it seems that the opinions of scientists do not converge. Regarding the difficulty inherent in specific learning difficulties, the International Dyslexia Association (IDA, 2023) characterizes a neurobiological disorder that manifests itself with deficits in language perception and expression and other processes involved in the acquisition of knowledge. On the other hand, there is no term for dyslexia per se and the emphasis is given to the type of learning disorder of individuals. Despite the different views of scientists on the definition of dyslexia, there is a common denominator everywhere: intelligence can be up to 70 ± 5, that is, at lower or even 151 borderline levels of normal mental functioning. This happens because if students with lower intelligence could be placed under the umbrella of dyslexia, then their difficulties could only be attributed to their cognitive impairment, and not necessarily to the presence of a disorder.

According to the International Dyslexia Association (2002), dyslexia is a specific learning disability that has a neurobiological origin and is characterized by difficulties in correct and/or fluent word recognition, problems in spelling and problems with decoding abilities (Karovska, 2018). The problems in children with dyslexia arise from difficulties in processing sounds within words and establishing connections between sounds and written symbols - letters as well as patterns of letter combinations - which represent sounds in words. The term learning problems or learning disability is an umbrella term that describes specific problems with information processing and learning skills. Dyslexia is one of the disabilities that is included in the order of learning disabilities. Dyslexia is the most common learning disability (Rief, 2010). According to Critchley and Critchley (1978) dyslexia occurs in varying degrees: Severe – when the student has a high IQ and excellent verbal abilities, but has serious reading problems.

Sometimes the difficulties manifest themselves with problems in organization and sequencing. Turner (2004) created a dyslexia index with a description of the gradation in terms of the severity of dyslexia and, based on the results of standardized tests, distinguishes five degrees of dyslexia: no signs of dyslexia; a small number of signs of dyslexia; moderate form of dyslexia; severe form of dyslexia; very severe form of dyslexia. The dyslexia index also provides an assessment of phonological ability, which includes an assessment of phonemic awareness, phonemic memory and phonological knowledge (Karovska Ristovska, 2018).

The impact of dyslexia on learning can be significant and manifest itself in different ways. Most often, students with dyslexia have difficulties in: 1. **Reading:** Reading difficulties are the most characteristic of dyslexia. Students may have problems decoding words, meaning they have

difficulty matching letters to their corresponding sounds. This can lead to slow and inaccurate reading, as well as difficulty understanding what they read (Shaywitz, 2003); 2. **Writing and Spelling**: Due to difficulties in language processing, students with dyslexia often have problems with writing and spelling. They may have difficulty remembering the visual patterns of words, resulting in frequent spelling errors (Berninger, 2009); 3. **Phonological Awareness**: As mentioned, dyslexia is often accompanied by poor phonological awareness, meaning students have difficulty identifying, distinguishing, and manipulating the sounds in words. This can affect their ability to learn new words and use phonetic reading strategies (Snowling, 2000); 4. **Self-esteem and motivation**: Due to persistent difficulties and failures in school, students with dyslexia often experience low self-esteem and reduced motivation to learn. This can lead to avoidance of reading and writing tasks, which further increases academic gaps (Riddick, 2010). However, it is important to emphasize that dyslexia is not an indicator of low intelligence or lack of diligence. Students with dyslexia often have unique strengths, such as creative thinking, visual-spatial skills, and problem-solving abilities ((IDA), 2020). The key to success lies in recognizing their specific needs and applying appropriate learning strategies, such as multisensory approaches, which activate different senses to facilitate the learning process (Eide, 2011). The theoretical framework and importance of the multisensory approach.

Multisensory literally means more than one sense. In other words, using more than one of the five senses at the same time. We learn through information received through our senses, not just sight, hearing, smell, taste, and touch. A multisensory approach to learning integrates more than one sense throughout the teaching process in order to improve the learning process of students. By adopting this approach, the inclusion of multiple senses in the learning process leads to increased learning abilities in students and increased efficiency in retaining acquired knowledge. However, it is noted that in reality, most teaching in schools is still mainly based on the use of visual or auditory methods (Syahputri, 2019).

As previously noted, the multisensory teaching approach refers to an educational strategy in which students engage all of their human sensory abilities - including hearing, smell, touch, sight, sensation, and taste - in educational settings (Suryaratri, et al., 2019). These interactive methods embody a natural approach, mirroring the innate learning process observed in infants and young children as they explore the world through tactile experiences and taste exploration (Sarudin, 2019). The multisensory educational approach seeks to enhance children's learning by simultaneously engaging multiple senses. This approach effectively addresses potential challenges that arise from processing information through a single sense (such as hearing or vision). By enabling the simultaneous engagement of different senses (such as touch, movement, hearing, and vision), it provides a comprehensive solution to the learning process. Through this approach, children can cultivate different types of memories - tactile, visual, auditory, or kinesthetic. This empowers each child to utilize their unique strengths for optimal learning outcomes (Loizou, 2016).

The names of neuropsychiatrist Orton and educational psychologist Gillingham have become synonymous with the multisensory approach to teaching. As early as 1925, Samuel T. Orton postulated that while dyslexia has biological origins, its cure is fundamentally educational in nature (Henry, 1998). Subsequently, based on this hypothesis, it was believed that dyslexic children could benefit significantly from personalized instruction, specifically focusing on systematic phonics-focused reading instruction. The revolutionary OrtonGillingham (OG) method, originally conceived by Orton and then developed into a comprehensive curriculum by Anna Gillingham and Bessie Stillman (Gillingham, 1956), has laid the foundation for numerous multisensory programs since its inception (Ring, 2017). The OG approach involves a structured, sequential, and multisensory framework, emphasizing synthesis and phonics-based techniques for effective reading instruction (Ritchey, 2006). The Orton-Gillingham method activates three sensory inputs, namely visual, auditory, and kinesthetic, which is known by the acronym (VAK) (Hardiana, 2018). Other multisensory methods also use the tactile factor (Chither, 2020), while others consider the kinesthetic factor to include the tactile factor.

More specifically, neuroscience, using functional neuroimaging methods (providing images of brain activity during the performance of an activity, such as phonological processing for example), has confirmed that areas of the brain (parietal and fusiform cortex) are responsible for decoding letters (orthography) to language sounds (phonology) in children with reading difficulties (Shaywitz, 2020).

These children may show deficits in one or more of the basic sensory modalities required for reading and spelling: visual perception (through visual adaptation), auditory reception (understanding sound), verbal expression and perception of movement (related to speech), as well as the execution of hand movements and the feeling of such movements (related to writing). The effectiveness of multisensory approaches is rooted in their ability to enable children to nurture and utilize all four sensory modalities simultaneously (Walker, 2000). The adoption of multisensory techniques aligns with the natural functioning of the brain, which involves processing sensory input from multiple senses. This is due to the brain's fundamental role in integrating and processing information originating from different sensory channels (Farrell, 2011).

Numerous reports of multisensory interactions in various perceptual tasks and contexts suggest that these interactive elements are pervasive rather than exceptional in the processing of sensory information by the human brain (Shimojo, 2001).

Multisensory approaches are important because: 1. **Individualizing learning**: Each student has a unique way of learning. Some are visual learners, others are auditory learners, and some learn best through physical activities. Multisensory approaches take these differences into account and allow students to capitalize on their strengths while working to improve areas in which they are weaker (Tomlinson, 2014); 2. **Supporting students with specific learning disabilities:** For students with dyslexia, traditional teaching methods are often ineffective. Multisensory approaches, which include the use of images, sounds, movement, and touch, help these students overcome

their difficulties and develop reading, writing, and spelling skills (Birsh, 2011); 3. **Increased engagement and motivation:** When learning is interactive and involves multiple senses, students are more engaged and motivated. This is especially important for students who have had negative experiences with traditional learning and who may feel demoralized by their difficulties (Fredricks, 2004); 4. **Deeper processing of information**: When information is presented through multiple senses, the brain makes more associations, which facilitates memory and understanding. For example, when a student learns a new word through a visual image, auditory sound, and physical movement, the likelihood that he or she will remember and understand the word is much greater (Paivio, 1986).

Types of multisensory approaches

Multisensory approaches are versatile and flexible methods that involve most of the senses to enhance the learning process. These approaches are particularly useful for students with specific learning disabilities, such as dyslexia, as they allow them to overcome their difficulties by activating different sensory pathways.

Visual Multisensory Approaches

Visual multisensory approaches are one of the most effective ways to enhance learning, especially for students who are visually oriented. These approaches involve the use of pictures, diagrams, graphs, videos, maps, charts, and other visual elements that help students process and remember information better. Visual stimuli are particularly useful for creating mental associations, which facilitate understanding and long-term memorization of materials.

Examples of visual multisensory approaches: **Infographics and diagrams:** They present complex information in a simpler and more understandable format. For example, a timeline of historical events can be presented in a diagram, making it easy for students to follow and understand the events (Mayer, 2001); **Mind maps:** These maps help students organize their thoughts and connect different concepts. For example, when learning a new word, a student can create a mind map that includes a definition, synonyms, antonyms, and examples of usage (Paivio, 1986). Dual Coding Theory explains how visual and verbal information are processed separately but are linked in memory, making visual learning effective; **Video materials:** Videos are a powerful learning tool because they engage both the visual and auditory senses. For example, science experiments or historical events can be presented in videos, making learning more interactive and interesting (Clark, 2010); **Illustrations and pictures:** These are especially useful for learning new words or concepts. For example, when studying animals, pictures of animals can help students remember their names and characteristics more easily (Fadel, 2008). Visual multisensory approaches facilitate better understanding and help students visualize abstract concepts, which makes learning more understandable. Students are more engaged when learning includes visual elements because they

make the process more interesting. Research shows that information that is presented visually is better remembered than information that is presented only verbally.

Auditory Multisensory Approaches

Auditory multisensory approaches focus on the use of sound and hearing as primary channels for learning. These approaches are particularly useful for students who are auditory learners, that is, those who learn best through listening and verbal communication. Auditory methods include the use of speech, music, sounds, discussions, audio recordings, and other forms of auditory stimuli that engage students' auditory senses.

Examples of auditory multisensory approaches: **Audio recordings and podcasts:** These are useful for presenting information through speech or music. For example, audio books are a great way for students to listen to literary works, which is especially helpful for those who have difficulty reading (Mayer, 2001); **Discussions and debates:** Learning through discussions allows students to express their opinions and hear different perspectives. This stimulates critical thinking and active learning (Baddeley, 1992); **Music and Songs:** Music can be used to enhance the retention of information. For example, songs with educational content (such as songs about the multiplication table or grammar rules) are effective for learning and memorization (Gardner, 1983); **Sound Effects and Audio Visuals:** Sound effects can be used to enhance the understanding of concepts. For example, when studying nature, the sounds of animals or nature can make learning more realistic and interesting (Rauscher, 1993). Auditory multisensory approaches allow for better understanding among auditory learners. Auditory stimuli can increase concentration and attention, especially for students who have difficulty focusing. Information presented through sound is often better remembered because sound creates an emotional and memory connection. Auditory approaches are particularly useful for students with dyslexia or reading difficulties, as they allow them to overcome obstacles through listening.

Kinesthetic Multisensory Approaches

Kinesthetic multisensory approaches focus on incorporating physical activities and movements into the learning process. These approaches are particularly useful for students who are kinesthetic learners, that is, those who learn best through hands-on activities, movement, and physical engagement. Kinesthetic methods include the use of gestures, physical manipulations, experiments, games, and other forms of activity that engage students' bodily senses.

Examples of kinesthetic multisensory approaches: **Physical Manipulations:** The use of objects such as blocks, figures, or other tools for physical manipulation helps students understand abstract concepts. For example, when learning mathematics, students can use blocks to visualize and solve mathematical problems (Jensen, 2000); **Role-playing and Simulations:** These activities allow students to experience concepts through role-playing and simulations. For example, when learning about history, students can role-play historical figures and reenact events (Ratey, 2008);

Experiments and hands-on activities: Science experiments and hands-on activities are a great way to learn through experience. For example, when learning about chemistry, students can conduct experiments to understand chemical reactions (Ratey, 2008); **Movement and gestures:** The use of movement and gestures can support the learning of new concepts. For example, when learning new words, students can use gestures to connect words to their meanings (Tomlinson, 2014). Kinesthetic multisensory approaches allow for better understanding. Students who learn best through physical activities benefit more from kinesthetic methods. Physical activities make lessons more interactive and interesting, which increases student engagement. Information that is associated with physical activities is better remembered because it creates memory connections through movement and experience. Kinesthetic approaches are especially useful for students with dyslexia or other concentration difficulties, as they allow them to release their energies and focus on learning.

Tactile Multisensory Approaches

Tactile multisensory approaches focus on incorporating touch and physical interaction into the learning process. These approaches are particularly useful for students who learn best through physical contact and manipulation of objects. Tactile methods involve the use of a variety of materials, textures, and tools that engage the sense of touch, allowing students to experience concepts through physical engagement.

Examples of tactile multisensory approaches: **Manipulative materials:** The use of objects such as clay, sand, fabric, or other textures helps students understand concepts through touch. For example, when learning about geometric shapes, students can create shapes from clay or touch three-dimensional models (Gardner, 1983); **Tactile books and resources:** Books with different textures or relief illustrations are an excellent way to incorporate touch into learning. These resources are especially useful for students with visual impairments or those who learn best through touch (Hannaford, 1995); **Tactile Games**: Games that involve touch, such as sorting objects by texture or shape, can support tactile learners. For example, students can sort different types of grains or rocks by their texture (Montessori, 1912); **Texture Experiments:** Students can explore different textures and materials through hands-on activities. For example, in nature study, students can touch different types of leaves, tree bark, or minerals (Jensen, 2000). Tactile multisensory approaches allow students who learn best through touch to benefit more from tactile methods. Physical activities and manipulatives make lessons more interactive and interesting, which increases student engagement. Information that is associated with physical activities and touch is better remembered because it creates memory connections through experience. Tactile approaches are particularly useful for students with visual or auditory difficulties, as they allow them to overcome obstacles through touch.

Conclusion

Multisensory approaches represent a revolutionary and inclusive approach to education, especially for students with dyslexia. These methods, which integrate the visual, auditory, kinesthetic and tactile senses, offer opportunities for deeper and more effective learning, enabling students to overcome their difficulties and develop their potential. Through an analysis of the different types of multisensory approaches, their application and the results of research, it becomes clear that these methods are of crucial importance in creating an effective and accessible educational environment. Multisensory approaches take into account the different learning styles and needs of each student. For students with dyslexia, who often face difficulties in traditional teaching, these methods offer alternative paths to successful learning. By activating different sensory modalities, multisensory approaches overcome the limitations of traditional methods and enable students to learn in a way that is most suitable for them. Research has shown that multisensory approaches significantly improve reading, writing, and phonological awareness skills in students with dyslexia. These methods not only facilitate the learning process, but also increase students' self-esteem and motivation, which is crucial for their academic and emotional development. Multisensory approaches offer flexibility and creativity in teaching, allowing teachers to adapt their methods to the needs of each student. This is especially important in classrooms with different levels of ability and learning styles.

Dyslexia is associated with neurological differences in the processing of language and visual information. Multisensory approaches activate alternative pathways in the brain, allowing students to overcome their difficulties and achieve success. Although there are numerous studies that confirm the effectiveness of multisensory approaches, further research is still needed to determine the best practices and strategies. It is particularly important to investigate: The long-term effects of multisensory approaches on academic and socio-emotional outcomes for students with dyslexia; The ways in which multisensory methods can be integrated into different subjects and age groups;The impact of technology (such as virtual and augmented reality) on the effectiveness of multisensory approaches.

For the successful implementation of multisensory approaches, it is necessary to provide appropriate training for teachers. This includes:Training in the different types of multisensory methods and their application in the classroom; Strategies for individualizing teaching according to the needs of each student; Creating an inclusive and supportive learning environment.

Schools should invest in the development of resources and materials that support multisensory approaches. This includes: Tactile tools (such as sand or plastic letters); Visual tools (such as diagrams, maps, and pictures); Technological solutions (such as apps and programs for multisensory learning).

To ensure the success of multisensory approaches, collaboration between schools and families is essential. Parents need to be informed about the benefits of these methods and be involved in the learning process of their children. Multisensory approaches represent a powerful

tool for transforming education, especially for students with dyslexia. With their ability to activate different senses and support different learning styles, these methods offer the opportunity to create a more inclusive, effective and inspiring educational environment. Although there are challenges in their implementation, with appropriate support, training and research, multisensory approaches can become a key element in the education of the future. Through a continued commitment to research, innovation and collaboration, we can ensure that all students, including those with dyslexia, have access to the education they deserve and that allows them to develop their potential to the fullest.

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THE ROLE OF ACADEMIC ACHIEVEMENTS, BELIEFS AND CONTEXTUAL FACTORS IN PREDICITING CREATIVE THINKING PROFICIENCY AMONG ADOLESCENTS IN NORTH MACEDONIA

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ABSTRACT:

This research investigates the role of students' academic achievements in mathematics, science, and reading literacy, their beliefs and attitudes about their own creativity and demographic and contextual factors in predicting creative thinking proficiency among 15 years old students in the Republic of North Macedonia. Data for the research are based on the 2022 cycle of the Programme for International Students Assessment (PISA). Creative thinking is defined as the competence to engage productively in the generation, evaluation, and improvement of ideas that can result in original and effective solutions, advances in knowledge, and impactful expressions of imagination. It is operationalized through three ideation processes (generating diverse ideas, generating creative ideas, and evaluating and improving ideas) and four domains (written expression, visual expression, social problem solving, and scientific problem solving). The sample is consisted of 4,169 fifteen years old students that have complete data on all predictors. Results from the linear multiple regression analysis show that mathematics ($\beta = .25$), science ($\beta = .21$), and reading literacy ($\beta = .17$) are the strongest positive predictors of creative thinking, stressing the foundational role of academic skills. Demographic and contextual factors, including language of instruction, gender, educational track, and economic, social, and cultural status, also are significant predictors. But, attitudinal variables such as creative self-efficacy, curiosity, growth mindset on creativity, imagination and adventurousness and openness to art and reflection had minimal predictive power. These research findings show that strengthening creative thinking in North Macedonia requires raising foundational literacy skills, students must first be supported to reach the level of understanding that allows them to apply, extend, and transform their knowledge in new ways. They also highlight the need for educational policies and practices that integrate creativity-supportive instruction and cultivate growth-oriented mindsets in both teachers and students.

Keywords: *critical thinking, PISA 2022, creative self-efficacy, curiosity, growth mindset on creativity, imagination and adventurousness, openness to art and reflection.*

Introduction

PISA 2022 research cycle defines creative thinking as "the competence to engage productively in the generation, evaluation and improvement of ideas that can result in original and effective solutions, advances in knowledge and impactful expressions of imagination" (Organization for Economic Cooperation and Development [OECD], 2024, p.47). For measurement purposes in PISA 2022, the construct of creative thinking is consisted of three ideation processes: generating diverse ideas, generating creative ideas and evaluating and improving ideas. Given the age of PISA test takers and the amount of available testing time, tasks in the PISA 2022 creative thinking test were situated in four different domain contexts: written expression, visual expression, social problem solving and scientific problem solving (OECD, 2024, p.49).

The importance of developing creative thinking in education is recognized and reflected in national curricula worldwide. Nearly all PISA 2022 participating countries reported creativity as an intended student outcome in education. It is as well reflected in the national educational documents in the Republic of North Macedonia. Key areas of action, defined in the Concept for Primary Education, are mastering transversal skills such as critical thinking, entrepreneurship, creativity, and civic engagement through transdisciplinary, student-centered, and challenge-based approaches (Ministry of Education and Science [MES], 2021a). Additionally, creative thinking is regulated in the National Standards for students in primary education. National standards are based on the competence that students should develop and master by the end of primary education. In each domain of the standards competencies referring to development of creative thinking can be found (MES, 2021b). North Macedonia has identified creativity as a priority cross cutting theme or competency in its curricula, but there is no explicit reference to the development of creative skills within specific subject areas. There are no clear guidelines or learning progressions to guide educators on how to integrate opportunities for students to recognize and develop creative thinking across different curricular domains.

In PISA 2022 creative thinking is measured explicitly for the first time as a key competency for a rapidly changing world, so students' beliefs about their own creativity are part of the picture in understanding how it develops. A **growth mindset on creativity** is one of several positive attitudes and beliefs associated with better performance on creative thinking tasks. If students believe that their creativity cannot change much that may limit how much they engage in effortful creative-thinking work and may affect how educational systems encourage creativity (OECD, 2024).

Besides the mindset, research studies have identified an array of student beliefs and attitudes that relate to creative thinking proficiency. **Creative self-efficacy** describes an individual's beliefs about their capacity to successfully produce creative work, especially when faced with challenges (Beghetto & Karwowski, 2017). **Openness to art and experience** outlines an individual's receptivity to engage with novel ideas, imagination, and fantasy (Berzonsky & Sullivan, 1992). Its predictive value for creative achievement across domains is likely due to its inclusion of cognitive

(imagination), affective (curiosity), and behavioral aspects (adventurousness) (Chávez-Eakle, 2009). **Imagination and adventurousness** connect to the divergent thinking component of the creative thinking process (Guilford, 1956). Divergent thinking refers to the ability to think of original ideas, to make flexible connections between ideas or pieces of information, and to apply fluency of association and ideation (Cropley, 2006). **Curiosity** manifests in several attitudes towards creative thinking, and in particular in attitudes that relate to open-mindedness (e.g., openness to art and experience). Students with a high degree of curiosity show greater interest in novel ideas, love of learning, understanding, intellectual exploration, and an inquisitive mindset (Chávez-Eakle, 2009).This research aims to investigate how students' achievements in mathematics, science, and reading literacy together with their beliefs and attitudes about their own creativity, as well as with relevant demographic and contextual factors, jointly predict their creative thinking proficiency.

Research methodology

Sample

The research sample is consisted of 4,169 fifteen years old students, those with complete data on all predictor variables. The assessments were conducted in both Macedonian and Albanian language, thus 73% of the students present on the testing day were evaluated in Macedonian, while 27% were tested in Albanian language.

Instrument and Variables

The instrument used to measure students' creative thinking proficiency is PISA 2022 Creative Thinking Test (OECD, 2023). Students who participated in PISA 2022 assessment spent one hour completing creative thinking items, while the remaining hour of testing time was assigned to mathematics, reading, or scientific literacy tasks. In addition, students also responded to background questionnaires that gathered data on their economic, social, and cultural status as well as on their beliefs and attitudes toward creative thinking, following the international research protocol of PISA 2022.

The creative thinking test is consisted of 32 open ended items organized into units based on common stimuli. Each unit differed in the ideation process required, length, number of items, and domain context (OECD, 2023). Scores are reported on a bounded scale ranging from 0 to 60 score points, representing the total possible points available across all test items. A score of 60 points indicate the maximum performance across the entire test-item pool (OECD, 2024). Students' results reflect estimated scores, calculated as the sum of full and partial credit responses that a student would likely achieve if they completed all 32 items. Each task in the PISA Creative Thinking Test is open ended, allowing for multiple valid and original responses. Scoring is based on human judgment but it is supported with detailed coding rubrics and item specific scoring guides (OECD, 2024).

The main variable in this research is **creative thinking** proficiency operationalized as the students' scores on the PISA 2022 creative thinking scale (0–60 points). Higher scores indicate a greater ability to generate, evaluate, and refine original ideas within the contexts assessed by the PISA 2022 framework (OECD, 2024).

Reading literacy isindividual's capacity to understand, use, evaluate, reflect on, and engage with texts in order to achieve one's goals, develop one's knowledge and potential, and participate in society (OECD, 2024). It is assessed based on the total score obtained from the reading literacy test tasks in PISA 2022.

Mathematical literacy is defined as an individual's capacity to reason mathematically and to formulate, employ, and interpret mathematics to solve problems in a variety of real world contexts. It includes concepts, procedures, facts and tools to describe, explain and predict phenomena. It assists individuals to know the role that mathematics plays in the world and to make the well-founded judgements and decisions needed by constructive, engaged and reflective 21st century citizens (OECD, 2024). It is assessed on the total score obtained from the mathematical literacy test tasks in PISA 2022.

Science literacy is defined as ability to engage with science-related issues, and with the ideas of science, as a reflective citizen. A scientifically literate person is willing to engage in reasoned discourse about science and technology, which requires the competencies to explain phenomena scientifically, evaluate and design scientific enquiry, and interpret data and evidence scientifically (OECD, 2024).It is assessed on the total score obtained from the science literacy test tasks in PISA 2022.

Index of Economic, Social, and Cultural Status (ESCS) is a composite score derived from three indicators related to family background: parents' highest education in years, parents' highest occupational status and home possessions. Based on the score three groups are created: low, medium and high ESCS (OECD, 2024).

Language of instruction, two categories of this variable are defined: Macedonian language of instruction and Albanian language of instruction.

Educational Track,three categories of this variable are defined: Gymnasium, Vocational education, and Art schools. The classification is based on the type of upper secondary programme in which the student was enrolled at the time of testing.

Gender is self-reported by students in the PISA student questionnaire andtwo categories of the variable are defined: Girls and Boys.

Creative thinking self-efficacy scale, this scale reflects students' self-perceived confidence in performing tasks that are reflective of creative thinking skills. Each of the 10 items included in this scale had four response options (OECD, 2024).

Curiosity scale reflects students' ratings of their agreement with statements about a range of behaviors indicative of curiosity. Each of the 10 items included in this scale had five response options (OECD, 2024).

Growth mindset on creativity scale reflects students' ratings of their agreement with a range of statements indicative of their mindset. Each of the four items included in this scale had four response options and were reverse-coded prior to scaling (OECD, 2024).

Imagination and adventurousness scale reflects students' ratings of their agreement with statements regarding their own views on their imagination and adventurousness. Each of the seven items included in this scale had four response options (OECD, 2024).

Openness to art and reflection scale reflects students' ratings of their agreement with statements regarding their own views on their openness to art and experience. Each of the five items included in this scale had four response options.

Statistical data analysis

Scale indicesare constructed by scaling multiple items with the generalized partial credit model (GPCM) (Muraki, 1992). The GPCM model describes the probability that a person will provide a certain type of response to a polytomous item, taking into account the person's trait level and the item's affectivity (or difficulty)Values of the index correspond to standardized Warm likelihood estimates (Warm, 1989).

Multiple regression analysis was utilized to predict students' creative thinking achievement using SPSS Statistics 21. Weights were applied to the student-level data, ensuring that the sample was representative of the broader population. Categorical predictors, including students' index of economic, social, and cultural status (ESCS), and the language of instruction and gender were dummy coded.

Results

Students in North Macedonia achieved low average score in creative thinking assessment (19 points), significantly below the OECD average of 33 points (OECD, 2024). The results of the multiple regression analysis are summarized in Table 1.

Table 1. Results from multiple regression analysis

Variable	B	SE B	β	t	p
(CONSTANT)	-22.85	1.30		-17.56	
Creative self-efficacy	0.26	0.21	0.02	1.25	>.05
Curiosity	0.21	0.23	0.02	0.92	>.05
Growth Mindset on Creativity	-0.03	0.17	0.00	-0.15	>.05
Imagination and Adventurousness	0.28	0.22	0.02	1.27	>.05
Openness to Art and Reflection	0.00	0.32	0.00	0.00	>.05

Variable	B	SE B	β	t	p
LA: Macedonian	6.04	0.55	0.21	10.94	< .001
Gender: Girls	1.37	0.43	0.05	3.21	< .001
ET: Vocational	-1.29	0.47	-0.05	-2.74	< .01
ET: Artistic	1.89	1.34	0.02	1.41	>.05
ESCS: Medium	-1.14	0.47	-0.04	-2.42	<.05
ESCS: Low	-2.48	0.59	-0.08	-4.18	< .001
Science Literacy	0.03	0.01	0.21	6.77	< .001
Reading Literacy	0.03	0.00	0.17	7.10	< .001
Mathematical Literacy	0.04	0.00	0.25	9.21	< .001

Note. Reference categories: Language of Assessment (LA) = Albanian, Gender = Boys, Educational Track (ET) = Gymnasium, Index of Economic, Social, and Cultural Status (ESCS) = High. B = unstandardized coefficient; SE B = standard error of B; β = standardized coefficient; t = t-statistic; p = significance.

From the presented results, we can see that the model is statistically significant and there is a substantial proportion of the variance in creative thinking, $R^2 = .58$, adjusted $R^2 = .58$, SE = .01, that can be explained by the predictors (approximately 58%).

Among the predictors, academic achievement in mathematics literacy ($β = .25$, $p < .001$), science literacy ($β = .21$, $p < .001$), and reading literacy ($β = .17$, $p < .001$) were the strongest positive contributors to creative thinking.

Students believes and attitudes toward their own creativity, including creative self-efficacy, curiosity, growth mindset on creativity, imagination and adventurousness, openness to art and reflection, showed small and non-significant effects ($β$ ranging from 0.00 to 0.02, $p > .05$).

Demographic and contextual factors had mixed effects, we can see that girls scored higher than boys ($β = .05$, $p < .001$), students in vocational tracks scored lower than gymnasium students ($β = -.05$, $p < .01$), and lower socioeconomic status was associated with lower creative thinking scores ($β = -.04$ to $-.08$, $p < .05$). Language of assessment also had a significant effect, with Macedonian-language students scoring higher than Albanian-language students ($β = .21$, $p < .001$).

Discussion

Students' academic performance in the Republic of North Macedonia show consistently low results on international assessments (Mullis et al., 2023; von Davier et al., 2024; OECD, 2024). They are placed at the lowest proficiency levels, indicating that many of them have not yet reached even the basic knowledge and comprehension levels in reading, mathematics, and science. From the PISA 2022 Creative Thinking assessment, it is evident that students face difficulties not only with cognitive tasks that require arriving at a single correct answer, but also with open-ended tasks that have no pre-defined solution and require students to generate original ideas or propose creative solutions.

Results from the multiple regression analysis show that mathematical, reading, and science literacy are the strongest predictors of students' creative thinking proficiency. The positive coefficients for mathematical literacy ($\beta = 0.25$), reading literacy ($\beta = 0.17$), and science literacy ($\beta = 0.21$), all statistically significant at $p < .001$, indicate that students with higher core academic skills are more capable of generating, evaluating, and communicating original ideas. The attitudinal variables in this model did not show statistically significant effects. Creative self-efficacy, curiosity, imagination and adventurousness, and growth mindset about creativity all had very small effects (β values near zero), and none reached statistical significance. This indicates that students' beliefs do not translate into higher creative performance if they lack the basic academic and cognitive knowledge and skills needed to express those ideas. In the educational context of North Macedonia, where teaching tends to be reproductive and focused on correct answers, creative dispositions alone may not be enough to support creative behavio Demographic and contextual factors also play a significant role. Students who took the test in Macedonian language scored significantly higher compared to those tested in Albanian, suggesting possible differences in instructional quality or access to learning resources. Girls outperformed boys, which aligns with international patterns where girls often show stronger performance in tasks with written expression and elaboration. Differences between educational tracks are also evident: students in vocational education scored lower, while students in artistic tracks scored slightly higher, though not significantly. This refers to contrary emphasis on creative expression and problem-solving across curricular pathways. Additionally, socioeconomic status showed a clear effect; with students from low ESCS backgrounds scoring significantly lower, supporting the research evidence that opportunity and resource inequalities shape cognitive outcomes.

An important lesson learnt from the OECD creativity project is that a key condition for the successful implementation of activities with opportunities for creative thinking in education is to create a caring and non-threatening environment where students are willing to take the risk of sharing their personal ideas (OECD, 2024). This environment presupposes a series of teacher attitudes and beliefs, such as a positive attitude towards mistakes and a belief in the malleability of students' skills and knowledge. These further supports students to develop a growth mindset on creativity, which in turn helps students, persist longer in the creative process. In North Macedonia, the interplay between teachers' professional mindsets and students' learning mindsets presents both opportunity and challenge for advancing creative thinking and academic achievement. Results from the Teaching and Learning International Survey (**TALIS) 2024** cycle show that only about **half of teachers** believe that intelligence is malleable and can be developed over time, indicating that many educators still hold a**fixed mindset**regarding abilities (OECD, 2025). From the student side,**PISA 2022**results show that**65% of 15 years old in North Macedonia believe that their own creativity cannot change very much,** reflecting a similarly fixed mindset about creative ability. This alignment suggests that existing classroom environments may not be sufficiently supporting students in viewing creativity as a skill that can be learned and practiced. **Professional**

development that focuses on developing teacher strategies for nurturing students' belief in the trainability of creativity, for example, modeling creative thinking processes, valuing idea exploration, and providing low-risk opportunities for originality, could help shift classroom culture toward one that supports creative growth.

Policymakers in North Macedonia can support schools and teachers to reflect on and experiment with new practices in different ways. The first step needed in promoting the development of creative thinking consistently and effectively in education is ensuring that students have strong basic, foundational literacy skills, particularly reading with understanding. Without sufficient reading comprehension, students struggle to access, interpret and build upon new ideas, which are essential conditions for creative thought and problem solving. Beside literacy development, it is crucial for educators, curriculum developers and assessment designers to have a shared understanding of what creative thinking is, how students can develop creative thinking skills, and how their progress can be measured.

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APPLIED PERSONALITY PSYCHOLOGY: THEORY, EVIDENCE, AND CONTEMPORARY DOMAINS

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ABSTRACT:

Personality psychology offers a comprehensive framework for understanding stable individual differences that shape cognition, emotion, and behavior across essential domains of functioning. This paper provides an integrative review of the applied relevance of personality in education, health, sport, organizational settings, and antisocial behavior. In the educational context, personality traits interact with motivation, self-regulation, and classroom environments to influence engagement, persistence, and achievement among students. Research on mental and physical health shows that neuroticism, conscientiousness, and extraversion systematically predict well-being, psychopathology, health behaviors, and longevity. In sport psychology, traits such as conscientiousness, extraversion, perfectionism, and affective states play a central role in athletic performance, coping strategies, and resilience. The paper also reviews findings linking low agreeableness, low conscientiousness, and high psychopathy to aggression and delinquency, as demonstrated across models including the Big Five, Eysenck's PEN, and the dark triad. Within organizational contexts, conscientiousness and emotional stability emerge as robust predictors of job performance, leadership effectiveness, teamwork, and reduced counterproductive behaviors, while dark triad traits show stronger associations with manipulation and workplace deviance. Overall, the evidence underscores the pervasive influence of personality traits across applied psychological domains and highlights the value of integrating personality assessment into evidence-based practice aimed at fostering well-being, performance, and adaptive development across the lifespan.

Keywords: *personality traits, applied psychology, academic achievement, mental and physical health, antisocial behavior, organizational behavior*

Introduction

Personality psychology is a discipline that examines stable individual differences in how people think, feel, and behave. Although the primary aim of the field has traditionally involved describing and explaining the structure and dynamics of personality, contemporary research increasingly emphasizes its applied significance. This shift reflects a growing interest not only in the theoretical understanding of personality but also in how personality characteristics manifest across various domains of everyday functioning.Applied personality psychology investigates the role of personality traits across various contexts, including education, organizational systems,

health practices, clinical and counseling psychology, sport psychology, and interpersonal relationships. As Corr and Matthews emphasize, "one of the strongest arguments for the importance of personality traits is their ability to predict outcomes with long-term implications, such as academic achievement, physical and mental health, life satisfaction, and job performance" (Corr & Matthews, 2020, p. 7). This suggests that personality is not an abstract psychological construct but a central determinant of human functioning. The applied perspective does not diminish the scientific rigor of the discipline; rather, it builds upon theoretical models and raises questions such as: In what ways can personality be measured validly? How can its role in adaptation and well-being be conceptualized? How can insights about personality be used to enhance individual and collective functioning?

There is extensive empirical evidence that certain personality dimensions - particularly conscientiousness and emotional stability - serve as significant predictors of both psychological and physical well-being (Strickhouser, Zell, & Krizan, 2017; Friedman & Kern, 2014). Moreover, personality models are widely applied in personnel selection and development, clinical diagnosis, and research on social behavior and political orientations (Ozer & Benet-Martínez, 2006; McCrae & Costa, 1997). In this regard, increasing attention is being directed toward transdisciplinary approaches that incorporate personality as a factor within broader social and systemic processes. In today's context, where individual and collective challenges are becoming increasingly complex, applied personality psychology assumes particular relevance. Personality research is increasingly integrated into interdisciplinary practices related to mental health, education, leadership, public policy, and digital behavior. As Roberts and colleagues (2007) emphasize, personality traits have long-term predictive value across three fundamental life domains - love, work, and health - which makes them essential to a wide range of applied settings. For example, personality traits are considered in the design of educational programs grounded in individualized learning, in interventions aimed at preventing early school leaving, and in the development of programs that foster organizational resilience and psychological well-being (John & De Fruyt, 2015). Through such practices, applied personality psychology not only bridges the gap between theory and practice but also contributes to the creation of inclusive and adaptive systems - educational, organizational, and societal - that recognize the importance of individual differences and personal potential.

Personality in education

Education is one of the fundamental social processes through which individuals develop their intellectual, emotional, and social capacities. Through learning, interactions with teachers and peers, participation in school activities, and engagement in assessment practices, students' develop not only knowledge and skills but also the attitudes, values, and beliefs that constitute the structure of their personality. However, this influence is not unidirectional: while education contributes to the formation of personality, personality also significantly shapes the ways in which students' learn, become motivated, and behave within the school context.

Personality traits are reflected in the ways students' set goals, maintain self-confidence, regulate their emotions, and interpret their own successes and failures. They shape the teacher–student relationship, the social climate of the classroom, cooperation among peers, and the degree of prosocial behavior. Because personality dimensions are associated with the experience of positive and negative emotions, their influence extends across the emotional and motivational processes involved in learning (Matthews et al., 2006). Thus, education cannot be understood solely as a cognitive process but as an experience grounded in emotional and social contexts.

Within the study of individual differences, a traditional distinction is made between personality traits (relatively stable dispositions) and abilities (differences in mental or physical efficiency) (Schneider & Newman, 2015). Although research has primarily focused on the role of cognitive abilities in academic achievement, contemporary perspectives increasingly emphasize that a comprehensive understanding of school performance must also consider non-intellectual factors such as personality, motivation, and self-regulation, as well as broader social and economic conditions (Ben-Eliyahu & Bernacki, 2015).

This is further supported by the meta-analysis conducted by Mammadov (2021), which included 228 studies with a total sample of N = 413,074 students'. The combined contribution of cognitive abilities and personality dimensions explained 27.8% of the variance in academic performance. Although cognitive abilities were the strongest individual predictor, conscientiousness emerged as the personality dimension with the most consistent and stable association with academic outcomes (28%), even after controlling for intellectual abilities. This finding indicates that academic success depends not only on what students' know but also on how they organize, plan, and persist in completing tasks.

Motivation further connects personality to learning outcomes. According to achievement goal theory (Pintrich, 2000), three primary orientations are distinguished: mastery orientation, performance orientation, and performance-avoidance orientation. Students' with a mastery orientation focus on learning, personal growth, and improvement; they exhibit higher academic achievement, engagement, and persistence, along with lower levels of stress. In contrast, a performance-avoidance orientation is associated with anxiety, task avoidance, and a reduced willingness to seek support.

Self-regulation represents another key mechanism that helps explain why some students' are more successful than others. It involves setting goals, monitoring one's progress, selecting appropriate strategies, and engaging in self-evaluation (Zimmerman et al., 2015). Students' who develop self-regulatory skills tend to be more resilient in the face of obstacles and frustration and exhibit greater autonomy in their learning.

Another important – yet often overlooked – aspect is the way personality traits shape responses to failure. Students' high in emotional stability cope more effectively with disappointment, low grades, or criticism, whereas those high in neuroticism are more likely to perceive such situations as threatening or distressing. Research indicates that neuroticism is negatively related to academic

persistence and to emotional regulation under stress (Komarraju, Karau, & Schmeck, 2009). These differences are particularly salient during transitional periods, such as the shift from primary to secondary education or during times of heightened academic pressure.

Beyond individual differences, increasing attention is being directed toward the interaction between personality and the educational environment. For instance, the same personality characteristics may lead to different outcomes depending on the teacher's instructional style, peer support, or assessment practices. Contemporary research indicates that contextual factors can moderate the influence of personality traits on students'' academic outcomes and well-being (O'Connor & Paunonen, 2007). This highlights the need for a sensitive, individualized approach to instruction—one that acknowledges the importance of personality in students'' overall educational development.

According to expectancy–value theory (Wigfield & Eccles, 2000), students' invest effort and persist when they believe they can be successful (expectancy) and when they perceive an activity as important, interesting, or useful (value). This theory provides a framework for understanding students'' choices, persistence, and intensity of engagement across different academic tasks. The value students' attribute to an activity is shaped by several components: perceived importance (the activity's relevance to their goals), interest (intrinsic enjoyment), utility (its contribution to future goals), and cost (perceived drawbacks such as stress or time investment).

Research indicates that students' with higher expectations for success and stronger value appraisals of academic tasks are more likely to invest effort, persist, and achieve higher outcomes (Eccles & Wigfield, 2002). Consequently, educational environments that cultivate a sense of competence, intrinsic motivation, and psychological safety not only facilitate academic achievement but also promote positive personality development. Creating such environments requires encouraging student autonomy, recognizing and valuing individual interests, and minimizing excessive performance pressure.

Personality, mental, and physical health

According to the World Health Organization (WHO), mental health is defined as a state of well-being in which individuals can effectively cope with everyday stressors, realize their potential, learn and work productively, and contribute to society. Mental health is not limited to the absence of mental disorders; rather, it represents a complex continuum that varies in intensity, psychological distress, and potential social and clinical implications (World Health Organization, 2022).

Personality is closely associated with health and overall quality of life. Its contribution is substantial for understanding a wide range of medical conditions. Research examining the relationship between personality and mental health commonly relies on the Five-Factor Model of personality (Goldberg, 1992), which shapes both psychological well-being and the likelihood of developing certain mental disorders.

Busseri and Erb (2023) conducted a comprehensive meta-analysis examining the associations between the five personality dimensions and positive affect, negative affect, and life satisfaction—three core components of subjective well-being. The analysis included 35 samples with a total of 22,135 participants across 14 countries. The findings indicate that the personality dimensions collectively explain a substantial proportion of the variance in subjective well-being and its three components. In addition, each of the five personality dimensions makes a significant individual contribution to subjective well-being.

Results from another meta-analysis show that neuroticism, extraversion, and conscientiousness are the three personality dimensions that most strongly predict subjective well-being (Anglim et al., 2020). Neuroticism is negatively associated with subjective well-being, whereas extraversion and conscientiousness show positive associations. These personality dimensions influence how individuals experience emotions, regulate their behavior, and cope with everyday stressors, making them highly relevant to mental health and psychological well-being.

In research examining the relationship between personality and physical health, neuroticism and conscientiousness consistently emerge as the strongest predictors. Conscientiousness is associated with a substantially reduced likelihood of developing a wide range of physical illnesses in adulthood, whereas neuroticism is linked to higher rates of such conditions and generally poorer health (Murray & Booth, 2005).

Conscientiousness, as one of the dimensions of the Five-Factor Model, shows a significant positive association with health and longevity among both men and women when combined with an internal locus of control (Rozhkova, 2024). This association is only partially mediated by the extent to which individuals take care of their health and engage in behaviors aimed at maintaining it. Researchers have also identified sex-based differences in the relationship between personality dimensions and health outcomes: higher levels of neuroticism are associated with an increased risk of mortality among men, whereas higher levels of openness to experience are linked to a reduced risk of mortality among women.

The traits of openness, conscientiousness, extraversion, neuroticism, as well as an internal locus of control, show statistically significant associations with self-reported health. These findings are crucial for developing interventions aimed at fostering positive noncognitive skills in the early stages of a child's socialization, as such skills may serve as effective tools for improving individual health outcomes. A growing body of research underscores the importance of personality traits in the design of public health programs, prevention efforts, and psychological resilience-building initiatives. Conscientiousness, as a predictor of self-regulation and healthy habits, plays a central role in interventions targeting behavior change (e.g., nutrition, physical activity, and risk avoidance). At the same time, traits such as emotional stability and openness to experience are associated with a greater likelihood of seeking psychological support and engaging in active coping strategies (Hampson, 2012).

By integrating personality profiles, health professionals and clinical psychologists can more effectively tailor interventions to individual needs, resulting in more sustainable improvements in mental well-being. This approach is particularly important in early developmental stages, where personality traits may serve as indicators of both risk and protective potential for mental health.

Personality also has a substantial influence on other life outcomes, including self-esteem, identity, interpersonal relationships, romantic relationships, values, attitudes, and related domains.

A primary focus of clinical psychology is the prevention and treatment of psychological disorders. Psychopathology has been consistently found to be strongly associated with the personality factor neuroticism. Individuals high in neuroticism exhibit more intense reactions to stressful situations, are more likely to perceive others' behaviors as threatening, and tend to interpret even low-intensity negative events as frightening or overwhelming.

There is strong evidence for the association between neuroticism and affective disorders (Barlow et al., 2024), as well as for its link with anxiety disorders, somatoform disorders, schizophrenia, and eating disorders. Neuroticism has also been associated with drug use and substance abuse (Dash et al., 2023).

According to some perspectives, personality disorders can be understood as extreme, maladaptive manifestations of the five basic personality dimensions. The *Diagnostic and Statistical Manual of Mental Disorders*, Fifth Edition (DSM-5, 2013), incorporates a dimensional model of personality. This model includes five broad dimensions that correspond to the personality dimensions of the Five-Factor Model but focus on the extreme ends of the continuum. These dimensions are: Negative Affect (high neuroticism), Detachment (low extraversion), Antagonism (low agreeableness), Disinhibition (low conscientiousness), and Psychoticism (an extreme and maladaptive form of openness to experience).

Personality in the organizational context

Within organizational psychology, personality is regarded as one of the central factors for understanding individual differences in work styles, professional engagement, and the ways in which employees interact with their work environment. The workplace is not merely a collection of tasks but a dynamic social context in which relationships are formed, decisions are made, and diverse priorities and pressures are navigated. The manner in which an individual interprets this environment, organizes personal goals, responds to failure and stress, and communicates with colleagues is shaped to a large extent by their personality characteristics. Consequently, personality is not viewed as an abstract or general disposition but as a concrete and active factor that shapes professional behavior, motivation, and job performance.

Research on personality within organizational contexts has historically been driven by the aim of predicting key outcomes such as effectiveness, productivity, job satisfaction, and employee retention. Before examining these specific influences, it is necessary to introduce the psychological

models and assessment instruments most commonly used to evaluate personality in organizational settings.

Goldberg's (1992) Five-Factor Model organizes individual differences into five broad dimensions: extraversion, neuroticism, openness to experience, agreeableness, and conscientiousness. These dimensions offer a comprehensive understanding of the cognitive, emotional, and behavioral tendencies of individuals. Extraversion is associated with the need for social stimulation and assertiveness, whereas lower levels reflect introversion and a preference for solitary work. Neuroticism captures emotional sensitivity and susceptibility to stress, while emotional stability reflects psychological resilience. Openness to experience encompasses intellectual curiosity and creativity; agreeableness refers to cooperation, trustworthiness, and empathy; and conscientiousness involves self-discipline, organization, and goal-directed behavior.

Beyond the Five-Factor Model, the HEXACO framework (Ashton & Lee, 2007) is also widely applied in organizational contexts, introducing a sixth dimension: Honesty–Humility. High levels of this trait are associated with fairness, adherence to ethical standards, and the absence of manipulative tendencies, whereas low levels indicate a propensity toward selfishness, exploitation of others, and a strong orientation toward status and personal gain. This dimension is particularly relevant in organizational environments where trust, transparency, and integrity are essential for maintaining stable professional relationships.

To assess emotional aspects of organizational functioning, the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1998) is frequently employed. This instrument provides insight into whether an employee predominantly experiences positive states such as enthusiasm and inspiration, or negative states such as frustration and anxiety—experiences that have direct implications for workplace climate and interpersonal interactions.

Additionally, the Myers–Briggs Type Indicator (MBTI; Myers & Briggs, 1962), which is based on Jung's theoretical framework, is often used to identify work styles and communication preferences. Although widely applied in practice - particularly in team development and training - its psychometric validity remains a subject of professional debate. Consequently, its use is generally recommended for descriptive purposes rather than for formal prediction of job performance.

Research conducted during the second half of the 20th century frequently pointed to the limited ability of personality questionnaires to predict workplace behavior (Anderson, 2005). However, the accumulation of evidence through meta-analytic studies in recent decades has led to a substantial revision of these views. Contemporary findings confirm that the Five-Factor Model is associated with a range of occupational outcomes, with conscientiousness and neuroticism emerging as the most consistent predictors of job performance (Salgado et al., 2020).

The meta-analysis conducted by Zell and Lesick (2022) indicates that all five dimensions demonstrate statistically significant associations with job performance, with conscientiousness showing the strongest correlation with outcomes in tasks requiring organization, persistence, and responsibility. These findings are further supported by the work of Barrick and Mount (1991),

which demonstrates that conscientiousness is a stable predictor across diverse professions, whereas extraversion and openness to experience are more relevant in roles that demand interaction, adaptability, and learning.

In addition to "positive" personality models, considerable attention has been directed toward negative tendencies commonly referred to as the "Dark Triad": narcissism, Machiavellianism, and psychopathy. Research shows that these traits exhibit weaker predictive effects on performance but stronger associations with counterproductive work behaviors, particularly among individuals high in Machiavellianism and narcissism (Grijalva & Newman, 2015; O'Boyle et al., 2012). Counterproductive behavior may include theft, misuse of resources, aggression, or disruption of workplace dynamics (Schmitt & Kim, 2007; Sackett & DeVore, 2001).

Personality in sport

One of the central aims of contemporary personality psychology is to examine how thoughts, emotions, behaviors, and environmental factors influence athletes and their success in sport. Researchers seek to describe, explain, predict, and modify these psychological processes in order to enhance athletic performance and support athletes' well-being. Historically, the primary focus of sport psychology was the achievement of high performance, often at the expense of mental health. However, athletes encounter similar psychological challenges as the general population and may even face heightened risks to their psychological stability. As a result, recent years have seen growing attention to athletes' mental health and overall well-being.

One of the theories that seeks to explain behavior in sport is Bandura's Social Learning Theory (Bandura, 1977). Bandura highlights the social environment as a significant factor in shaping athletes' behavior. According to this theory, athletes learn which behaviors are acceptable or unacceptable through the process of modeling - observing and imitating others. Thus, young athletes, by observing the behavior of others, learn whether certain forms of aggressive behavior are considered acceptable within the context of a specific sport. Models in this process may include coaches, peers, professional athletes, or other relevant figures, and learning is based not only on observation but also on the consequences the model receives for a given behavior (e.g., praise, punishment, or reward). In this way, behavioral patterns are formed that align with the social and ethical norms of the sport.However, an increasing number of researchers argue that personality plays a significant role in shaping sport-related behavior and performance (Tod, 2022). Among athletes, there are notable differences related to culture, gender, sexual orientation, and religious affiliation, as well as in their personality characteristics. Elite athletes often exhibit certain similarities in the personality traits they possess.

A study conducted by Piepiora (2021) examined personality dimensions among 600 athletes aged 20 to 29 years, representing twenty different sport disciplines. Within this sample, 59 participants were classified as "elite" athletes (i.e., individuals who had earned national or international distinctions). The results showed that athletes in the elite group exhibited lower

levels of neuroticism and higher levels of extraversion, conscientiousness, and agreeableness compared to the remaining athletes. Thus, levels of neuroticism, extraversion, agreeableness, and conscientiousness may contribute to determining competitive success.

Given the considerable diversity of sports, it is assumed that different personality traits may facilitate success across various sport disciplines. A meta-analysis including 155 independent studies investigated extraversion among athletes (Allen et al., 2021). The findings indicate that athletes demonstrate higher levels of extraversion than the general population, athletes in team sports show higher extraversion than those competing in individual sports, and female athletes score higher on extraversion than male athletes. Additionally, research shows that athletes with higher levels of extraversion tend to use more adaptive coping strategies, form higher-quality relationships with coaches, and display greater motivation to achieve high levels of sport performance.

Other research has focused on examining personality states and their association with sport performance. In a study by Beedie and colleagues, the relationships between various mood states - anger, depressed mood, confusion, fatigue, tension, and vigor - and sport success were investigated (Beedie et al., 2000). The findings indicated that mood was not significantly related to athletes' ability level; athletes of different ability levels reported similar moods over a given period. However, mood emerged as an important factor when assessed immediately before competition. Vigor was associated with greater sport success, whereas confusion, fatigue, and depressed mood were linked to poorer performance. Anger and tension were associated with either higher or lower success depending on the situational context.

Two parallel studies examined the association between perfectionism - measured through perfectionistic strivings and perfectionistic concerns - and sport performance in a 10-kilometer run and a half marathon (Walerianczyk & Stolarski, 2021). In both studies, perfectionistic concerns emerged as a significant predictor of running performance, explaining 7% and 13% of the variance, respectively. Furthermore, perfectionistic strivings moderated the relationship between expected and actual performance, with this association being substantially stronger among individuals exhibiting higher levels of perfectionistic strivings. The second study demonstrated that these effects remained statistically significant even after controlling for the five personality factors, indicating that they cannot be attributed solely to higher levels of conscientiousness among perfectionists.

Personality and criminal behavior

One of the outcomes associated with personality is criminal behavior. The relative stability of personality helps explain the continuity of antisocial behavior across different situations and over extended periods of time (Loeber, 1982). Research examining the relationship between personality traits and antisocial behavior indicates that individuals with high levels of negative emotionality and low levels of constraint are more likely to engage in delinquent behavior (Agnew et al., 1992).

Several meta-analyses have examined the relationship between personality traits and antisocial behavior. In the meta-analysis conducted by Miller and Lynam (2001), which included

51 studies, four different personality models were incorporated: Eysenck's P–E–N model, the Five-Factor Model, Tellegen's three-factor model, and Cloninger's seven-factor temperament and character model. The aim of the meta-analysis was to determine which personality traits, across these theoretical frameworks, most strongly predict antisocial behavior. The researchers identified the following traits as key predictors: novelty seeking, psychoticism, constraint, low agreeableness, and low conscientiousness.

Jones and colleagues (2011) expanded on the earlier meta-analysis by examining the associations between the dimensions of the Five-Factor Model and both general antisocial behavior and aggressive behavior. Their meta-analysis, which included 29 studies on general antisocial behavior and 35 studies on aggressive behavior, yielded consistent results. Agreeableness emerged as the strongest - though negative - predictor of aggressive behavior. In addition, conscientiousness and neuroticism showed significant associations with both forms of behavior, whereas extraversion and openness to experience were not significantly related to either outcome.

Comparable findings were obtained in a more recent study by Donald and colleagues (2022), which represents a methodologically expanded version of the previous meta-analysis. The only notable deviations were the weak but statistically significant association between openness to experience and aggression, and the weak yet significant associations of both openness and extraversion with nonaggressive antisocial behavior.Despite the relative stability of personality across time and contexts, certain traits show systematic developmental shifts. With increasing age, individuals tend to exhibit higher levels of agreeableness and conscientiousness and lower levels of neuroticism. These developmental changes in personality correspond with the well-documented decline in antisocial behavior across the lifespan (Roberts & Mroczek, 2008).

In the meta-analysis conducted by Moreira and colleagues (2024), the relationship between the Dark Triad personality traits (narcissism, Machiavellianism, and psychopathy) and antisocial behavior was examined. The analysis encompassed 367 studies published between 2010 and 2023. The results indicate a significant association between Dark Triad traits and delinquent behavior among adolescents, with conduct disorder showing positive links to psychopathy and Machiavellianism. A significant relationship was also found between Dark Triad traits and various forms of antisocial behavior in adults, including bullying, aggression, violence, and cyberbullying. Psychopathy emerged as the trait most strongly correlated with antisocial behavior. Although narcissism showed weaker overall associations, it was linked to reactive aggression and ego-threat responses. The findings underscore the central role of psychopathy in predicting antisocial behavior and highlight its capacity to reduce the relative influence of Machiavellianism and narcissism on such behaviors.

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THEORIES OF RELIGION AND PHILOSOPHY OF RELIGION COURSES AT THE FACULTY OF PHILOSOPHY: DIDACTIC GOALS AND METAPHYSICAL IMPORTANCE

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ABSTRACT:

This text presents an overview of how the academic field of theories of religion and philosophy of religion is taught at the Faculty of Philosophy at the University "Ss. Cyril and Methodius", focusing on the didactic aims and learning outcomes of the courses across the BA, MA, and PhD levels. This overview provides a brief account of curricular design in an area that examines the sacred, the divine, the ineffable, and the metaphysical dimensions of religious life, thus contributing to the metaphysical core of the degree in philosophy, and to the pluriperspective nature of the interdisciplinary profiles.

At the BA level, *Theories of religion* introduces students to major theories on the origin and nature of religion, covering concepts such as the sacred, myth, ritual, magic, and the formation of *homo religiosus*. It emphasizes interdisciplinary approaches by introducing anthropology, sociology, and cultural studies. *Philosophy of religion* builds on this foundation by addressing central metaphysical questions concerning the existence and nature of God, the limits of religious language (the field of negative theology), and the problem of evil in religion, while fostering analytical, comparative, and interpretive skills. It is also shown how an adapted elective version accommodates students from non-philosophical disciplines (archeology, art history etc.).

At the MA level, *Theories of the nature of religion* deepens students' analytical-synthetical and hermeneutical abilities, enabling them to critically engage with paradigms and methodological assumptions. *History of the notion of God* offers a genealogical study of the concept of divinity, training students to analyse and synthesize complex metaphysical ideas. Courses offered within interdisciplinary programs (Interreligious studies, Religiousstudies) provide foundational competencies for students without extensive philosophical background.

The PhD courses, *Philosophy and religion* and *Religion and morality*, expand the study of metaphysics, methodology, and value systems. They cultivate pluriperspective analysis, conceptual reflexivity, and autonomous research skills, addressing topics such as theories of divinity, theodicy, moral heteronomy and autonomy, and the evolution of ethical and symbolic systems.

Together, these courses articulate the central role of philosophy of religion within philosophical education, highlight its interdisciplinary relevance, and demonstrate its importance for understanding human search for meaning across cultural, symbolic, and metaphysical domains.

Key words: *theories of religion, philosophy of religion, metaphysics, sacred, God*

Introduction

The concerns of the disciplines addressed in this paper, through the courses *Theories of religion* and *Philosophy of religion* extend into the realms of the transcendent and the ineffable, the sacred and the divine. They examine the presupposed and the reconstructed, the non-rational and the incommunicable; the mythical, ritual, cultic, and magical; they consider the sacred from a profane vantage point, and the divine from a human (limited) perspective.

The following text does not constitute a research article, but rather an account of how the academic area of philosophy of religion is taught at the Faculty of Philosophy at the University 'Ss. Cyril and Methodius'. It offers an overview of the didactic goals and learning outcomes, based on the thematic structures of the relevant courses. Understood as a systematic inquiry into the concepts, experiences, and practices associated with religious life, an inquiry that inevitably engages metaphysical reflection on notions such as the sacred and the divine, the field is approached via two fundamental curricular pathways: Theories of religion (and versions thereof) and Philosophy of religion (and versions thereof), present at all three levels of study (BA, MA and PhD).

Within this framework, this overview will present the main didactic objectives and corresponding challenges of the undergraduate courses *Theories of religion* and *Philosophy of religion*, obligatory within the BA degree program in philosophy at the Institute for philosophy. It will then situate the MA (second-cycle) courses *History of the notion of God* and *Theories of the nature of religion* within the broader metaphysical corpus of the program inTheoretical philosophy, and briefly examine the compulsory course *Theories of the nature of religion* from the interdisciplinary MA program in Religious studies. It will also be indicated how the material of *Philosophy of religion*, when offered as an elective, is adapted to the specific academic needs of students from other academic profiles in the humanities.

The main concepts of the two PhD courses, Philosophy and religion and Religion and morality, offered at the Institute for philosophy as part of the University's doctoral school will be mentioned. The overarching aim is to clarify the fundamental position of these courses within philosophy, to underscore their interdisciplinary relevance, and to demonstrate their importance for contemporary education.

The didactic goals of the BA courses (Theories of religion, Philosophy of religion, Philosophy of religion-elective)

In the BA program in Philosophy at the Institute for philosophy, there are two obligatory (6 credits) courses pertaining to the area of philosophy of religion: Theories of religion (IV semester) and Philosophy of religion (V semester).[1]

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[1] Since the introduction of ECTS in 2004 at the Faculty of Philosophy, and thus the need for single-semester courses, Philosophy of religion was first being taught as Philosophy of religion 1 and 2 (in the fifth and sixth semesters); after the first restructuring of the programs, Philosophy of religion was relabeled as Theories of religion, as this title fully suited the course's contents and objectives. After the second restructuring and the forced merger of two-semestral courses into one-semestral ones, the two courses were merged into Philosophy of religion, which encompassed the

The main didactic goal of the course Theories of religion[2] is the general acquaintance with the theories of the origin and the nature of religion as one of the fundamental human phenomena. This requires the following learning objectives. The students are expected to acquire and maintain a grasp on the different theories of the origin and the nature of religion (animatism; animism/ animistic theory; totemism/totemistic theory, the discarded premise of natur(al)ism). Students are encouraged to identify and discuss the sources and functions of religion, as well as the role of religion in the formation of culture and the foundation of custom law and social institutions. The significance of religion in the formation of the identity of homo religiosus and of man's position in the world as a key anthropological concept is studied through examples of ethnology, cultural anthropology and sociology of religion. This interdisciplinary approach is crucial for the appropriate construction of concepts and mechanism in the broader field of Theories of religion as a philosophical discipline and as a university course.

Particular attention is dedicated to the theories of the sacred as the basis for religious experience and cultic organization (in both the positive and the negative cult), covering the sacred-profane dichotomy, the relationship between mana as a sacred force and the concept of taboo, the concentration of the sacred in totemic mana, and the various presentations and mechanism of sacrificial rituals.

Students are required to read up on several approaches to myths, and focus on the theories of the status and significance of myths as sacred tales. They are expected to discuss the importance of myth in archaic religions, identify the key features of sacred mythopoesis, as well as the main motifs in cosmogonic myths, some etiological myths and myths on the end of the world. As a creative practice students are required to construct myths using writing prompts, but remain fully aware that this falls under the category of modern mythopoesis, and not the realm of the sacred. Students are required to identify and discuss the importance of rituals in the religious cult (piacular rituals, mourning rituals etc.), and identify remnants of (sacred) rituals in contemporary events, such as celebrations. Students are to address and discuss the mechanisms of sacred (numinous) experience and the problems of the ineffability of religious sentiments as well as the limits of religious languages (this also serves as a foundation for the in-depth study of negative theology in the Philosophy of religion course). Some attention is paid to the profane equivalents of the experience of the numinous, with references to aesthetics (the category of the sublime), and psychology (the uncanny).

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material from both courses in only one, which meant reduced teaching hours, overload for individual study, and the inevitable decrease in results. The next restructuring resulted in the current, much more comprehensive and suitably intensive courses Theories of religion in the fourth semester and Philosophy of religion in the fifth semester. The pace, the workload, and the position of the courses within the degree ensure an efficient overview of the material, drawing also from the students' knowledge from the courses they have already read and passed, such as Ontology, Medieval and renaissance philosophy and Byzantine philosophy.

[2] To avoid burdening the text with references of the study programs and course programs, the links are all supplied in the Bibliography section of this text. For a focus on the course contents, see Todorovska 2023.
All the courses mentioned in this overview are also offered in English. However, the course contents and didactic goals require that at least 50% of the readings must be in Macedonian.

A portion of the course is dedicated to the persistence of myths and rituals through their transformations. Therefore, students are encouraged to examine the formalistic theories of (ordinary, nonsacred) folktales, acquaint themselves with indexes of folktale motifs and recognize such motifs in the art and the (pop)culture with which they familiarize themselves, including myths in art, rituals in performing arts, and the ritualisation in quotidian, profane life. The decline of the importance of the sacred and the problem of the displacement of the numinous (the sacred) from the contemporary (post)secular world is examined, and students are required to ponder the disenchantment and reenchantment of the world through endeavors that are not necessarily or strictly religious.

Students are required to identify and examine the mechanisms of sympathetic magic; the methods of magic as a sort of protoscience, and examine the relationship between magic and science, and between magic and religion, focusing on the similarities and differences in practical actions of (obvious) causal relationships, and the difference between instant and delayed gratification. Finally, the students are expected to understand and discuss the ways or opportunities of believing and acting religiously in the contemporary world, the ways of communicating faith, and the importance of intra- and interreligious dialogue and cooperation.

The course objectives (competences/learning outcomes) of the course Philosophy of religion are centered around the acquaintance with the foundational metaphysical questions about the existence and the nature of God, as a central notion of most religious systems.

The main lines of inquiry are around several essential metaphysical issues, such as the development of the notion of divinity and the main characteristics of monotheism and of the philosophical idea of God; the approaches to the existence of God; the vast area of God's nature as incomprehensible, uncircumscribable, ineffable, covered by the field of negative theology; the metaphysical problem of evil and the methods of theodicy, including various approaches to the origin and the problem of evil (evil incarnate, ideas on devastating transgression and un/forgiveness, the in/compatibility of evil with the concept of (a good) God etc.).

Students are to gain strategic competences for the identification, analysis, and critical approaches to the different concepts of the divine/God, as well as to deepen and perfect their capabilities for comparative analysis of different philosophical and theological systems, themes, and issues. The course focuses on topics such as the history of the notion of God, from the initial ancient reflections about nature and the divine, to the contemporary philosophical and theological approaches to the nature of God.

The arguments about the existence of God (ontological, cosmological, teleological, the argument from moral order) are studied through some of their main expounders, which aligns with previously attained knowledge from the courses on medieval and byzantine philosophy (benefitting, where possible, from segments of individual study of Arabic and Jewish medieval topics), and the concomitant course on modern philosophy towards German classical idealism. The arguments against the existence of God (or a good God) are analysed through the area of

theodicy, from the world of the *Bible* to the contemporary genocides we witness on a daily basis. Various types or approaches of theodicy are analysed, and the students are expected to be able to confidently explain the sensitive issues about evil in the world to non-philosophers concerned with (unjust) suffering, as well as to aptly argue concepts of theodicy on a higher academic level, combining issues from the geo-political and social climate they are witnessing.

A major part of the course is dedicated to the problems of (un)knowability and ineffability of God, building upon the problems of the limits of religious language and the inability to communicate the numinous and the mystical experience from the previous course, Theories of religion. The negative theology in the Platonist tradition is thoroughly covered by reading and presenting the selected works/passages from the main authors of the tradition who employ apophatic methods, and discussing the intricacies of religious language and counterontological concepts.

This course offers a foundation on the issues pertaining to the area of the theories on the origin and the nature of religion as one of the core human phenomena, adapted to the needs of the profile/program. The course's name is "Philosophy of religion", but the contents much more closely resemble those contained in the course Theories of religion from the program at the Institute for philosophy, as students at other institutes are not expected to have a strong metaphysical basis or knowledge of the history of philosophy. The interdisciplinarity and multiperspectivity of the area of study is suitable for students from other profiles, as it offers a possibility to combine information from different fields, skills from different profiles, and learning outcomes beneficial for the formation of – in this case – art historians and archeologists.

The students are expected to gain some basic knowledge on the different theories of the origin and the nature of religion; understand and contextualize the sources and the functions of religion within the scope of their degree; and ponder the role of religion historically, and as an important metaphysical and cultic endeavor of man in general. Students are encouraged to utilize their knowledge of archeology, art history and the classics (ancient history, mythology, epigraphy, poetics etc.) in order to approach the theories on myth, ritual, and the sacred in a pluriperspective manner. They are also encouraged to ponder the persistence of the mythical and the ritual throughout art and popular culture, and to notice and explain the decline of the (significance of) sacred in the contemporary world.

Depending on the circumstances (number of students and their educational needs and preferences), the program is adjusted upon agreement with the group, in order to make the material as useful as possible for their degree. This includes intensified use of real-life examples from their studies in archeology and art history, a focus on sacred items and meanings in the material culture, and on the status and importance of religious art.

The MA level courses – learning outcomes and methodological significance

The course Theories of the nature of religion (I semester, elective), offers an in-depth acquaintance with the basic approaches to religion and concepts of religion, as one of the

fundamental human phenomena, present throughout the entire history of humankind. The course contents and learning objectives draw from and build upon the BA course Theories of religion. The competences gained from this course align with the general purpose of the graduate degree in theoretical philosophy, thus focusing on the development of analytical-synthetical thinking, critical approaches to primary and secondary literature, hermeneutical sensibility, and social and historical awareness.

The course allows the students to revisit these anthropological foundations from Theories of religion, but now more critically, comparing paradigms, evaluating the methodological assumptions of each theory, and contextualizing the issues in their own (potential) academic development and research. This course provides a pluriperspective foundation for further research, as it introduces and trains students in multiple hermeneutical traditions (anthropological, phenomenological, sociological, theological etc.), and enables them to understand religion in its complexity, as a dynamic field of meaning-production. This pluralism, grounded in theory, should it be further pursued in other areas/disciplines/career elements, enables interreligious dialogue, as it facilitates the understanding of the differences and similarities in various belief systems.

The course History of the Notion of God (II semester, obligatory) offers a specific historical articulation of metaphysical thought in Western philosophy on one of the main problems of philosophy, theology, and generally, human existence, as its essence is historical–conceptual. It traces the intellectual genealogy of divinity, or the evolution of the metaphysical idea of ultimate reality, from mythic archetypes to abstract conceptions of Being.

As with the previous course, the contents and learning objectives of this one are contingent upon the BA course Philosophy of religion, as it requires an excellent level of comprehension of the approaches to the nature of God which have already been covered, in order to construct an independent study plan on chosen concepts of the divine/God. The students are expected to perfect their capabilities for comparative analysis of different philosophical and theological approaches and place them in a broader philosophical context, in order to facilitate critical thinking and independent research on this very elusive and utterly complex metaphysical topic. The students are expected to excel at understanding, comparison, analysis and synthesis of the different concepts of God (personal vs. non-personal; God's transcendence and immanence through mediatory figures; theophanies and other forms of access to God's manifestation). They are encouraged to articulate and critique the different approaches and doctrines, and place them as aptly and as possible within their chosen areas of academic research. The course is such a key part of the Theoretical philosophy degree, because it provides a template for studying how abstract concepts evolve, a skill transferable to any genealogy of ideas.

The course Theories of the existence of God is offered as an elective on the University list of elective subjects. This course covers the various arguments for the existence of God (ontological, cosmological, teleological, etc) and the focus is tailored to the specific needs of the students.

The main aim of the course Philosophy of religion (II semester, obligatory) as part of the MA degree in Interreligious studies (2018, both 60 and 120 credits) is the acquaintance with the theories of the nature of religion, as, although the title is "Philosophy of religion", the nature of the interdisciplinary program limits the expectations about the metaphysical (ontological and religious) training of the students, and the course corresponds to the Theories of the nature of religion from the Theoretical philosophy program.

Some topics concerning God are approached, but in a manner less profound than at the courses at the Institute for philosophy. Students are expected to gain knowledge about the relation between homo religiosus and the object of belief (however it may present); the development and functioning of religious cults, and about the ideas and rules of various rites (such as sacrifice, passage, mourning etc); as well as about the relation between magic and religion. The students coming from areas of study different than philosophy are encouraged to use their original disciplines as much as possible in their study of philosophy of religion, and to share various, even conflicting views through a pluriperspective approach. The students are expected to form ideas about the development of the concepts of divinity, and to contextualize these ideas within their original profiles (degrees obtained) and their research aspirations at this program. Thus, each specific profile is to use the subject-matter in the most appropriate manner for their own academic progress and future career.

The contents and the didactic goals of course Theories of the nature of religion (I semester, obligatory) as part of the MA degree in Religious studies (2023) are similar to those of the course Theories of the nature of religion at the Institute for philosophy, keeping in mind that not all students have as strong as a philosophical basis as their Theoretical philosophy peers. This course is a key compulsory course for the interdisciplinary program, expected to equip the students with the necessary analytical-synthetical skills, critical thinking approaches, and multidisciplinarity openness in order to best build their profile through the subsequent obligatory, and the many available elective courses.

The PhD courses: learning outcomes and metaphysical significance

The objectives (competences/learning outcomes) of the Philosophy and religion course are: acquirement of profound knowledge of the different theories of the nature and the origin of religion and of philosophy; development of abilities for a pluriperspective analysis of the similarities and differences between religion and adjacent phenomena; development of an understanding of the relations and divergences between religion and philosophy, while developing abilities to critically analyse the position of the homo religiosus in relation to homo metaphysicus and homo symbolicus; deepening of the knowledge of certain important problems from the area of the philosophy of religion (concepts of divinity, the relationship between the religious man and the religious object; elements from the history of the notion of God, key aspects of theories of the existence of God, the significance of the problem of evil – with an in-depth research based on individual academic

preferences and the specific program expectations); further development of the capabilities for the proper use of analytico-synthetical, comparative and phenomenological methods in the research of the religious phenomena and the issues of the philosophy of religion.

The benefits of the course Philosophy and religion are manifold. The critical use of analytic–synthetic, comparative, and phenomenological methods that foster nuanced argumentation and interpretive depth further enriches the students' intellectual abilities, which is helpful in the long run. By deepening the knowledge of theories of religion, this course gives students (as researchers) a meta-framework for analysing belief, ritual, or transcendence in any cultural system (useful for anthropology, art history, sociology, literary studies). Through the emphasis of pluriperspective analysis, it models the kind of conceptual pluralism needed to navigate global, intercultural research, suitable for any type or academic, corporate or independent career the students might choose in the future. The nuanced approach to homoscpeciations such as homo religiosus, metaphysicus, symbolicus encourages anthropological and semiotic self-awareness, and the ability to interpret complex symbolic systems. The topics from the research areas around the notion of God, theodicy, and post-secularism provide templates for learning about the evolution of abstract concept and equips students to think beyond the religion/secularism divide that underpins much of modern theory and points of contention, which is crucial for contemporary cultural analysis.

The objectives for the course Religion and morality are: acquiring knowledge of the different aspects of the relationship between religion and morals; analysis of the development of morality within religion, and of the foundation of religion in morality (heteronomous and autonomous morality in relation to the collective religious functioning); research of the sources of morality and of religious behaviour; acquaintance with systems of Western thought in which morality and religion (or some elements thereof) have an operational role; contextualization of evil in its many forms and manifestations, from early demonology to contemporary atrocities (crimes against humanity, ecocide, nuclear proliferation etc.). By facilitating the understanding of the sources of morality and of religion, the ontological status of ethical categories, and the role of religion in moral decision-making, the course Religion and morality offers foundational skills for research in religion, ethics, jurisprudence, political theory, social and cultural anthropology, cultural studies, and many more areas. The focus on heteronomy vs. autonomy offers an essential philosophical distinction for any further study of normativity, authority, ideology, while the comparative analysis of moral systems trains hermeneutics skills and historical and social sensibility applied across epochs, worldviews and frameworks. The comparative aspect of morality and religion engages the pressing question of value systems in plural societies, which is vital for sociology, cultural policy, and applied ethics. As with the Philosophy and religion course, the independent historico-comparative research further develops the students' academic capabilities. Furthermore, understanding moral and religious structures enhances social and intercultural research competences.

These two courses are intentionally as broad as possible, to allow for as much liberty and space in self-determination in terms of research-topics and in-depth study of chosen themes and

issues. Their general functions are focused on the need to train conceptual reflexivity, essential in philosophy; the need to provide theoretical depth for interdisciplinarity (combining philosophy, theology, anthropology, sociology, psychology, sociology, literature etc.), crucial for PhD students interested in intersectional, pluriperspective issues; the role of methodological literacy, as they foster the intensive use of comparative, phenomenological, analytical, and hermeneutical modes of inquiry, transferable to other research domains; the need to cultivate autonomous research practice, as they are conceived and designed as independent study modules in the most part. In these two doctoral courses, students learn to articulate the reasons <u>why</u> their research work matters in the broader human search for meaning; to situate their research within long intellectual lineages; to build an independent framework; and ultimately, to navigate the moral, symbolic, metaphysical and practical dimensions of knowledge itself.

Conclusion

The Theories of religion course shows the metaphysics of humanity before it becomes systematized into philosophy; the cultic actions of religious communities and the mythical thinking open to the enchantment of the world; it shows a shared predisposition to something greater and more powerful, as well as the common thirst for community, security, meaning, self-affirmation. It shows where metaphysics begins and how to frame being human from the aspect of religious awe and engagement. The course Philosophy of religion shows how metaphysics becomes self-aware; it perfectly illustrates the self-reflexivity of philosophy. These courses contribute to the metaphysical backbone of the degree in Philosophy (on both BA and MA levels), and the multidisciplinary focal point of the graduate degree in religious studies. They address ontological concerns (what exists and how?); gnoseological concerns (how can the sacred or God be known, experienced, communicated?); axiological concerns (why does it matter?); they encompass knowledge of themes and issues from several adjacent disciplines, and map out important aspects of the question about what it means to be human.

The courses on all three levels of study introduce the students to religion as a foundational human phenomenon, a symbolic matrix that produces meaning, order, action and value, and encourage them to investigate complex issues from the areas of religiology, ontology, ethics, aesthetics, psychology, meta-mythology and literature. Philosophy of religion illuminates the unavoidable human search for the universal, the absolute, the extraordinary, as well as the meticulous, methodical engagement to find and create meaning. Through the brief overview of the didactic goals of these courses it was shown that they are structurally central for any metaphysical study of being human, as wonderful and as excruciating it may be.

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IMPLEMENTING THE PRISM MODEL IN TEACHING MACEDONIAN AS A SECOND LANGUAGE: A CASE STUDY AT "TEFEYYÜZ" ELEMENTARY SCHOOL IN SKOPJE

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ABSTRACT:

This study examines the effectiveness of Macedonian language instruction for Turkish-speaking fourth-grade students at *Tefeyyüz* Elementary School in Skopje through the lens of Collier and Thomas's (1997) Prism Model. The research investigates classroom climate, teaching methods, teacher roles, and the adequacy of current textbooks for students from other linguistic communities. Data were collected via Likert-scale questionnaires and a semi-structured focus group. Descriptive analysis revealed positive teacher-student relations but limited opportunities for active language use and differentiated instruction. Students valued the Macedonian textbook yet desired more visuals and contextualized activities. Findings highlight insufficient exposure to Macedonian and minimal curricular integration with other subjects. Aligning instruction with the Prism Model's four interdependent dimensions: linguistic, cognitive, academic, and sociocultural can foster more effective bilingual development. The paper concludes with recommendations for curriculum redesign and teacher training to promote additive bilingualism and inclusion in multilingual Macedonian schools.

Keywords: *second-language instruction, Macedonian language, Prism Model, multilingual education, classroom climate, textbook evaluation*

Introduction

In Macedonia's multilingual context, Macedonian is both the official and instructional language mandated for all students, including those whose primary language of schooling is Albanian, Turkish, Bosnian, and Serbian. At *Tefeyyüz* Elementary School in Skopje, where Turkish is the primary language of instruction, students begin formal Macedonian lessons only in the fourth grade, two periods per week, or 72 classes annually, without systematic cross-curricular reinforcement. Such limited exposure reduces opportunities for meaningful communication and hampers linguistic and cognitive growth.

This study examines the current state of Macedonian as a Second Language (MSL) instruction and explores how the **comprehensive Prism Model**(Collier & Thomas, 1997) can enhance both

practice and policy. By integrating the social, cognitive, and academic dimensions of language learning, the model provides a robust framework for equitable second-language development.

Theoretical Framework: The Prism Model

The Prism Model posits that successful bilingual development arises from balanced growth across four interrelated dimensions:

1. **Sociocultural processes**: identity, motivation, and relationships supporting learning;
2. **Linguistic development**: parallel advancement of first and second languages;
3. **Academic development**: integration of content knowledge within language instruction; and
4. **Cognitive development**: transfer of higher-order thinking skills across languages.

The Prism Model is backed by extensive international evidence, not just a theoretical concept. Two-Way Immersion programs in the U.S. (Collier & Thomas, 2002) and French Immersion in Canada (Genesee, 2004) are living proof that bilingual learners can achieve high proficiency and academic parity with monolingual peers. Recent European research (Cenoz & Gorter, 2017; García & Wei, 2014; Cummins, 2021) further bolsters this, showing that additive bilingualism and translanguaging approaches can significantly enhance cognitive flexibility and academic success. This robust evidence should provide reassurance to educators, researchers, and policymakers regarding the effectiveness of the Prism Model.

Applying the Prism Model to Macedonian-language instruction emphasizes the need for:

• early and sustained exposure,
• integration of Macedonian across subjects,
• differentiated, communicative methodologies, and
• sociocultural affirmation of students' identities.

Methodology

Participants

Participants were fourth-grade students (aged 9–10) at *Tefeyyüz* Elementary School in Skopje. Data were collected anonymously through questionnaires, and qualitative insights were gathered from a focus group of six fifth-grade students with sufficient proficiency in Macedonian to articulate their views.

Instruments

Three Likert-scale questionnaires evaluated perceptions of (1) classroom climate and teacher role, (2) teaching methods, and (3) textbook quality. Items reflected national textbook evaluation criteria (Bureau for Development of Education, 2010) and didactic principles (Vilotijević, 2000). A semi-structured interview further explored themes emerging from the surveys.

a. Procedure

Data collection took place during regular classes, with permission from school authorities. Homeroom teachers and support staff administered questionnaires to ensure comfort and inclusion. The researcher maintained a non-intrusive presence to minimize response bias.

Findings and Discussions

b. Classroom Climate and Teachers' Role

Overall, students described the classroom atmosphere as positive and respectful, with teachers being perceived as supportive (mean ≈ 4.7/5). Nevertheless, the lowest ratings concerned the freedom to ask questions, signaling a need for greater learner autonomy and interaction, which is a core element of the **sociocultural** dimension of the Prism Model. Limited student agency restricts opportunities for meaningful practice and authentic communication, both of which are crucial for internalizing Macedonian structures.

Table 1. Results of the Likert Scale Survey regarding Classroom Climate and the Teacher's Role.

	Likert Scale on Classroom Climate and the Role of the Teacher	
	Statement	**M**
1	The teacher listens to me.	**4,62**
2	The teacher helps me when I ask for help.	**4,85**
3	I learn new things in class.	**4,73**
4	I know the rules in the classroom.	**4,68**
5	I can complete all the tasks the teacher gives me.	**4,6**
6	I feel free to ask questions during class.	**4,21**
7	The teacher helps me understand the tasks when I make mistakes.	**4,8**
8	My teacher helps me stay organized.	**4,75**
9	My teacher respects all the students in the classroom.	**4,87**
10	I feel happy during class.	**4,78**

c. Textbook Evaluation

Students expressed moderate satisfaction with the current Macedonian textbook (mean ≈ 4.3), noting clear organization and vocabulary support. However, they reported a strong desire for texts with more relatable contexts and abundant visuals, and they requested glossaries and more workbook-style exercises. These findings underscore the need for a **more engaging textbook**: materials tend to focus on form rather than function and rarely connect Macedonian use to daily life or other subjects. Such misalignment limits transfer of content knowledge, contradicting the **academic** component of the Prism Model.

Table 2. Results from the Likert scale survey concerning students' opinions on the used textbooks

Likert Scale for Expressing Opinions on Textbooks		
	Statement	**M**
1	I use the Macedonian language textbook for students from other communities.	4,29
2	I also use the digital version of the Macedonian language textbook for students from other communities.	2,89
3	I think the textbook is not necessary to learn Macedonian.	3,10
4	The textbook helps me learn what I expected to learn in the subject Macedonian language for students from different communities.	4,42
5	I find the textbook boring and useless.	2,64
6	I find it difficult to understand the texts in the textbook.	3,01
7	I find it difficult to understand the exercises in the textbook.	2,90
8	The textbook uses words that are difficult for me to understand.	3,12
9	I find it difficult to use the textbook independently.	3,09
10	I find it difficult to use the textbook at home without my parents' help.	2,88
11	The textbook should have more pictures.	3,89
12	The textbook should have a glossary with explanations of less familiar words and where/how they are used.	4,18
13	There should be additional teaching materials besides the textbook.	4,10
14	The textbook should reflect daily events/activities.	4,27
15	The textbook should include special pages for exercises similar to those in a workbook.	4,25
16	There should be a workbook in addition to the textbook.	4,24

d. Teaching Methods

Learners confirmed exposure to traditional second-language strategies such as translation, repetition, and memorization, with high satisfaction for vocabulary and pronunciation drills. However, activities involving creative expression, role-play, or storytelling received lower ratings (mean ≈ 3.6). This suggests that while grammar-translation methods dominate, there is a concerning underutilization of communicative and cognitive-developmental techniques. According to the **cognitive** and **academic** domains of the Prism Model, learning improves when students engage in language manipulation through problem-solving and conceptual reasoning, rather than relying on rote reproduction. Incorporating games, storytelling, and cross-subject projects could stimulate higher-order thinking and deeper language retention, motivating us to make a change.

Table 3. Results of the Likert scale survey regarding opinions on the teaching methods

	Likert Scale on Expressing Opinions About Teaching Methods Used in Instruction	
	Statement	**M**
1	In Macedonian language classes, we orally translate from Turkish to Macedonian.	**4,26**
2	In Macedonian language classes, we orally translate from Macedonian to Turkish.	**4,27**
3	In Macedonian language classes, we learn how to memorize new words.	**4,68**
4	In Macedonian language classes, we learn and practice different dialogues.	**4,14**
5	In Macedonian language classes, we learn how to pronounce words correctly.	**4,59**
6	In Macedonian language classes, we learn the grammar rules of Macedonian through games.	**3,64**
7	In Macedonian language classes, we learn to tell stories using comic-strip images.	**3,68**
8	In Macedonian language classes, we act out different characters while speaking in Macedonian.	**3,57**

e. Qualitative Insights

Focus-group discussions revealed three recurring challenges:

1. Large, mixed-proficiency classes, which make differentiation difficult;
2. Behavioral disruptions reduce adequate instructional time; and
3. Limited exposure to Macedonian outside of class hinders the natural acquisition of the language.

Students proposed more interactive group work and digital materials. Their reflections underscore the need for a learning ecology that supports both linguistic growth and sociocultural inclusion, pillars of the Prism Model, which holds promise for our educational approach.

f. Integrative Interpretation

Synthesizing the quantitative and qualitative results reveals that while the learning environment is emotionally safe, it remains academically narrow and methodologically traditional. Teachers display a commitment, but they often lack systemic support, modern resources, and training in bilingual pedagogy. Implementing the Prism Model would require:

- Revising the curriculum to begin Macedonian earlier and increase weekly hours;
- embedding Macedonian in interdisciplinary projects;
- providing continuous professional development in bilingual and CLIL methodologies; and
- developing culturally responsive materials that connect Macedonian learning with students' lived experiences.

Conclusion and Implications

This study identifies persistent structural and pedagogical barriers in Macedonian-language instruction for students from other linguistic communities. Although teachers cultivate a respectful

atmosphere, instruction remains limited in duration, differentiation, and academic integration. The findings confirm the relevance of the Prism Model in guiding systemic reform.

Implementing its principles would:

- Foster **additive bilingualism**, enabling students to develop Macedonian without diminishing their first-language competence;
- The Prism Model significantly enhances **academic integration** by aligning Macedonian language instruction with content learning, thereby improving students' comprehension and retention of subject matter.
- Strengthen **cognitive development** through communicative, inquiry-based activities; and
- The Prism Model plays a crucial role in building **sociocultural inclusion** by affirming and celebrating students' multilingual identities, thereby fostering a more inclusive and supportive learning environment.

Policy-makers should revise the national curriculum for non-native learners to ensure early and continuous exposure, as well as teacher training, aligned with bilingual education research. At the school level, the potential of the Prism Model to transform Macedonian-language classes from isolated grammar sessions into spaces of intercultural and intellectual growth is promising and warrants further exploration.

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MANAGING THE PROFESSIONAL DEVELOPMENT OF PRIMARY SCHOOL TEACHERS

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ABSTRACT:

This research focuses on the management of teachers' professional development by the school principal of a primary school. The study involved teachers and principals from several primary schools within the Skopje region. The research examines the subject from the perspective of the quality of principals' management of teachers' professional development, focusing on their effectiveness in the processes of planning, communication, coordination, organization, and evaluation of teachers' professional growth.

Furthermore, the research examined the extent to which principals support the continuous professional development of teachers, the preparation of annual professional development programs, and the implementation and realization of activities aimed at improving teaching competencies.

The findings confirmed the **specific hypothesis** that both teachers and principals believe that school principals actively support the continuous professional development of teachers.

Keywords: *management, school principal, pedagogical leader, human resources, teachers, professional development, training*

Introduction

The management of a school plays a crucial role in the development of the educational process by fostering communication and collaboration with teachers, professional associates, other staff members, students, parents, local authorities, central government, and all partners. A school principal needs to understand the individuality and uniqueness of each person, accept individuals with all their characteristics, and adopt a subtle approach to supporting their development in order to achieve better performance and enhance the educational process. With every action taken, the principal should strive to cultivate positive interpersonal relationships and a constructive school climate.

The majority of employees are qualified according to the requirements of their positions; however, at the beginning, they need to receive training for the tasks they will perform in order to apply theoretical knowledge in practice. When an employee achieves significant results in their work, they should be rewarded to enhance their motivation for future performance. Otherwise, there is a risk of decreased motivation, which could hinder the growth and development of the organization and that is precisely what we do not aim to achieve.

The principal, as a pedagogical leader in a primary school, must remain up to date with changes and adapt to the new demands and requirements of the contemporary era. They should be attentive to the beliefs and judgement of the staff, which can sometimes vary widely, and find ways, through encouragement and a positive approach, to instill the values they advocate—values that will remain a lasting asset to the organization. The advancement of a school depends fundamentally on the establishment of a structured and disciplined environment, which serves as the basis for the effective implementation of all subsequent activities outlined in the curriculum and educational programs. The principal holds a pivotal role in this regard, as they are responsible for defining and enforcing these expectations for all members of the school community.

Theoretical approach to the research problem

Since ancient times, people have organized themselves and worked within structured systems, developing methods for selecting their leaders and implementing training programs. This indicates the necessity of having a leader to manage people and enhance the skills of workers. Management refers to the act of leading and directing people toward the fulfillment of tasks and objectives within an organizational system. A manager is an individual who holds operational responsibilities, supervises the work and activities of others, and provides leadership. Human beings, with their innate abilities, gifts, and talents, represent an invaluable resource for any organization in which they are employed. Therefore, it is particularly important for a leader—or head of an organization—to recognize and value these qualities in employees, so that they are motivated and willing to remain committed to the organization. High-quality human potential presents the foundation for the success and advancement of an organization. It serves as a driving force for the development and learning of students, shaping them into capable individuals who can progress through all levels of education, acquire professional skills, and in the future contribute to the development of their communities as responsible citizens building the nation.

A school should function as a community in which all members are committed to the advancement of the educational process, realized through continuous learning and the ongoing enhancement of knowledge. Learning is a lifelong process, and the principal plays a crucial role in this by ensuring a climate that supports the development of both students and professional staff (teachers). Through their work, the principal provides a model for teachers with regard to effective practices. Similarly, teachers, through their own actions, represent a model for students how to work and learn responsibly, demonstrating that success is achieved only through dedicated and conscientious effort. As a pedagogical leader, the principal is responsible for planning, organizing, and evaluating the work within the educational institution. In this regard, the principal fulfills multiple roles, including those of organizer, planner, innovator, evaluator, instructor, and advisor.

Teaching staff should be well-educated and committed to the concept of lifelong learning, not only during their professional careers, but after their retirement, thereby serving as a model

for their students in demonstrating how they should conduct themselves in relation to their own profession.

The environment plays a crucial role in the professional development of teachers. If a significant number of teachers are focused on their professional improvement, others are likely to develop interest and motivation to continuously enhance their own skills. All members should strive to raise the level of significant progress, foster professionalism within school teams, and establish an atmosphere in which employees contribute to the cultural and educational advancement of the school environment. An important factor in this process is the level of students' education, as well as, their willingness and readiness to learn and develop, which is strongly influenced by their home upbringing. In our country, emphasis must be placed on the professional and vocational development of teachers, as it constitutes the foundation of an effective educational system— one capable of producing competent personnel across all sectors of society. Recent international studies have shown that students often struggle to apply their knowledge in practice. Without well-trained teachers, success cannot be expected. Only an expansion and deepening of teachers' knowledge can lead to meaningful educational outcomes and overall success.

Research methodology

Subject of the research

The subject of this research is the management of teachers' professional development by school principals in primary education. The study involved teachers and principals from several primary schools in the Skopje area. A total of 220 teachers participated, including 103 class teachers and 117 subject teachers, along with 12 principals of the primary schools in the Skopje region. The research examined the subject from the perspective of the quality of principals' management of teachers' professional development, focusing on their effectiveness in planning, informing, coordinating, organizing, and evaluating the professional growth of teachers.

Methods, techniques, and research instruments

From a methodological perspective, the preparation of this study—including data collection, systematization, analysis, and presentation—employed several procedures within a logically justified, coherent, and scientifically grounded approach. Multiple methods were utilized to obtain relevant empirical data on the research problem. Specifically, the descriptive method was applied to explain and describe the subject of the research. The analytical method was employed in the sections of the study dealing with the systematization and processing of the collected research data.

The necessary information for the preparation of the study was obtained through searches of relevant online databases, available literature, and empirical data collected during the research.

Among the techniques applied for collecting empirical data, the survey (questionnaire) technique and the interview technique were used. These techniques aimed to gather insights into

the opinions and perspectives of teachers and principals on various aspects of the management of teachers' professional development in primary schools.

As research instruments, a questionnaire scale for teachers and an interview protocol for principals of the primary schools included in the research sample were employed to collect the required empirical data.

General Hypothesis

In relation to the research problem and objective, the general hypothesis formulated for this study is as follows: Principals successfully manage the professional development of teachers in primary schools.

Based on the results obtained from the research involving teachers and principals, as previously presented, it can be concluded that **the general hypothesis is confirmed**: principals effectively manage the professional development of teachers.

Analysis and interpretation of results

The aim of this research was to describe and demonstrate how effectively principals manage the professional development of teachers in primary schools. In this context, attention is given to each specific hypothesis, examined in light of the empirical data obtained from the teachers' surveys and the interviews conducted with principals from the primary schools included in the research sample.

Regarding the formulated hypotheses, the following conclusion can be drawn:

Specific Hypothesis 1: Teachers believe that principals support their continuous professional development.

Regarding this statement, among subject teachers, 55.55% agree or strongly agree that principals support continuous professional development, while among class teachers, a higher proportion, 75.72%, agree or strongly agree. The majority of teachers (65%) believe that principals in primary schools support the continuous professional development of teachers, whereas a smaller proportion (35%) do not agree with this statement.

Table 1.

•	Strongly Disagree		Disagree		Agree		Stronlgy Agree		Total	
Category	f	%	f	%	f	%	f	%	f	%
Class teachers	10	9.71	15	14.56	51	49.51	27	26.21	103	46.82
Subject teachers	23	19.66	29	24.79	47	40.17	18	15.38	117	53.18
Total	33	15.00	44	20.00	98	44.55	45	20.45	220	100.00

According to the principals' responses, they believe that they support the professional development of teachers because this contributes to a positive change in the school environment, encourages students to become active participants in the learning process, and ensures that teachers are motivated to pursue continuous professional development, thereby influencing the growth and progress of their students. Based on these research results, it can be concluded that the **specific hypothesis** is confirmed: both teachers and principals believe that principals support the continuous professional development of teachers.

Specific Hypothesis 2: Principals actively participate in the preparation of the annual professional development program for teachers.

A large majority of teachers believe that principals in primary schools actively participate in the preparation of the annual professional development program for teachers, accounting for 74.10%, while a much smaller proportion, 25.90%, disagree or strongly disagree. A higher percentage of subject teachers expressed a negative opinion (29.91%) compared to class teachers (21.36%). Overall, the majority of teachers consider that principals actively engage in the preparation of the annual professional development program, whereas only a small proportion disagree. The most notable difference is observed in the category of teachers who strongly disagree, with a slightly higher proportion of subject teachers than class teachers, representing an insignificant 3.5%.

Table 2.

Category	Strongly disagree		Disagree		Agree		Strongly agree		Total	
	f	%	f	%	f	%	f	%	f	%
Class	8	7.77	14	13.59	55	53.40	26	25.24	103	46.82
Subject	15	12.82	20	17.09	55	47.01	27	23.08	117	53.18
Total	23	10.45	34	15.45	110	50.00	53	24.10	220	100.00

The principals, in turn, stated that they participate in the preparation of the annual professional development program for teachers in order to ensure its successful implementation and to enhance the quality of work. A well-prepared annual professional development program contributes to its effective realization, thereby supporting the achievement of the objectives of the educational process. Based on the results obtained, it can be concluded that the specific hypothesis is confirmed: principals actively participate in the preparation of the annual work program.

Specific Hypothesis 3: Principals plan activities in a timely manner to support the professional development of teachers.

The majority of teachers responded that principals implement organized activities aimed at professional development, which are always in accordance with the school's professional development program, accounting for 68.63%, while a much smaller proportion expressed a negative view, 32.37%. Among class teachers, 70.87% responded positively, whereas 66.66% of subject teachers reported positive responses.

Table 3.

	Strongly disagree		Disagree		Agree		Strongly agree		Total	
Category	f	%	f	%	f	%	f	%	f	%
Class	13	12.62	17	16.50	48	46.60	25	24.27	103	46.82
Subject	16	13.68	23	19.66	52	44.44	26	22.22	117	53.18
Total	29	13.18	40	18.18	100	45.45	51	23.18	220	100.00

The majority of interviewed principals stated that they plan activities in a timely manner to support the professional development of teachers. All necessary steps taken by the principals enable the teaching staff to gain substantial benefits in their professional growth, as any work that is planned in advance is more likely to be implemented effectively and comprehensively. Based on the results obtained, it can be concluded that **the specific hypothesis is confirmed**: principals participate in the timely planning, preparation, and implementation of activities aimed at teachers' professional development, which is a crucial factor in enhancing the quality of work within the school.

Conclusions

In the context of managing the professional development of teachers in primary schools, it can be concluded that the most important goal is to ensure quality in teaching. This can be achieved when all educational staff actively participate in the teaching and learning process; however, teachers, as the primary representatives of teaching, are of central importance in primary education. It can be stated with certainty that the principal, as a manager, plays a key role in the learning outcomes and achievements of students within the school. The principal of a primary school has a significant role in achieving educational goals. This is accomplished through effective work and dedication, which consistently yield results. A comprehensive understanding of the teaching staff's work is necessary, including recognition of their skills and aptitudes, in order to influence their professional development. The principal should foster a positive spirit within the school, promote openness to new learning, and encourage a modern perspective that aligns with ongoing changes and current educational challenges. The education obtained by teachers at educational colleges is particularly important, yet it is essential for teachers to continue expanding their knowledge, stay updated on innovations in education, and maintain the ability to perform their work competently throughout their professional careers. Considering the results of numerous relevant international studies, it can be concluded that the current level is insufficient, and substantial changes in the educational system are necessary. Special attention must be given to the professional development of teaching staff, as it represents a key factor for achieving success in educating students.

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THE INFLUENCE OF ARTIFICIAL INTELLIGENCE ON THE DECISION-MAKING PROCESS OF EDUCATIONAL LEADERS

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ABSTRACT:

Modern technological development has led to the intensive integration of artificial intelligence in education.The topic of this paper is important, because in such conditions, educational management faces new challenges and opportunities related to the decision-making process.The paper elaborates four aspects: the concept of artificial intelligence in education and management, the decision-making process in the educational and the elements that determine the decision-making process, the role of artificial intelligence in decision-making processes in educational management and the responsibilities of educational leaders in the integration of artificial intelligence.The analysis indicates that the artificial intelligence-based technologies, such as data mining, machine learning and expert systems, enable a more objective and data-based approach to solving complex educational challenges. This increases the accuracy of forecasts, optimizes resources and creates a basis for more informed and strategically oriented decisions.However, the integration of artificial intelligence in educational management is not without limitations. Lack of digital literacy, ethical issues, the risk of bias in algorithms and resistance to change are factors that complicate the application of artificial intelligence.

Keywords: *artificial intelligence, educational management, educational leader, decision-making, technology in education, digital transformation.*

Introduction

In modern society, artificial intelligence (AI) is increasingly integrated into various sectors, including education. Rapid technological development opens up new opportunities for improving educational management, especially in the domain of decision-making. The application of AI tools can significantly transform the way educational leaders analyze data, predict outcomes and create strategies to improve institutional efficiency.Decision-making is one of the key functions of educational management. The quality of decisions made directly affects the functioning of the institution, employee satisfaction, student academic performance and the overall organizational culture. In this regard, the application of AI can offer a new approach to decision-making, based on real data, algorithms and predictive analysis, rather than intuition or previous experience. However, the use of AI in educational management also brings a number of challenges. Issues related to

technological literacy, ethical dilemmas, resistance to change and limited access to resources, are significant factors influencing the way AI is adopted and used by educational leaders.

AI in education and management

AI is the science and engineering of making intelligent machines, especially intelligent computer programs (Turing, 1950).

AI is the science of making machines do things that would require intelligence if done by man (Raphael, 1976).

AI is the study of how to make computers do things that people are better at or would be better at if they could extend what they do to a worldwide web-sized amount of data and not make mistakes (Rich, 1985).

As AI rapidly permeates various aspects of life, it has also began to make profound impacts on education services, solidifying its significance in both educational technology and management sciences (Verma, 2018).

AI has incrementally begun to transform the ways teachers teach, students learn and schools function with inevitable implications for school management and leadership (Turgut Karakose & Tijen Tülübaş, 2023).

AI-powered administrative systems offer educational institutions several advantages, such as reducing operational costs, improving the visibility of revenues and expenditures, and enhancing overall responsiveness. By automating routine administrative tasks, AI allows education managers to focus on initiatives that improve the quality of education (İşler & Kılıç, 2021).

Technological advancement demonstrate that AI has the potential to revolutionize education management by increasing efficiency, improving decision-making and creating more effective learning environments.

Smith (2021 & 2022) outlines several applications of AI in educational management as follows: personalized learning, intelligent tutoring systems, student performance prediction, automated grading, learning analytics, chatbots and virtual assistants, campus safety, recruitment and admissions, financial aid and student services and curriculum development.

Decision-making in education

According to the sociological terminology dictionary, a decision is "a conscious act of the will by which an activity is objectified, an issue is resolved and new activities are undertaken". While a decision is a conscious act or an intellectual instrument for regulating some relationships, decision-making is a kind of process whose goal is the act of making a decision itself. The decision-making process is a complex and responsible task, regardless of whether it is practiced by the manager, as an individual, or the board of directors, as a collective body. In both cases, reaching a quality decision presupposes knowledge of the practical conditions in which the decision is

made and an assessment of the consequences that will be caused by making and implementing the decision.

The elements that determine the decision-making process are diverse and relate to the following: the conditions in which the decision is made (risk, certainty, uncertainty); who makes the decision; the goal that is to be achieved by making the decision; the alternatives when making the decision; the action for choosing the decision; ranking the alternatives and finally, choosing one of the alternatives. According to other opinions, the general elements of decision-making are: defining the problem, formulating alternative courses of action, evaluating the alternatives, selecting the best course of action, executing the decision and controlling it.

The role of AI in decision-making processes in educational management

Educational management is a complex process that requires making strategy decisions and AI plays a significant role in enhancing these decision-making functions. Decision-making in education administration involves considerable responsibility, as it requires analyzing various factors, evaluating data and formulating future strategies. AI technologies have the potential to support educational administrators by providing data-driven insights that facilitate more effective decision-making. At its core, AI technology is designed to mimic human cognitive functions, including learning and problem solving (Syam & Sharma, 2018). The primary objective of AI research is to model the human brain's decision-making processes and drive scientific breakthroughs in this field. Decision-making is one of the AI's central focus areas, aiming to develop systems capable of making and implementing decisions autonomously (Kolbjørnsrud, Amico & Thomas, 2016). AI-based intelligent systems and expert systems, which are designed to collect, analyze and process data, can be effectively utilized by educational administrators to guide decision-making processes (Karaoğlu, 2012; Yağcı, 2018).

One of the key AI-driven techniques supporting decision-making in educational management is data mining. AI provides substantial assistance to educational administrators through data mining, a method that involves analyzing large volumes of data to extract meaningful patterns and trends. The application of data mining and machine learning in educational management is crucial for enhancing efficiency and optimizing resources. Data mining refers to research and analysis processes that uncover significant patterns and rules within large datasets (Göker & Tekedere, 2020). Educational data mining research focuses on various aspects, including identifying student profiles, categorizing students, determining factors affecting student success, predicting graduation grades and providing support to students struggling academically (Özbay, 2015).Baker and Inventado (2014) predict that, in the coming years, all education-related research will incorporate educational data mining or related analytical methodologies. Therefore, AI's integration with data mining is expected to significantly contribute to educational decision-making.

Another AI-based approach to decision-making is the use of expert systems. Expert systems are specialized computer programs designed to simulate the decision-making capabilities of

human experts in specific domains. These systems can perform tasks such as planning, problem-solving and decision-making, relying on structured knowledge storage to assist users in making more accurate and effective decisions (Kodipalli, 2016). AI-powered expert systems support users by providing knowledge-based recommendations, explaining the reasoning behind decisions and helping individuals interpret and understand outcomes (Köse, 2020).

AI has the potential to revolutionize decision-making in educational management by enhancing efficiency, improving data-driven insights and supporting administrators in making informed and strategic decisions. As AI continues to develop, its integration into educational management process will become increasingly essential for optimizing institutional effectiveness and achieving long-term educational goals.

Responsibilities of educational leaders in AI integration

Educational leaders have a critical responsibility in ensuring that AI is implemented ethically and responsibly. This involves addressing several key areas:

- Ethical AI deployment: Leaders must ensure that AI technologies are used in ways that promote fairness, equity and inclusivity. This includes selecting AI tools that are free from bias and ensuring that the data used for training AI models is diverse and representative (Floridi & Cowls, 2019). It is also essential to involve stakeholders, including students, teachers and parents in discussions about AI implementation to ensure transparency and accountability. In sum, education managers should be instrumental in creating inclusive policies and responding to ethical dilemmas that arise in the application of AI.

- Data privacy and security: Protecting student and staff privacy is paramount. Educational leaders must implement stringent data protection measures, such as encryption, secure access controls and regular audits to prevent unauthorized access to sensitive information. Moreover, they must ensure compliance with regulations like the General Data Protection Regulation (GDPR) or similar local laws that govern the handling of personal data (Zawacki-Richter et al., 2019).

- Professional development: As AI becomes more integrated into educational systems, it is essential that educational leaders and staff are trained in the responsible use of AI. Professional development programs should be designed to help leaders understand AI's capabilities, limitations and ethical implications. This will enable them to make informed decisions and manage AI systems effectively (Piety, 2019).

- Monitoring and accountability: To avoid potential harm, AI systems used in education must be regularly monitored for accuracy, fairness and effectiveness. Educational leaders should establish mechanisms for ongoing evaluation and ensure that there is a clear line of accountability for AI-driven decisions (Cath et al., 2018). If an AI system produces undesirable outcomes, leaders must have the authority to override or modify its decisions.

- Implementing ethical guidelines for AI: Educational leaders must develop and enforce comprehensive ethical guidelines for the use of AI in their institutions. These guidelines should address the risks associated with bias, data privacy and transparency and provide a framework for responsible AI implementation. Leaders should also engage stakeholders – including teachers, students and parents – in discussions about the ethical use of AI, ensuring that the institution's AI policies reflect the community's values and concerns (Popenici & Kerr, 2017). Educational leaders are responsible for the responsible use of AI.

- Ethical leadership: Educational leaders must approach AI with a strong ethical framework, ensuring that AI is used to enhance, not replace, human decision-making. Leaders should prioritize the well-being of students and staff and make ethical considerations central to the AI implementation process (Floridi & Cowls, 2019). It is the responsibility of educational leaders to ensure that positive values are equally adhered to in applying AI.

- Fostering transparency and accountability: Transparency and accountability are critical components of responsible AI use in educational leadership. Leaders should prioritize the adoption of explainable AI tools that allow for clear communication of how decisions are made. Furthermore, accountability structures must be established to ensure that AI systems are regularly evaluated and that decision-makers remain responsible for the outcomes generated by AI (Morley et al., 2021). This will help prevent over-reliance on AI systems and ensure that human oversight remains central to decision-making process.

- Promoting data privacy and security: Protecting personal data is a key responsibility of educational leaders in the era of AI. Leaders must implement stringent data protection measures, including encryption, anonymization, and secure storage protocols, to safeguard sensitive information. They should also ensure that AI tools comply with relevant legal frameworks for data privacy, such as GDPR and FERPA (Dignum, 2020). By prioritizing data security, educational leaders can build trust and confidence in the use of AI technologies.

- Supporting professional development in AI literacy: As AI becomes more integrated into educational leadership, it is crucial for leaders to develop a deep understanding of the technology's capabilities and limitations. This requires ongoing professional development in AI literacy, including training on the ethical, legal and practical aspects of AI implementation (Zhu et al., 2023). By improving their AI literacy, leaders can make informed decisions about how to best integrate AI into their institutions while mitigating potential risks.

Conclusion

This paper examines the roleand impact of AI in the decision-making process in educational management, including the ethics of its use.

The application of AI tools significantly transforms the way educational leaders function. These are complementary tools for them and helps them in data analysis and decision-making support. For educational leaders, the benefits of AI are efficiency, predictability and strategic decision-making. However, educational management faces several challenges related to AI technology, such as: ethical dilemmas, the need for competencies and digital literacy. Here, limitations such as lack of resources and resistance to change also appear in the application of AI.

The application of AI can improve institutional efficiency and create support for informed and fair decision-making by educational leaders.Digital and AI competences among educational leaders are not just a technical skill, but a strategic leadership capability, which ensures the efficient, ethical and sustainable functioning of educational institutions in the digital age.

From all this, we could conclude that only through ethical and competent integration of AI, educational leaders will be able to make decisions that advance the equity and quality of education.

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FRIEND OR FOOD: THE SOCIAL CONSTRUCTION OF ANIMALS AND CHILDHOOD SOCIALIZATION

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ABSTRACT:

Starting from the contemporary cultural artefact of representing animals simultaneously as friends and as food—most visibly in fast-food "happy meals" that juxtapose cheerful animal characters as toys or images with the dismembered body parts of animals served as food—this article examines the role of such dissonant cultural discourses and practices directed toward children. These processes function primarily as mechanisms for normalizing and reproducing dominant human–animal relations in Western societies. The analysis illustrates that animals are largely defined through their forms of relation to humans, which depend on their perceived (dis)utility to human purposes. In this sense, animals are socially constructed in ways that legitimate their instrumental use by humans. The article draws on a Foucauldian framework that links knowledge and power relations, combined with an interpretation of Weberian typology of social action, both within the context of childhood socialization. This indicates the need for a specifically sociological analysis of what and how children learn about animals. Accordingly, the article offers a sociological contribution to the emerging interdisciplinary field of animal studies and to the sociology of childhood.

Keywords: *animals, social construction, representation, discourse, knowledge, power, social action, childhood socialization.*

Introduction

Adults have long recognized that the natural affinity between children and animals can be utilized to teach valuable social skills such as empathy, kindness, and compassion. Through identification with animals, children develop empathy that extends to other humans, learning the distinction between treating others well and treating them poorly. Moreover, relations with animals contribute to children's identity formation, shaping their understanding of themselves and others. This affinity also explains the pervasive presence of animal representations in children's toys, literature, and art, where animals serve as accessible symbols for social and moral learning.

This article examines the social construction of human–animal relations within the context of childhood socialization, focusing particularly on how children learn to perceive and use animals as resources for food, clothing, entertainment, education, and companionship. It considers the interrelated roles of cultural discourses and practices that shape these processes. Children encounter

dominant representations of animals through various socialization sites—mass media, social media, games, and formal education—where they tacitly internalize and reproduce normative discourses about "appropriate" relations with animals, such as loving some, eating others, or observing the rest.

However, children's learning about animals is far from a simple or coherent process. Popular culture often presents contradictory messages. For instance, the animated film *Chicken Run* (2000) invites children to identify with animal characters struggling to escape becoming food, while at the same time, fast-food chains such as Burger King offered promotional tie-ins with toy representations of the characters paired with meals containing animal products. This paradox epitomizes the dissonant discourses and practices through which children are socialized into dominant human–animal relations. This article therefore adopts a sociological perspective to analyze how such contradictions operate within broader systems of representation, discourse, and power.

Social discourses and practices of constructing the animals: A Foucaldian perspective

Animals are primarily defined and categorized according to their forms of relation with human beings. Broadly speaking, these relations depend on knowledge claims about the utility or disutility of animals to humans. In Western cultural contexts, to "know" animals is to participate in the enactment of these claims. We "know" that chickens are "useful" because they are consumed as "food"; we "know" that rats are "not useful" because they are exterminated as "vermin." In this way, discourses and practices mutually recall, reinforce, and legitimate each other.

Although animals undoubtedly exist independently in nature, once incorporated into human social worlds they are assigned human categories based on their perceived uses. These classifications—lab animal, pet, livestock—shape not only how animals are perceived but also how they are treated. As DeMello observes, "once an animal has been classified as a pet, it would, in our culture, be difficult to turn that animal into meat. Similarly, we don't think twice about consuming animals that have been classified as livestock" (2021, p. 340).

This approach aligns with a broadly social constructionist perspective on human–animal relations, which examines how humans "think about and interact with them" (Arluke & Sanders, 1996, p. 9). Arluke and Sanders suggest that "'being' an animal in modern societies may be less a matter of biology than it is an issue of human culture and consciousness" (ibid). Extending this view, one might ask: What is an animal outside of culture? As Tester famously noted, "a fish is only a fish if you classify it as one" (1991, p. 46). While animals may resist such inscriptions, social constructions typically succeed in reducing them to physical or discursive matter for redeployment in human practices and representations. In this regard, "the naming of types of animals, that is, their categorization, is the key to their thingification; their reduction to non-agential manipulable resources for discourse and practice" (Cole & Steward, 2014, p. 14).

This issue strikes at the core of Foucault's analysis of the interrelationship between knowledge and power, or between discourse and practice, in the constitution of hegemonic relations in Western societies. Foucault's work focused on the "knowable individual," situated within networks of power—as one who is to be trained, corrected, supervised, and controlled. Although his concern was with humans, these insights can be extended to "knowable animals."[1] Two aspects are particularly relevant: how discourses conceptualize animals as particular kinds of entities (relations of knowledge), and how animals are materially positioned and subjected to practices that enact these conceptualizations (relations of power). As Foucault insisted, "more

knowledge, more power; more power–knowledge imposingitself as law" (2019, p. 209).

Within children's culture, these dynamics operate as a mutually reinforcing cycle: specific spaces facilitate specific practices that both enact and reproduce discursive conceptualizations. Placing an animal in a "farm," for instance, materializes the concept of "farm animal" and simultaneously reaffirms its meaning through the juxtaposition of animal, space, and farming practices. Such discursive formations are further disseminated through cultural representations of animals across children's media—stories, films, magazines, food packaging, toys, digital games, and educational materials.

Foucault argued that knowledge is produced within particular disciplinary contexts such as prisons, barracks, or schools. This knowledge is inseparable from practices of correction and normalization of the prisoner, recruit, or pupil, individualizing at the same time as it homogenizes categories of knowable others. Material practices—confinement, surveillance, feeding, measuring—generate knowledge that refines relations of power. As he observed, "space is fundamental in any exercise of power" (1982, p. 361). This insight is crucial not only for understanding how animals are captured within spaces of confinement but also for examining how children are located within spaces of socialization—whether institutional (the home, the school) or cultural (the cinema, digital media, and beyond).

Conceptual map of constructing the animals through social action: A Weberian perspective

Resting on commonsense judgments of (dis)utility, animals tend to be placed along an instrumental continuum. Humans—constituted as a privileged group distinct from animals—are thus able to construct, enter, and exit physical and discursive spaces at will, engaging in a variety of relations and practices with animals based on this continuum. The two extremes of instrumentality

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[1] The latter encompasses the intersection of patriarchal, colonialist, classist, and other intra-human forms of oppression with inter-species oppression. For example, children's books featuring animals began to flourish at the end of the eighteenth century, when Victorians were negotiating questions of evolution, religion, racism, and empire. Among the most famous of these, Kipling's *The Jungle Book* (1894) comprises a series of moral tales featuring talking animals set in the Indian jungle. Kipling himself was born in British-ruled colonial India, and his stories are often interpreted as, at least in part, a celebration of British imperialism. In this sense, Cudworth develops an approach to intersecting oppression in her concept of anthroparchy: "A social system, a complex and relatively stable set of hierarchical relationships in which 'nature' is dominated through formations of social organization which privilege the human" (2011, p. 67). Cudworth argues that anthroparchy captures the interplay of the discursive and material constitution of domination—an idea that resonates with the consideration of the indissociability of discourse and practice.

are exemplified by the "friend or food" distinction: on one end, "pets," constructed in discourses of affection and care; on the other, "food animals," fully objectified within instrumental and calculative discourses. Accordingly, animals are positioned along one dimension of instrumentalization or objectification, counterbalanced by tendencies of positive affect and moral valorization. Yet the discourses and practices that produce these positions also operate across an intersecting dimension—relating to the sensibility or non-sensibility of animals.

A key aspect of cultural insensibility to the processes of objectification lies in the saturation of popular culture with representations of living animals that serve as repositories of sentiment and affection, while products of their (hidden) exploitation simultaneously carry affective meanings ("comfort food," etc.). Such contradictions are ubiquitous in children's cultural materials—cartoons, comics, books, toys, and games. For instance, the *Ladybird First Picture Dictionary* juxtaposes an image of salami being sliced (to illustrate a knife) with drawings of a koala and a kangaroo. The fact that what is being sliced are animal body parts is, of course, hidden from the toddler reader. The overall effect is to render idealized representations of animals sensible, while also making animal products sensible, despite the absence of the real animals' experiences. For the young reader, no incongruity exists—habituation to the cultural denial of exploitation proceeds seamlessly.

Based on these two intersecting dimensions—the degree ofobjectification/ subjectificationand the degree of sensibility/non-sensibility—Cole and Steward develop a conceptual model or map (Figure 1 below) that summarizes key features of Western culture's discourses and practices about animals. It provides a tool for analyzing their manifestations across socialization sites such as the family, education, and mass and social media. It is "well-suited to describing and understanding the complexities of the relationship between discourses and practices, in shaping human–nonhuman animal interaction in childhood (and beyond)" (2014, pp. 15–16).

Figure 1. A conceptual map of the social construction of animals (Cole & Steward, 2014, p. 22)
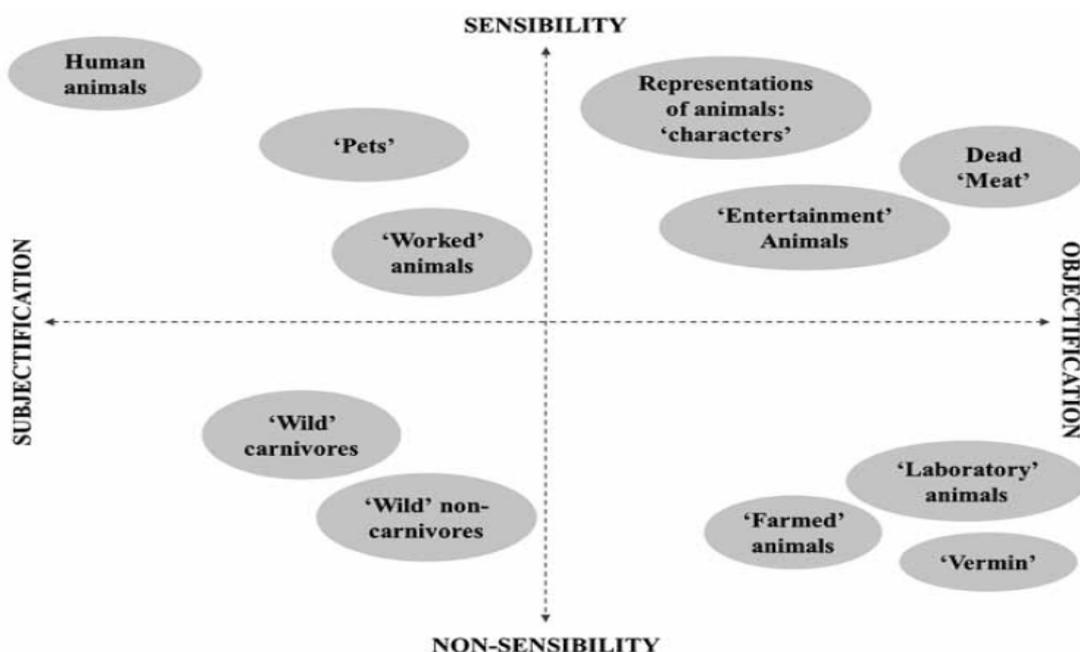
Figure 1 enables us to conceptualize how the positioning of animals is often ambivalent and subject to change through discursive modification or contestation. Rabbits, for example, occupy almost the entire map—from symbols of the promiscuity of nature as "wild" animals, to experimental "tools," or "farmed" commodities for meat and fur; from hutched "pets," to "entertainers" pulled from magicians' hats, or anthropomorphized stereotypical "characters" like Bugs Bunny or Jessica Rabbit. This notion of positioning raises an important sociological question: What are humans doing when they distribute animals across such a map? To approach this, Weber's typology of social action offers valuable insight.

Weber's enduring preoccupation was with the meaning of human action. As he states, sociology is "a science that in construing and understanding social action seeks causal explanation of the course and effects of such action. By 'action' is meant human behaviour linked to a subjective meaning on the part of the actor or actors concerned" (2019, p. 78). Weber distinguishes four "ideal types" of meaningful social action: purposive-rational, value-rational, affective, and traditional. Thus, Figure 1 should not be seen as a rigid code for relating to animals internalized through a monolithic process of socialization. Rather, it represents an idealized (not "ideal" in the normatively desirable sense) model of the paradoxical human–animal relations of contemporary Western societies, which Weber's typology helps elucidate.

Weber contended that purposive-rational action had become dominant in modernity, shaping the modern individual. This form of action disenchants and objectifies the world, rendering it predictable and manipulable. Although not part of Weber's own analysis, this objectification clearly extends to animal life.[2] The calculative attitude underpinning purposive-rational action is central to the manipulation of animals in factory farms and, more broadly, across the southeastern quadrant of Figure 1. Children are socialized to reproduce such purposive-rational relations with animals—primarily as consumers of animal products. Yet, because this process is inherently violent, it requires a more subtle inculcation of discourses and practices that both deny the violence and cultivate children as caring and compassionate beings.

Weber's second type, value-rational action, refers to behavior oriented toward intrinsic values or ultimate ends (such as "honour" or "dignity"). Within this framework, rescuing or caring for animals removed from factory farms may be considered a value-rational action. However, contemporary animal welfare discourses frequently instrumentalize such care, subordinating it to human self-interest—minimizing costs, maximizing gustatory pleasures, or reinforcing a vicarious caring identity. In this sense, welfarist discourse exemplifies Weber's concern about the slippage from value-rational to purposive-rational action in modernity.

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[2] "In so far [as the behavior of animals is subjectively understandable] it would be theoretically possible to formulate a sociology of the relations of men to animals, both domestic and wild. Thus, many animals 'understand' commands, anger, love, hostility, and react to them in ways which are evidently often by no means purely instinctive and mechanical and in some sense both consciously meaningful and affected by experience" (Weber, 1947, p. 104). Although this quote indicates that Weber appeared to be interested in including animals in sociological research, they never became a central aspect of his work.

While the first two types of social action are rational, the remaining two—affective and traditional—are deemed irrational. Affective action is motivated by emotion or feeling, while traditional action is guided by habit and custom. For Weber, these are less meaningful precisely because they are less self-reflective.

An important outcome of childhood socialization is the association of affective action toward animals with infancy. As children age, affectivity is progressively downplayed and replaced by an inculcation of purposive-rational attitudes—livestock transporters usurp plush animals as appropriate toys. Figure 1 illustrates how commodified representations of animals act as conduits for children's affectivity, while the denial of exploitation facilitated by these representations remains highly profitable for culture industries and their fast-food partners. In this way, even affect may itself become instrumentalized.

In the case of traditional action, meaningfulness gives way to unthinking habit, which is itself readily commodified and absorbed into purposive-rational action. This dynamic is evident in the evocation of the timeless rural idyll of animal "husbandry" within children's culture—for instance, through the reproduction of pastoral imagery in digital media. Through playing with "farmyard" toys, children are encouraged to (profitably) rehearse a fabricated "tradition" of human–animal relations that obscures the realities of industrial farming and slaughter.

Viewed through Weber's typology, Figure 1 thus represents an interpretive key for understanding the meaning of human action toward animals. It reveals how cultural discourses and practices—rooted in ostensibly value-rational, affective, or traditional orientations—often conceal their underlying purposive-rational (instrumental) foundations. In this way, Weber's framework illuminates the persistent incongruities of extreme violence juxtaposed with sentimental affection that characterize contemporary Western construction of animals and their reproduction through childhood socialization.

Conclusion

The idea that children can learn positive values through their relations with animals remains prominent today, as both humane organizations and the pet industry encourage parents to bring home animals to teach responsibility, kindness, and nurturing behavior. Research suggests that attachments to companion animals can foster nurturing behavior in children, and children with pets may exhibit higher levels of empathy than those without.

As Molloy observes, "studies of human–animal interaction suggest that childhood experiences of animals and particularly animal narratives contribute to the formation of attitudes toward animals in adulthood" (2011, p. 122). Within the multiple physical and social dimensions of the school environment and other socialization sites, a diversity of social representations of animals is continually produced and reproduced. These representations construct narratives about human–animal boundaries and identities and raise complex questions concerning domination and

subordination, normativity and deviance, rationality and empathy, as well as the possibilities for resistance and change.

In light of these insights, it is crucial to develop a sociology of childhood attentive to the discourses and practices that socialize children into norms of human–animal interaction. This article has argued that Foucauldian analysis of the power–knowledge nexus, combined with Weberian fourfold typology of social action, provides a framework for understanding the nuanced complexity of these categorization processes along the continuum of human–animal relations. Together, they offer lenses that make visible the constructed nature of animals and the paradox at the heart of childhood socialization—the apparent incongruities of "friend or food", of cuddling a teddy bear while consuming a hamburger—in a culture of mixed messages about animals.

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