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Single-Factor Fallacy

A Commentary

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Abstract

As editors and scholars, we have concerns with investigations that emphasize the contribution of one major factor to the development of a complex entity such as, for example, language or literacy. This phenomenon is known as the single-factor fallacy. Basically, this is asserting that there is one all-encompassing factor that causes or influences academic development even though there are certainly other factors that are critical contributors. Endorsing one factor, whether explicitly or implicitly, leads to oversimplification and overgeneralization as well as to other problems such as misleading conclusions and confirmation and citation biases. The single-factor approach results in the promotion of inappropriate educational decisions or implications regarding d/Deaf and hard of hearing (d/Dhh) children and adolescents. We discuss ways to minimize or avoid the single-factor fallacy.

Keywords: *Deaf and Hard of Hearing; Single-Factor Fallacy; Types of Research Biases*

Single-Factor Fallacy

Since the inception of the education of d/Deaf and hard of hearing (d/Dhh) children and adolescents, there have been a number of challenges for researchers and educators. These challenges include, at the least, proffering instructional practices that are effective for developing and enhancing language, literacy, and achievement in the other academic areas such as mathematics and science (Moores, 2001; Paul, 2022b). d/Dhh students, particularly those with moderate to profound hearing loss, may experience difficulty in school and often do not reach language, literacy, or academic achievement levels that are commensurate with their typical (hearing) peers. In fact, a number of d/Dhh students with moderately-severe to profound hearing loss

may read no higher than 4th or 5th grade (on a 12-grade scale) upon completion of compulsory education. These literacy levels have improved somewhat for students with cochlear implants; however, the findings are not unequivocal, and there is a need for further research to clarify the mixed results (Mayer & Trezek, 2018; Mayer et al., 2016; Qi & Mitchell, 2012).

Researchers and educators of d/Dhh children have argued that the degree of hearing loss should not be considered the only predominant factor in the development of speech, language, and literacy abilities. There are instances where a number of d/Dhh students are more successful in developing skills than are children with typical hearing. Such a situation may be attributed to factors such as stimulating early

intervention and educational environments, effective instructional strategies, well-written individual educational plans (IEPs), and d/Dhh students' ability to access the critical components of academic areas (e.g., see Jachova et al., 2018). Clearly, there is no panacea or all-encompassing factor that can solely account for overall achievement.

Nevertheless, the persistence of low levels of language, literacy, and academic achievements for some d/Dhh students has engendered a great deal of frustration for educators and parents/caregivers. This frustration can lead to questioning the value of educational and rehabilitative research, especially when there has been little overall improvement for the students after 12 to 16 years of schooling (Pring, 2004). It would not be surprising if researchers and scholars are pressured to provide a better understanding of achievement and to offer solutions that yield positive results. This pressure, among other factors, may lead to a misunderstanding of the types of investigations that need to be conducted or a neglect of addressing quality indicators such as adequate reviews of the literature, descriptions of the methodology, and the use of complex research designs (Paul & Wang, 2017).

As editors and scholars, we have concerns with investigations that seem to focus predominantly on the contribution of one factor to the development of a complex entity such as, for example, language or literacy. This phenomenon is known as the single-factor fallacy (Paul, 2021; Pettigrew & Hewstone, 2017). Basically, this is asserting that there is one all-encompassing or major factor that causes or influences such development even though there are certainly other factors that are salient contributors.

In this article, we argue that endorsing one factor, whether explicitly or implicitly, leads to an oversimplification of the findings as well as to other problems such as misleading conclusions and confirmation or citation biases. In essence, this single-factor approach can result in the promotion of inappropriate educational decisions or implications regarding d/Deaf and hard of hearing children and adolescents. We provide hypothetical examples and reasons for single-factor fallacies. We also propose various methods for researchers to assist them in minimizing or avoiding the single-factor fallacy.

Recognizing and Addressing Single-Factor Fallacies

It is important to discuss possible steps for minimizing or avoiding single-factor fallacies. We begin by proffering possible steps related to the structure and content of a research manuscript. Specifically, it is critical to consider the technical merits or quality indicators for the review of the literature, methodology, and research design sections (Council of Exceptional Children, 2014; see also, various chapters in Cawthon & Garberoglio, 2017).

Whether researchers are conducting a primary empirical study or a narrative review, they should perform a comprehensive review of the available literature. Traditional aspects include a definition of the problem, summarizing previous research, identifying gaps or contradictions, and providing information to justify the research design of the investigation that is undertaken. Equally as important, researchers should critically analyze a range of pertinent studies, including those with contradictory findings—especially to avoid or minimize confirmation or citation bias (Galvan, 2012; Roig, 2011; Smart, 2005). Confirmation and citation biases refer to the inclusion of only studies (or specific researchers) that support the investigator's framework. In any case, a thorough review of existing relevant investigations should highlight the complexity of the phenomenon under study. That is, the readers should be aware of multiple factors that impact the phenomenon even if the researcher is only examining a few salient variables.

It is also instructive for researchers to delineate any theoretical framework that might provide a perspective for the complexity and multifaceted nature of a phenomenon being examined such as language or literacy development. This framework not only should guide the researcher's design, but also provide readers with an understanding of the researcher's approach—or in this case, the researcher's bias in exploring the entity. It is also helpful to mention that there are other theoretical frameworks that have been used, and the selected one for the study is the researcher's choice. That is, the researcher has argued that the selected framework supports the design and will yield the most productive outcomes for the phenomenon being

investigated (e.g., see Paul & Wang, 2017).

In the methodology section of the manuscript, critical considerations involve the sociodemographics of the participants, the construct validity of the measuring instrument, and the data-analysis design of the study. Although sociodemography is not directly related to the single-factor fallacy, this variable does affect the validity of the selected instruments used to measure performance of the participants. For empirical studies, the sociodemographics of the participants in the researcher's investigation should be compared to the sociodemographics of the participants in the analyzed studies in the literature review. Adequate sociodemography also minimizes overgeneralizations of findings (Council for Exceptional Children, 2014).

The heterogeneity of d/Deaf and hard of hearing individuals should definitely be highlighted. The variety of hearing loss levels affects our understanding of communication and language and even the culture of these individuals. For example, communication is influenced by factors such as the individual's hearing history, length of the hearing loss, age at implantation of assistive hearing devices, and the involvement of parents/caregivers (Hasanbegovic & Kovacevic, 2019). Heterogeneity presents challenges for generalization of research results.

In essence, ignoring critical factors such as degree of hearing loss, age at onset of the loss, and socioeconomic status that can affect achievement outcomes is misleading or is a misinterpretation of the findings. Indeed, without adequate sociodemographics, we are limited in our ability to understand the merits of instructional or assessment practices as well as the applications of our research findings.

Another major factor associated with the single-factor fallacy is inadequate construct validity of the measuring instrument used in the investigation. There are several types of validity—for example, face, concurrent, predictive, content—and the one that we will focus on—construct. In general, validity addresses the question: Does a test measure what it was designed to measure? Construct validity is influenced by an individual's theoretical persuasion. Nevertheless, a test is considered to possess construct validity if it adheres to an extant

theoretical construct (Gall et al., 2007; 2015). We recognize that describing an extent theoretical construct is controversial and debatable. However, this is necessary, in part, to justify the construct validity of assessments.

Whether a researcher is interested in a language domain such as syntax or in a general domain such as reading, it is not feasible, or even possible, to develop a detailed test that assesses *all* components of a domain in one investigation. For example, it is clearly unrealistic to assess all of the major structures of syntax (e.g., negation, relative clauses, etc.) with one test. Even if one uses a screening format, it will still be necessary to develop a more elaborate version of one syntactic structure to pinpoint a student's specific area of difficulty with that structure. Additional test versions are necessary to develop a comprehensive profile of syntactic knowledge. Of course, if the scores on the screening test correlate with levels of reading proficiency, it might be permissible to state that reading proficiency is affected by the syntactic structures on the screening form. Additional research is needed to delineate a student's specific problem with syntax and to ascertain the overall effects of syntactic structure on reading performance.

It is important to provide a few remarks about the formats of tests, which can also contribute to the single-factor fallacy. Let's use reading comprehension as an example. There is no best method for assessing comprehension; researchers have used formats such as multiple-choice, retell, and answering essay questions. Each method assesses a "view" of comprehension—not a "complete" view, and it is recommended that several formats be used to obtain an adequate picture of reading comprehension (e.g., National Reading Panel, 2000). In addition, it is recommended that investigators assess participants' understanding of ecologically valid reading passages, rather than isolated sentences. Reading involves more than just comprehension of sentences. In any case, if a researcher employs one type of test format in their studies, then the results need to be contextualized with respect to that format.

The final area to discuss in this section is research design. There is a need to develop or employ complex designs that acknowledges the existence of multiple factors on the development of a specific

content areas or construct. The design should be guided by a robust theoretical framework as much as possible. It is good research practice to control or at least discuss the effects of possible confounding factors. It is recommended that the following designs be considered (for further accessible details, see Creswell, 2008, 2014; Gall et al., 2007).

- **Multivariate analysis**—This type of analysis permits the examination of several factors simultaneously. Examples include multiple regression, path analysis, and structural equation modeling. Although correlation analyses are a good first step, in-depth understanding requires the use of analyses that can provide some information on causation, the strengths of specific variables, the level of variances of factors, and so on. It might also be critical to perform a sensitivity analysis; that is, evaluating the impact of the results in light of the inclusion of additional variables
- **Mixed-methods approach**—Technically, this is a combination of qualitative and quantitative methods, which can provide a more comprehensive or holistic perspective of the entity under study. However, this should not be merely a juxtaposition of the two techniques. The rationale of the approach needs to be demonstrated as well as the relationship between the two methods of analysis
- **Longitudinal studies**—Although longitudinal studies are time-consuming and a challenge for young researchers in tenure-track university positions, these studies have enormous value in that they permit an understanding of the manner in which different factors interact and influence the various outcomes over a set period of time.

In addition to the above suggestions, it is also recommended that specific researchers collaborate with other researchers from other disciplines or even from other countries. This can engender diverse perspectives on the constructs under investigation, highlighting the contributions of multiple factors and even provide a cross-cultural perspective. To minimize or avoid confirmation or citation biases, it might be feasible to collaborate with investigators who ascribe to a theoretical or philosophical framework that is outside one's silo.

As editors and scholars, we understand the challenges of conducting research on a low-incidence population such as d/Deaf and hard of hearing individuals, especially d/Dhh individuals with additional disabilities (e.g., learning disabilities, cognitive disabilities, autism spectrum disorders, etc.). We also submit that there is certainly value in employing designs such as single-case, correlational, and even the various types of qualitative methods such as case study, ethnographic, grounded theory, historical, and phenomenological (e.g., see various discussions in Cawthon & Garberoglio, 2017). Whatever design is used, we maintain that investigators should be cognizant of the limits of such designs and should also be aware of the complexity of the theory that underlines their constructs (e.g., language, literacy, mathematics). At the least, this should minimize or avoid the single-factor fallacy.

Hypothetical Examples

There are hypothetical single-factor examples that can be highlighted here. For example, researchers should avoid attributing performance solely to hearing loss as the predominant factor, as mentioned previously. Investigators need to mitigate remarks that seem to tout all-encompassing factors such as visual phonics, cued speech/language, cochlear implants, Sign Language, and so on. There is no doubt that the above variables can contribute to the positive performance of d/Dhh children and adolescents; however, it is critical not to ignore other factors that also play a role in that performance.

The Example of Reading

Understanding reading is extremely complicated (Alvermann et al., 2013; National Early Literacy Panel, 2008; National Reading Panel, 2000; Paul et al., 2013; Paul, 2024). Macro models of reading might include components such as word identification, comprehension, and sociocultural variables such as teacher competency and teacher-student relations. There are even micro models that focus only on one component such as word identification or vocabulary. Researchers may explore the role of phonics or morphology—which are necessary, but clearly not sufficient for the development of reading in a language such as English. The crux of the matter here is

that neither phonics, morphology, or even vocabulary can account for or explain all of reading comprehension. There are other critical variables (e.g., prior knowledge, metacognition) that need to be examined, and this should be highlighted to minimize or avoid the single-factor fallacy. Thus, it is possible that a number of investigators are ascribing to a narrow or constrained paradigm of language or literacy and do not inform their readers that they are only examining a part of these constructs. Again, this can lead to overgeneralizations or misinterpretations of their findings.

Researchers and educators need to remember that “reading” is a non-unitary construct. Non-unitary refers to the notion that there is no one all-encompassing factor that can account for the development of literacy. This complex structure has components related to cognition, linguistics, and culture—in essence, reading can be stated as a cognitive-social phenomenon. In addition, there are interactive factors such as the home environment (e.g., involvement of parents/caretakers), the teaching-learning situations (e.g., teacher competencies), and the affective domains (e.g., interest, motivation of students) (Alvermann et al., 2013; National Early Literacy Panel, 2008; National Reading Panel, 2000; Paul et al., 2013; Paul, 2024).

It is also necessary to understand the way in which the practice of literacy works both in society and in the classroom. This cognitive-social perspective of literacy implies that reading and writing involve different types of texts in different modalities in different practices established by different social groups. Learning to read and write is understood as a process of participation in different social flows (practices) (Alvermann et al., 2013; Lipson & Wixson, 2013). A cognitive-social model should attempt to include cultural differences between groups, which also applies to Deaf people including those who are members of the Deaf culture, DEAF-WORLD, or have a Deaf identity.

From a predominate cognitive perspective, learning to read and write involves not only proficiency in the foundational skills such as accessing words, but also with using prior knowledge and metacognition to comprehend and interpret the printed information.

At the least, scholars need to address the relationship between the through-the-air (i.e., speech, sign) form and the representation of that form in written language. This relationship is part of all major frameworks on the development of adequate literacy (reading and writing) skills.

For a number of d/Dhh students, as well as for other students who might be struggling literacy learners, it will be necessary to differentiate instruction (Jachova et al., 2018; Paul et al., 2013). In some cases, it might be necessary to proffer alternative approaches to print literacy (e.g., sign literacy, oral literacy) in order to prevent cognitive impoverishment and facilitate the acquisition of knowledge in academic content areas (Paul, 2022a; Paul & Wang, 2012).

The majority of educators and researchers believe that it is extremely important for citizens to possess appropriate literacy skills (reading and writing), especially for academic and post-school success in societies that are predominantly dependent on technology and print. Of course, print literacy is extremely important, but the simple definition of this construct is debatable, and a broad literacy view indicates that it does not represent only the possession of functional print literacy skills (Paul, 2022a; Paul & Wang, 2012). What is important is to ensure that d/Deaf and hard of hearing students and others can experience a meaningful participation in social, economic and political engagements through the institutions of society. This broad view of literacy requires a commitment to its complexity to avoid the single-factor fallacy.

The Evolving Cohort of d/Deaf and Hard of Hearing Students

The single-factor fallacy cannot be avoided if researchers and educators do not understand the evolving cohort of d/Dhh students (e.g., Mayer & Leigh, 2010). This simply cannot be overemphasized. Research results need to be contextualized with respect to the specific demography of the students. As mentioned previously, without this contextualization, there may be an overgeneralization of findings on a sample from a population to a dissimilar sample of the same population (e.g., Paul & Wang, 2017).

It is challenging, for example, to generalize findings on hard of hearing students (hearing losses up to the moderately-severe level) who might use the oral communication mode predominantly to d/Deaf students (mostly with severe to profound losses) who might use a signed communication mode predominantly. d/Deaf students, who are predominantly dependent on the use of a signed language or the use of signing (e.g., Arabic signs, English signs, Flemish signs, etc.) and who have limited or nonfunctional hearing, represent a group that might be distinct from the cohort with adequate access to functional hearing with or without amplification.

Demography is important also for implementing evidence-based practices for specific cohorts of students. It is possible and even desirable to use an assessment for d/Dhh students and students who have typical hearing or are typical literacy learners as long as scholars consider individual/demographic factors that may affect the construction and use of assessments as well as the comparisons of performances of the groups. In short, demography is considered one of the quality indicators of good research and effective instruction.

What constitutes an adequate rendition of demography for research on d/Deaf and hard of hearing students is certainly open to considerable debate. It is difficult to ignore factors such as hearing level, gender, age, additional disabilities, and socioeconomic status. Even if these variables are not applicable or part of the research questions, it is still important to provide this background for generalization and replication purposes. Even if generalization and replication are not applicable issues—as in qualitative research—it is still critical to contextualize the nature of the participants; that is, provide an adequate sociodemographic background.

In essence, investigators will not make progress with research on cochlear implants, bilingualism, or other areas if they do not consider the heterogeneity of the population of d/Deaf and hard of hearing students.

In fact, using labels such as “Deaf”, “deaf”, or “hard of hearing” is ambiguous and not helpful for research or instruction without accompanying sociodemographics such as hearing level, speech intelligibility, communication/language background, age at onset of hearing loss, or use of assistive hearing devices. Again, demography is critical to avoid single-factor fallacies.

Conclusion

In this article, we described the concept, single-factor fallacy, and provided suggestions for minimizing or avoiding this type of fallacy. Our suggestions were associated with the sections of a research manuscript such as review of the literature, methodology, and data analysis. There were also recommendations for utilizing more complex research designs based on the extensive non-unitary nature of entities such as language, literacy, and other academic areas. Because of our interest in d/Deaf and hard of hearing individuals, there was a focus on sociodemography due to its effects on the development and use of appropriate measurements and instruments and the need to avoid overgeneralization of findings. Sociodemography is also important for proffering evidence-based practices and is critical, given the diverse and evolving characteristics of d/Dhh individuals.

Last, but not least, we argued that researchers need to be cognizant of and continue to grow in their understanding of extant theoretical frameworks associated with various academic areas of interest. This recommendation undergirds the complexity of constructs such as language and literacy developments and emphasizes the need to contextualize research findings to minimize misconceptions and misunderstandings. This recommendation will also serve to counter other “fallacies” such as confirmation and citation biases. In our view, if investigators are conscious of single-factor fallacies, then they should be able to document results that lead to evidence-based practices and, ultimately, to contribute to the improvement of academic achievement for d/Deaf and hard of hearing individuals.

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The Impact of Follow-Up Special Olympics Athletes on Attitudes Toward Their Social Inclusion

Original scientific paper

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Abstract

This study aimed to investigate attitudes towards social inclusion of people with disabilities following the Special Olympics athletes among people who follow and do not follow the Games in general, collecting data through a survey questionnaire from 227 participants aged 18 years. Descriptive statistics and Pearson correlation were used to analyze the data. The results showed that participants generally hold positive attitudes towards social inclusion, particularly in creating inclusive activities tailored to the physical and cognitive abilities and interests of people with disabilities. However, there was some variability in attitudes towards specific aspects of social inclusion, with social activities outside of support services being less valued. Females had slightly more positive attitudes towards social inclusion of people with disabilities following the Special Olympics athletes than males while age was weakly negatively correlated with attitudes toward social inclusion. Overall, this study contributes to our understanding of attitudes towards social inclusion of people with disabilities following the Special Olympics athletes among people who follow and do not follow the Games and provides important implications for policymakers and organizations seeking to promote social inclusion for this population, with the study showing suggestions for tailored inclusive activities, recommendations for increasing positive attitudes, and potential directions for future research.

Keywords: *Social Inclusion, Disability, Attitudes, Special Olympics Athletes, Inclusive Activities*

Social exclusion is a significant issue faced by people with disabilities, including those with intellectual disabilities, which can limit their access to education, employment,

and social activities (Kirakosyan, 2019a). Follow-up Special Olympics athletes are a continuation of organized sports programs and events beyond the initial Special

Olympics Games to promote social inclusion and community participation of athletes with intellectual disabilities (Storey, 2008).

Social inclusion refers to ensuring that individuals with disabilities have equal opportunities to participate in social and economic activities and are valued members of their communities, which has become increasingly important in disability studies and social policy (Goering, 2015; United Nations, 2016). Disability, defined as an impairment, activity limitation, or participation restriction that affects an individual's ability to participate fully in society (World Health Organization, 2001), can lead to social exclusion and discrimination due to the physical, social, and attitudinal barriers that people with disabilities face. Attitudes towards disability play a critical role in shaping the social inclusion of people with disabilities, with negative attitudes leading to social exclusion, discrimination, and unequal treatment while positive attitudes promote inclusion, respect, and equal opportunities (Gething & Wheeler, 2018).

The Special Olympics organization has been instrumental in promoting social inclusion and community participation of athletes with intellectual disabilities through providing year-round sports training and athletic competitions. Previous research has shown that volunteering for Special Olympics Games can enhance positive attitudes toward the inclusion of people with intellectual disabilities (Lysaght, 2015b).

Li and Wu (2012) conducted a study on the attitudes of Special Olympics athletes and volunteers toward the inclusion of individuals with intellectual disabilities in China. The study found that exposure to individuals with intellectual disabilities through secondary sources, such as parents and mass media, was positively correlated with attitudes toward their inclusion. One effective way to promote social inclusion is through sports participation and initiatives such as the Special Olympics (Goering, 2015). Despite the historical focus of the Special Olympics athletes on non-disabled athletes, there has been a growing emphasis on including athletes with disabilities through initiatives such as the Special Olympics (Martin et al., 2019). However, hosting major sporting events like the Olympics can positively and negatively

impact social inclusion for people with disabilities. Inclusive activities such as sports participation can promote social inclusion for people with disabilities by providing opportunities to develop their skills, build social connections, and challenge negative stereotypes and stigmas associated with disability (United Nations, n.d.).

The study builds on previous research on the role of Special Olympics in promoting social inclusion and community participation of athletes with intellectual disabilities (Storey, 2008). The findings of this study can contribute to the broader literature on the impact of sports programs and events on social inclusion and community participation of people with disabilities. Moreover, understanding the impact of follow-up Special Olympics athletes can provide insights into the sustainability of the positive attitudes towards inclusion generated by the initial Special Olympics Games. Follow-up Special Olympics athletes have the potential to reinforce and build upon the positive attitudes towards inclusion developed through participation in the Special Olympics Games, thereby ensuring that the benefits of the initial Games are sustained over time.

Impact of Sports Participation and Initiatives

Several studies have explored the impact of sports participation and initiatives, such as the Special Olympics, on social inclusion for people with disabilities. For example, Defroand (2012) found that Olympic education and the promotion of social capital through Physical Education and School Sports can positively impact social capital development among young people, which can lead to increased social inclusion. Similarly, a study by Martin et al. (2019) found that participation in the Special Olympics can lead to increased visibility, recognition, and empowerment for athletes with disabilities, which can challenge negative stereotypes and stigmas associated with disability. The study also found that athletes with disabilities participating in the Special Olympics are likelier to report positive mental health outcomes and improved social connections.

Li and Wang (2013) investigated the effect of exposure to the Special Olympics Games (SOG) on the attitudes of volunteers toward the inclusion of people with intellectual disabilities. A repeated

measures design with a 3-week follow-up was used, and the study found that a 1-week exposure to SOG improved volunteers' attitudes toward the inclusion of people with intellectual disabilities significantly ($p = 0.016$). Females had more positive attitudes than males at all three-time points of measures. The study concluded that a 1-week exposure to SOG can enhance volunteers' positive attitudes toward the inclusion of people with intellectual disabilities, and this effect can be maintained for up to a month. This study highlights the potential impact of the Special Olympics Games in promoting social inclusion and positive attitudes toward people with intellectual disabilities.

Other studies have also found that sports participation can promote physical fitness, self-esteem, and social connections, which can lead to increased social inclusion for people with disabilities (DePauw & Gavron, 2005; Ferrara et al., 2019; Gould & Carson, 2008; Hutzler et al., 2013). However, it is important to note that sports participation is not a universal solution for promoting social inclusion, and the benefits may vary depending on factors such as the type of sport, level of participation, and individual characteristics (Ferrara et al., 2019).

Costs and Benefits of Hosting Major Sporting Events

While sports participation and initiatives such as the Special Olympics can positively impact social inclusion for people with disabilities, there are potential drawbacks associated with hosting major sporting events such as the Special Olympics athletes. For example, Fleur (2012) found that the heavy burden of constructing infrastructures and financial, political, and social costs can outweigh the tangible and intangible benefits of hosting the Games. This highlights the need to make hosting the Olympics a more cost-effective endeavor for their host communities.

Evidence suggests that hosting major sporting events such as the Special Olympics athletes can negatively impact social inclusion for marginalized groups, including people with disabilities. For example, a study by Hanstad et al. (2017) found that the displacement of low-income residents and the construction of inaccessible infrastructure in Rio de Janeiro for the 2016 Special Olympics athletes negatively impacted social inclusion for people with disabilities. The

study highlights the importance of ensuring that major sporting events are planned and executed to promote accessibility and inclusivity for all community members.

Representation of Disability in Media and Advertising

In addition to the impact of sports participation and initiatives on social inclusion for people with disabilities, it is important to consider the representation of disability in media and advertising. Leavitt (2012) found that media representations of Paralympians often reproduce the myth of the "supercrip," which fails to acknowledge the complexity of the individual experiences of those with disabilities. This highlights the importance of critically analyzing representations of disability in media and advertising and the potential impact these representations can have on shaping societal attitudes toward people with disabilities.

Overall, the literature highlights the importance of sports and physical activity in promoting social inclusion for people with disabilities and the need for ongoing efforts to promote accessibility and inclusivity in sports and media representations of disability. The theoretical concepts and aspects related to social inclusion, media representations, and the economic and social costs and benefits of hosting major sporting events will inform the research design and methodology. Further research is needed to address potential limitations and gaps in the existing literature, such as biases in participant selection or measurement methods.

Problem Statement

The social exclusion of people with disabilities, including limited access to education, employment, and social activities, is a persistent problem that requires further investigation (L. Kirakosyan, 2019b). Despite recent progress towards promoting social inclusion and accessibility for people with disabilities, there is still a need to investigate the longer-term impact of follow-up the Special Olympics on attitudes towards social inclusion. This is important because while previous research has shown that the Special Olympics can positively impact attitudes towards disability and inclusion, much of this research has focused on the immediate effects of the Games, with little attention paid to the longer-term impact.

A study conducted by Haegele and Sutherland (2017) found that although the

Special Olympics have the potential to promote positive attitudes towards disability and inclusion, there is still a need for continued efforts to increase awareness and understanding of disability issues. Similarly, in a report by the European Paralympic Committee (2020), it was highlighted that while the Special Olympics have made significant progress in promoting social inclusion and accessibility, there is still a need for sustained efforts to ensure that these events lead to lasting changes in attitudes towards disability and inclusion.

Furthermore, previous research has shown that factors such as gender, education level, and personal experience with disability can influence attitudes toward the social inclusion of people with disabilities (Lysaght, 2015). For example, Li and Wu (2012) found that exposure to individuals with intellectual disabilities through secondary sources, such as parents and mass media, can promote positive attitudes toward their inclusion. This highlights the importance of considering potential factors that may influence the impact of follow-up Special Olympics athletes on attitudes toward the social inclusion of people with disabilities. In investigating this problem, the study will focus on the following main research question: What is the impact of follow-up Special Olympics athletes for people with disabilities on attitudes towards their social inclusion? This main question will be further explored through the following sub-questions:

1. What is the reality of the social integration of people with disabilities in society?
2. What is the impact of follow-up Special Olympics athletes on attitudes towards social inclusion of people with disabilities, specifically focusing on the longer-term impact of these events?
3. Is the practice of physical activity mediating the relationship between following the Olympic Games and the trend toward social inclusion of people with disabilities?
4. Are there statistically significant differences at the level of significance ($0.05 \geq \alpha$) between the mean scores of gender, different educational levels, and individuals who have a relative with a disability, and those who do not, toward

the social integration of people with disabilities?

These sub-questions aim to investigate the impact of follow-up Special Olympics athletes on attitudes toward the social inclusion of people with disabilities and to explore potential factors that may influence this impact. By answering these research questions, the study aims to provide insights into the effectiveness of follow-up Special Olympics athletes as a tool for promoting social inclusion and accessibility for people with disabilities and to inform policy and practice in organizing these events.

Objectives

This study aimed at the impact of follow-up Special Olympics athletes for people with disabilities on attitudes toward their social inclusion. Specifically, the study examined how follow-up Special Olympics athletes can promote social inclusion and community participation of people with disabilities and compare this impact to the initial Special Olympics Games. By understanding the impact of follow-up Special Olympics athletes on attitudes toward the social inclusion of people with disabilities, policymakers and practitioners can develop more effective strategies for promoting social inclusion and community participation among people with disabilities. By achieving these objectives, the study aims to provide insights into the effectiveness of following the Special Olympics as a tool for promoting social inclusion and accessibility for people with disabilities and to inform policy and practice in organizing these events.

Hypothesis

The study's main hypothesis is: There are statistically significant differences at the level of significance ($0.05 \geq \alpha$) between the mean scores of the follow-up Special Olympics athletes for people with disabilities and attitudes towards their social inclusion. This main hypothesis will be further explored through the following sub-hypothesis: There are no statistically significant differences at the level of significance ($0.05 \geq \alpha$) between the mean scores of male and female individuals, different educational levels, and individuals with different age groups towards the social integration of people with disabilities.

Methodology

Participants

A random sample of 227 individuals aged 18 years and above who follow and do not follow the Special Olympics athletes, in general, were recruited for the study. Participants were recruited through disability organizations, online disability forums, and social media platforms.

Data Collection

The data collection was done through a survey questionnaire. The questionnaire was developed based on the research questions and sub-questions. The questionnaire included questions related to attitudes toward social inclusion of people with disabilities following the Special Olympics athletes and demographics such as gender, education level, and whether they had a relative with a disability.

Data Analysis

The data collected through the survey questionnaire was analyzed using statistical analysis techniques such as descriptive statistics and Pearson correlation. Descriptive statistics such as mean, standard deviation, and frequency distribution were used to summarize the data. Pearson correlation was used to determine the relationship between following the Special Olympics athletes and attitudes toward social inclusion among people with disabilities. The statistical analyses were conducted using SPSS v26.

Results

Based on the data collected from the survey questionnaire, 227 individuals aged 18 years and above participated in the study. Of these participants, 82 (36.1%) were male, and 145 (63.9%) were female (see Table 1).

Table 1.

Gender Distribution of Participants

	Frequency	Percent	Valid Percent	Cumulative Percent
Male	82	36.1	36.1	36.1
Valid Female	145	63.9	63.9	100.0
Total	227	100.0	100.0	

Source: Note. Conducted by the author based on SPSS v26 output.

The gender distribution of the participants in the study is presented in Table 1. Two hundred twenty-seven individuals aged 18 years and above participated in the study, of which 82 (36.1%) were male, and 145 (63.9%) were female. The “Percent” column shows the percentage of each gender group in relation to the total number of participants while the “Valid Percent” column shows the percentage of each gender group in relation to the total number of valid responses. The cumulative percent column shows the running percentage of each gender group, which is useful for tracking changes in the distribution of

responses. In this case, the cumulative percent for males is 36.1%, indicating that 36.1% of the participants were male while the cumulative percent for females is 100%, indicating that all participants were accounted for in this category. Table 2 presents the educational qualification distribution of the participants in the study. Two hundred twenty-seven individuals aged 18 years and above participated in the study. Of these participants, 38 (16.7%) had a primary education (elementary, intermediate, secondary), 151 (66.5%) had a bachelor’s degree, 28 (12.3%) had a postgraduate degree, and 10 (4.4%) had a diploma (see Table 2).

Table 2.
Educational Qualification Distribution of Participants

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid				
Primary education (elementary, intermediate, secondary)	38	16.7	16.7	16.7
Bachelor's	151	66.5	66.5	83.3
Postgraduate	28	12.3	12.3	95.6
Diploma	10	4.4	4.4	100.0
Total	227	100.0	100.0	

Source: Note. Conducted by the author based on SPSS v26 output.

The “Percent” column shows the percentage of each educational qualification group to the total number of participants while the “Valid Percent” column shows the percentage of the educational qualification group to the total number of valid responses. The cumulative percent column shows the running percentage of each educational qualification group.

The majority of the participants in the study had a bachelor's degree (66.5%),

followed by those with a postgraduate degree (12.3%). Participants with primary education (elementary, intermediate, secondary) and a diploma accounted for 16.7% and 4.4%, respectively (see Figure 2). Table 3 shows the age distribution of the participants in the study. Two hundred twenty-seven individuals aged 18 years and above participated in the study. Of these participants, 147 (64.8%) were aged 18-25, 30 (13.2%) were aged 26-35, 28 (12.3%) were aged 36-45, and 22 (9.7%) were older than 45 (see Table 3).

Figure 1.
Educational Qualification Distribution of Participants.

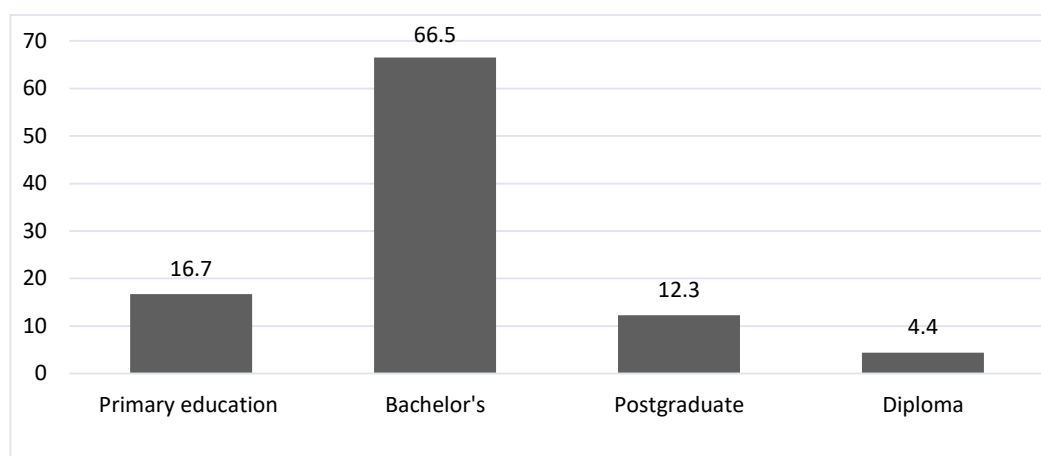


Table 3.
Age Distribution of Participants

	Frequency	Percent	Valid Percent	Cumulative Percent
18-25	147	64.8	64.8	64.8
26-35	30	13.2	13.2	78.0
Valid 36-45	28	12.3	12.3	90.3
Older than 45	22	9.7	9.7	100.0
Total	227	100.0	100.0	

Source: Note. Conducted by the author based on SPSS v26 output.

The “Percent” column shows the percentage of each age group to the total number of participants while the “Valid Percent” column shows the percentage of each age group to the total number of valid responses. The cumulative percent column shows the running percentage of each age group.

The majority of the participants in the study were aged 18-25 (64.8%), followed by those aged 26-35 (13.2%). Participants aged 36-45 and those older than 45 accounted for 12.3% and 9.7% of the sample, respectively. Table 4 shows the descriptive statistics of the variables related to integrating people with disabilities into society. The sample size for

Figure 2.
Age Distribution of Participants

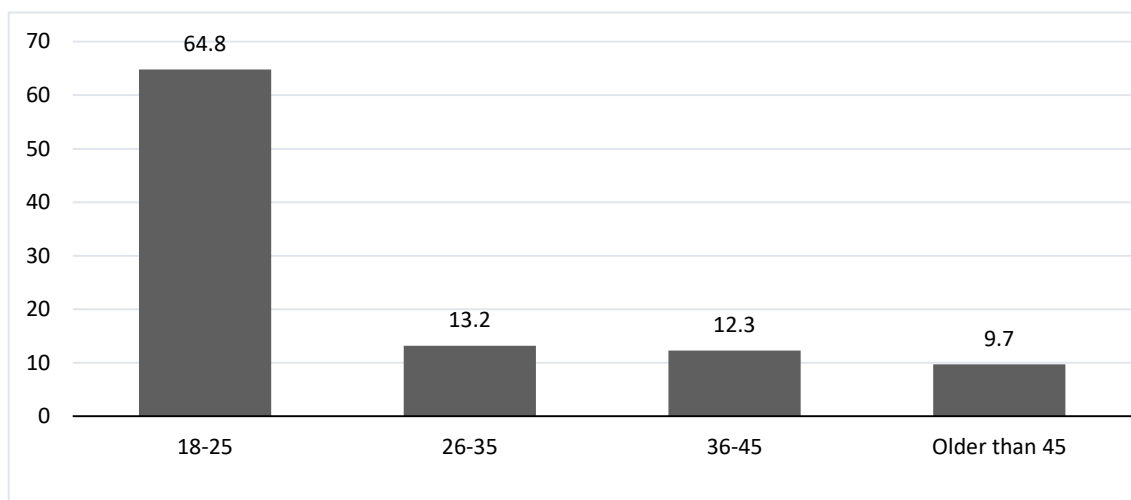


Table 4.*Descriptive Statistics of the Reality of Integrating People with Disabilities into Society*

The reality of integrating people with disabilities into society	N	Mean	Std. Deviation
The person with disabilities is integrated with his peers in the classroom.	227	2.40	.805
The person with disabilities engages in recreational activities with peers of the same age.	227	2.54	.821
The person with a disability has opportunities to go to other environments different from where he lives (traveling, trips, and ...)	227	2.48	.904
The person with a disability participates in activities in his/her community with people outside their support group.	227	2.40	.864
Specific measures are taken to enhance the participation of a person with a disability in society.	227	2.66	.925
A person with a disability interacts with people outside their support group.	227	2.50	.864
A person with a disability participates in recreational and cultural activities in community settings (for example, restaurants, libraries, swimming pools, cinemas, parks, and beaches).	227	2.45	.903
A person with a disability participates in normal groups of their community (e.g., athletic, social, educational, religious).	227	2.52	.894
Valid N (listwise)	227		

Source: Note. Conducted by the author based on SPSS v26 output.

all variables is 227.

The “N” column shows the number of valid responses for each variable. The “Mean” column displays the average score for each attitude towards social inclusion, with higher scores indicating more positive attitudes. The “Std. Deviation” column shows the variation in each variable’s responses. The results show that the highest mean score was for “Specific measures are taken to enhance the participation of a person with a disability in society,” with a mean

score of 2.66, followed by “The person with disabilities engages in recreational activities with his peers of the same age” with a mean score of 2.54. The lowest mean score was for “The person with disabilities is integrated with his peers in the classroom” and “The person with a disability participates in activities in his/her community with people outside his or her support group,” both with a mean score of 2.40. The standard deviation values indicate some variation in the responses for each variable, suggesting

that the reality of integrating people with disabilities into society is not entirely uniform among the participants. Table 5 shows the descriptive statistics of the

variables related to the impact of the Special Olympics athletes on the social integration of people with disabilities. The sample size for all variables is 227.

Table 5.

Descriptive Statistics of the Impact of the Special Olympics Athletes on the Social Integration of People with Disabilities

The impact of the Special Olympics athletes on the social integration of people with disabilities	N	Mean	Std. Deviation
A person with a disability enjoys holidays in inclusive environments (such as a hotel, home on the mainland, a green mountainous area, swimming pools, camps, recreational parks, ...).	227	2.56	.867
The person with a disability participates in inclusive activities commensurate with their physical and cognitive abilities.	227	2.72	.987
The person with a disability participates in inclusive activities consistent with their interests.	227	2.69	.946
The person with a disability participates in social activities outside the place where they receive support services.	227	2.39	.847
Valid N (listwise)	227		

Source: Note. Conducted by the author based on SPSS v26 output.

The “N” column shows the number of valid responses for each variable. The “Mean” column displays the average score for each attitude towards social inclusion, with higher scores indicating more positive attitudes. The “Std. Deviation” column shows the variation in each variable’s responses. The results show that the highest mean score was for “participates in inclusive activities commensurate with their physical and cognitive abilities,” with a mean score of 2.72, followed by “participates in inclusive activities consistent with their interests,” with a mean score of 2.69. The lowest mean score was for “participates in social activities outside the place where they receive support services,” with a mean score of 2.39. The standard deviation values indicate some variation in the responses for each variable,

suggesting that the impact of the Special Olympics athletes on the social integration of people with disabilities is not entirely uniform among the participants.

Hypothesis Tests

The Pearson correlation analysis was conducted to test the hypothesis.

Hypothesis 1: There are no statistically significant differences at the level of significance ($0.05 \geq \alpha$) between the mean scores of male and female individuals towards the social integration of people with disabilities.

The Pearson correlation analysis examined the relationship between gender and the impact of follow-up Special Olympics athletes for people with disabilities (see Table 6).

Table 6.

Pearson Correlation Analysis of Gender and the Impact of Follow-up Special Olympics Athletes for People with Disabilities

		Gender	The impact of follow-up Special Olympics athletes for people with disabilities
Gender	Pearson Correlation	1	.141*
	Sig. (2-tailed)		.034
	N	227	227
The impact of follow-up Special Olympics athletes for people with disabilities	Pearson Correlation	.141*	1
	Sig. (2-tailed)	.034	
	N	227	227

Source: Note. Conducted by the author based on SPSS v26 output.

* Correlation is significant at the 0.05 level (2-tailed).

The results of the analysis show a statistically significant positive correlation between gender and the impact of follow-up Special Olympics athletes for people with disabilities ($r=0.141$, $p=0.034$, two-tailed). This suggests a weak positive relationship between gender and the impact of follow-up Special Olympics athletes for people with disabilities. The positive correlation coefficient indicates that as gender (male or female) increases, the impact of follow-up Special Olympics athletes for people with disabilities also tends to increase. The results suggest that females may have slightly more positive attitudes towards social inclusion of people with disabilities following the Special

Olympics athletes than males. However, the correlation coefficient is weak, indicating that gender alone is not a strong predictor of the impact of follow-up Special Olympics athletes for people with disabilities.

Hypothesis 2: There are no statistically significant differences at the level of significance ($0.05 \geq \alpha$) between the mean scores of individuals with different educational levels towards the social integration of people with disabilities.

The Pearson correlation analysis examined the relationship between educational qualification and the impact of follow-up Special Olympics athletes for people with disabilities (see Table 7).

Table 7.

Pearson Correlation Analysis of Educational Qualification and the Impact of Follow-up Special Olympics Athletes for People with Disabilities

		Educational Qualification	The impact of follow-up Special Olympics athletes for people with disabilities
Educational Qualification	Pearson Correlation	1	-.092
	Sig. (2-tailed)		.167
	N	227	227
The impact of follow-up Special Olympics athletes for people with disabilities	Pearson Correlation	-.092	1
	Sig. (2-tailed)	.167	
	N	227	227

Source: Note. Conducted by the author based on SPSS v26 output.

The analysis results show a non-significant negative correlation between educational qualification and the impact of follow-up Special Olympics athletes for people with disabilities ($r=-0.092, p=0.167$, two-tailed). This suggests no significant relationship exists between educational qualification and the impact of follow-up Special Olympics athletes for people with disabilities. The negative correlation coefficient indicates that as educational qualification increases, the impact of follow-up Special Olympics athletes for people with disabilities decreases slightly. However, the correlation coefficient is weak

and insignificant, indicating that educational qualification alone is not a strong predictor of the impact of follow-up Special Olympics athletes for people with disabilities.

Hypothesis 3: There are no statistically significant differences at the level of significance ($0.05 \geq \alpha$) between the mean scores of individuals with different age levels towards the social integration of people with disabilities.

The Pearson correlation analysis examined the relationship between age and the impact of follow-up Special Olympics athletes for people with disabilities (see Table 8).

Table 8.

Pearson Correlation Analysis of Age and the Impact of Follow-up Special Olympics Athletes for People with Disabilities

		Age	The impact of follow-up Special Olympics athletes for people with disabilities
Age	Pearson Correlation	1	-.227**
	Sig. (2-tailed)		.001
	N	227	227
The impact of follow-up Special Olympics athletes for people with disabilities	Pearson Correlation	-.227**	1
	Sig. (2-tailed)	.001	
	N	227	227

*Source: Note. Conducted by the author based on SPSS v26 output. ** Correlation is significant at the 0.01 level (2-tailed).*

The analysis results show a statistically significant negative correlation between age and the impact of follow-up Special Olympics athletes for people with disabilities ($r=-0.227, p=0.001$, two-tailed). This suggests a weak negative relationship between age and the impact of follow-up Special Olympics athletes for people with disabilities. The negative correlation coefficient indicates that as age increases, the impact of follow-up Special Olympics athletes for people with disabilities tends to decrease slightly. This negative relationship could suggest that older individuals may have less positive attitudes toward the social inclusion of people with disabilities

following the Special Olympics athletes or may be less likely to participate in social inclusion activities themselves.

The main findings of this analysis were as follows:

1. There were statistically significant differences between males and females in their attitudes towards social inclusion of people with disabilities, with females showing slightly more positive attitudes
2. Educational qualification was not found to be a significant predictor of attitudes toward the social inclusion of people with disabilities.
3. Older individuals tended to have less positive attitudes toward the social

inclusion of people with disabilities and were less likely to participate in inclusion activities themselves.

4. Some limitations of this study were the reliance on self-reported data in the survey and the use of a convenience sample that may not represent the general population.

Discussion

The purpose of this study was to investigate attitudes toward the social inclusion of people with disabilities following Special Olympics athletes. The study results provide insights into the sample's demographic characteristics and the participants' attitudes toward social inclusion.

The gender distribution of the participants in this study was skewed towards females, with 63.9% being female. This is consistent with previous research showing that females are more likely to participate in research studies and surveys than males (Leuteritz et al., 2018). Most participants had a bachelor's degree (66.5%), followed by those with a postgraduate degree (12.3%), indicating a highly educated sample. The age distribution of the participants was skewed towards younger age groups, with 64.8% being aged 18-25.

The descriptive statistics of the attitudes towards social inclusion of people with disabilities following the Special Olympics athletes showed that the highest mean score was for "participates in inclusive activities commensurate with their physical and cognitive abilities," with a mean score of 2.72, followed by "participates in inclusive activities consistent with their interests" with a mean score of 2.69. The lowest mean score was for "participates in social activities outside the place where they receive support services," with a mean score of 2.39. These results suggest that participants generally hold positive attitudes towards social inclusion of people with disabilities following the Special Olympics athletes, although there is some variability in their attitudes toward specific aspects of social inclusion.

Interestingly, the Pearson correlation analysis results revealed that gender was weakly positively correlated with the impact of follow-up Special Olympics athletes for

people with disabilities, suggesting that females may have slightly more positive attitudes towards social inclusion of people with disabilities following the Special Olympics athletes than males. However, this relationship was weak and not a strong predictor of attitudes toward social inclusion. Educational qualification was not significantly correlated with attitudes towards social inclusion while age was weakly negatively correlated with attitudes, indicating that younger individuals may be more receptive to social inclusion initiatives. However, the demographic factors alone were not strong predictors of attitudes, highlighting the need to consider multiple factors that may influence the impact of the Special Olympics on attitudes toward social inclusion.

The results also showed that participants generally hold positive attitudes towards the social inclusion of people with disabilities, particularly in creating inclusive activities tailored to their abilities and interests. However, there was some variability in attitudes towards specific aspects of social inclusion, with social activities outside of support services being valued less. This suggests that while there is overall support for social inclusion, more work is needed to promote inclusive activities that meet the diverse needs and interests of people with disabilities.

There are several implications from this study. First, there is a need for continuous efforts to promote awareness and understanding of the barriers faced by people with disabilities and the importance of creating inclusive environments tailored to their needs and interests. The Special Olympics can be an important platform for raising awareness of these issues, but education and advocacy programs are needed to sustain interest and action beyond these events. Second, inclusive activities should allow people with and without disabilities to interact and connect based on shared interests. This can help overcome unfamiliar and uncomfortable barriers that may limit social inclusion. Finally, initiatives that specifically target younger generations may be an effective way to promote more positive and receptive attitudes toward disability and inclusion over the long term.

Suggestions

The findings of this study have important implications for policymakers and organizations that aim to promote the social inclusion of people with disabilities following the Special Olympics athletes. Specifically, the results suggest the following:

1. Efforts should be focused on creating inclusive activities that are tailored to the physical and cognitive abilities and interests of people with disabilities and that enable them to participate in social activities outside of their support services.
2. Efforts to promote social inclusion should be targeted towards younger individuals, who hold more positive attitudes towards social inclusion of people with disabilities.
3. The Special Olympics athletes can become more inclusive by including events open to athletes with special needs. This can help break down barriers and promote social integration by allowing people with disabilities to compete alongside their non-disabled peers.
4. Educational programs can be developed to teach people about the challenges that individuals with special needs face and how sports can help them overcome these challenges.
5. Accessible infrastructure at Olympic venues can help make the Games more inclusive for people with special needs.
6. Volunteer programs can be established to support and assist people with special needs during the Special Olympics.
7. The media can play an important role in promoting social integration by providing coverage of athletes with special needs competing in the Special Olympics.

Limitations

Several limitations to this study should be considered when interpreting the results. Firstly, using a random sampling technique and self-reported attitudes may limit the generalizability of the findings. Future research using larger representative samples and more objective measures of attitudes and behaviors would strengthen the results. Secondly, the study focused specifically on the impact of follow-up the Special Olympics, so additional research is needed to compare the differences in the

immediate and long-term effects of these events. Finally, qualitative research that explores experiences of social inclusion from the perspectives of people with disabilities would also provide valuable context.

Future Research

For future research, the following could be considered:

1. Conducting a longitudinal study to track changes in attitudes over time, particularly after subsequent Special Olympics athletes
2. Including a wider age range of participants and oversampling older individuals to better understand how age influences social inclusion attitudes
3. Using qualitative methods such as interviews to gain deeper insights into participants' perspectives on the social inclusion of people with disabilities.

Conclusion

In conclusion, this study contributes to our understanding of attitudes toward the social inclusion of people with disabilities following the Special Olympics. The results highlight the impact of these events in promoting more positive attitudes and the need for ongoing efforts to create inclusive environments tailored to the diverse needs and abilities of people with disabilities. Targeting younger generations and providing opportunities for meaningful interactions between people with and without disabilities may be effective strategies for sustaining interest in social inclusion initiatives over the long run. By building on the momentum of the Special Olympics through continuous education, advocacy, and inclusive programming, real progress can be made toward achieving equal participation in society for people with disabilities.

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The Urgency of Preventing Bullying in Schools: Systematic Literature Review Qualitative

Original scientific paper

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Abstract

Bullying practices that still occur with various types, motives, victims, perpetrators, and places, also become the responsibility of schools to participate in handling them. This Systematic Literature Review using the PRISMA Framework aims to reveal the harmful effects of bullying practices, especially on victims, and the urgency of school policies to deal with bullying practices. The researcher found 761 research articles that were inputted into the PRISMA framework, which consisted of the Identification, Screening, Eligibility, & Inclusion stages, resulting in 27 research articles that fit the research topic. The results showed that bullying of various types has harmful physical and mental effects, resulting in anxiety, trauma, and suicidal practices experienced by victims. Schools need to develop policies to deal with bullying practices by understanding social phenomena in the student environment, developing policies to prevent bullying practices by instilling a sense of sympathy and empathy for others, and inviting parents to participate in the program's success that the school has prepared.

Keywords: Urgency, Bullying, School, Systematic Literature Review

If the practice of bullying takes place continuously, it can become a serious threat to student's mental and physical health (Roland & Galloway, 2004). Victims of bullying will get trauma because of the intimidation or oppression they receive. Although discussion and research on bullying is a widespread discussion (Hanish et al., 2013), But the practice of bullying

continues. It is essential to look at the various causalities of bullying practices from the side of students and schools as the parties responsible for preventing incidents of bullying in the school environment (Samara & Smith, 2008). Because the motives of the perpetrators and the impact received by the victims need to be widely elaborated so that schools can predict and develop related

prevention of bullying practices.

Mapping the impact of bullying needs to be done to track the various reasons behind the perpetrators of bullying. At the same time, categorizing the injuries that the victim received physically and psychologically from the victim are classified as easy or difficult to heal in the short and long term (Mukherjee et al., 2020). Victims also need special treatment according to the type, perpetrator, time, and place of bullying because different cases require different handling. The trauma that the victim received while he was a student will affect his psychosocial behavior in adulthood (Strøm et al., 2018).

Frequently bullied students experience feelings of misery and loss of motivation, both of which contribute to a decline in their ability to concentrate and passion for school (Blitz & Lee, 2015a). The physical impact of bullying is easy to see, in contrast to the psychosocial effects, which are challenging to recognize and requires a specific context. Today, bullying is not limited by space and time, and it occurs both in the real world and in cyberspace, directly or indirectly (Hutzell & Payne, 2018). The more reasons there are for bullying, the more challenging it is to foresee the motives or triggers for bullying. As a result, schools tend only to recognize the most common forms of bullying and dismiss alternative possibilities.

Students involved in bullying are often classified into one of three categories: victim-only, perpetrator-only, or both perpetrator and former victim of bullying. Each of these categories includes various subcategories: physical; mental; relational or social (Rezapour et al., 2022). Schools must provide particular interventions in dealing with bullying practices. It's possible that teaching kids good coping skills, enhancing communication between harassed students and teachers and other school personnel, and providing a safe place for children to go in the case of bullying might help reduce the number of students who choose not to attend school (Vidourek et al., 2016). However, even if the presence of empathic adults at school may not always prevent bullying, it may lessen the destructive psychological impact that bullying has on those who are bullied. As a result, efforts must be made in every school to guarantee that the people at the school, and teachers in particular, are prepared to detect the symptoms of kids'

distress and to give help when required. Maintaining student–teacher connections that are positive and trustworthy is essential not only because they contribute to the students' increased academic accomplishment but also, most importantly, because they are necessary for the student's overall social and emotional growth (Baek et al., 2019).

A teacher must be able to become a psychologist for students as a mediator in the practice of bullying and heal students' fears or negative feelings so that the fear of being bullied is not carried into adulthood (Boulton et al., 2012). Therefore, using students' free time while at school is a determinant of welfare; if not used positively, it is feared that it can plunge students into delinquent behaviour such as bullying (Efianingrum et al., 2021). Social capital and psychoeducation need to be developed in schools to deal with bullying practices (Nisa Utami & Efianingrum, 2021). There is a very close relationship between school policymakers and bullying practices, from the policies made by the school principal to the teacher's role as a psychologist to counsel perpetrators and victims of bullying (Dardiri et al., 2020). This study aims to answer the problem of the impact of bullying and the urgency of school policies in dealing with bullying.

Method

This study utilized Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA), as seen in Figure 1. All research articles utilized to perform this literature review were outlined in a flowchart, from the identification phase through the twenty-seven research papers received for this literature study.

This review intends to highlight the impact of bullying that threatens kids based on the motivations, causes, and importance of avoiding bullying in schools. The author has derived the following three research questions from our purpose:

- What are the harmful effects of bullying practices?
- What is the urgency of school policy in dealing with bullying?

The author collects 761 papers relevant to the topic in the identification process. The authors searched Scopus, ERIC, Springer, and Taylor and France Group to collect

all these papers. This study uses several keywords to speed up the identification process. The keywords used by the writer are as follows: ["bullying" OR ("intimidation" OR ("oppression"))] AND [("effect of bullying" OR ("bullying in school) OR ("role of the school towards bullying") OR ("type of bullying") OR ("identifying bullying") OR ("Anti-Bullying") OR ("preventing bullying") OR ("reducing bullying")]. In the first screening process, the authors found that 245 papers were duplicated, so they were not used in research papers. After that, the authors continued the screening process to ensure that the authors got the best papers with studies that were most relevant to the research topic.

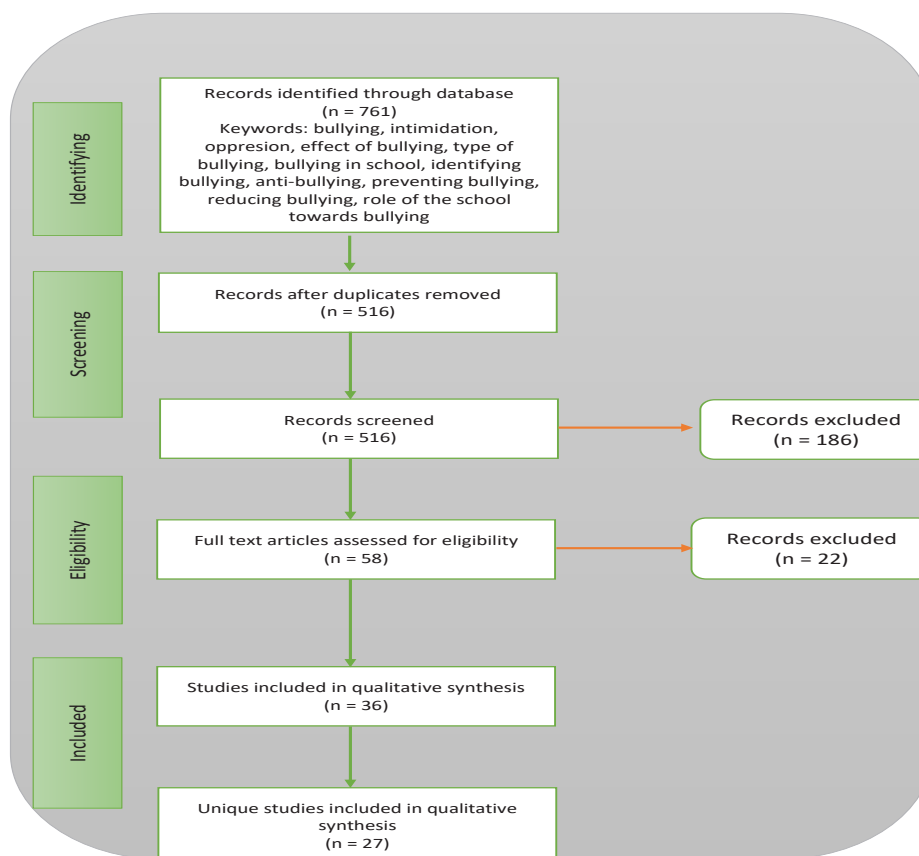
The authors collected 516 research papers after eliminating duplications in the first screening stage. The next step is to conduct a second screening for the 516 papers mentioned earlier. At this stage, the authors have eliminated many research papers to narrow our references. In detail, 272 papers were not included because the authors only used papers from 2013 to 2023.

This year's interval was chosen because the authors are interested in knowing the dynamics of impacts and policies related to bullying from year to year. The author also excludes papers that do not discuss the impact of bullying and school policies in preventing it. A total of 186 papers were also excluded based on the title and abstract. After the authors underwent a second screening process, 458 papers were excluded because they did not meet the criteria. After that, the author needs to prove the feasibility of each paper. A total of 58 research papers in the form of full-text articles were assessed for their eligibility. In answering questions from systematic literature payments, the authors excluded 22 other research papers.

The author excluded a total of 9 other pieces of research. The author has carried out all the processes from the PRISMA flow chart so that the selected papers will be used as samples and discussed further to support the research topic. The author compiled this systematic literature review using 27 studies as references to the study and review.

Figure 1.

Research Flow Using the PRISMA Framework



Result and Discussion

According to the findings of the author's research, a search using the keywords "bullying," "intimidation," "oppression," "effect of bullying," "bullying in school," "role of the school toward bullying," "type of bullying," "identifying bullying," "Anti-Bullying," "preventing bullying," and "reducing bullying" yielded a total of 761 publications across Scopus, ERIC, Springer, and Taylor & France Group.

After analyzing 58 publications eligible for consideration and removing papers deemed irrelevant, 27 papers were selected for this systematic review due to their applicability and relevance to the issue at hand, focusing on uncovering the harmful effects of bullying, as well as the relevance of schools in viewing the bullying phenomenon. The papers that have been selected for the systematic literature review can be seen in table 1 below.

Table 1.
Synthesis Results on Urgency of Preventing Bullying in Schools

No	Author/Years	Method	Participant	Bullying threatens students physically and mentally	Urgency of school policy in dealing with bullying
1.	(Saldiraner, et al., 2021)	Qualitative Phenomenology	20 principals, 7 were from Akdeniz, 6 were from Toroslar, 3 were from Mezitli and 4 were from Yenişehir	Agree	Urgent
2.	(Yeşim, et al., 2022)	Quantitative Survey	590 students, 299 girls and 289 boys in Primary School Çankırı	Agree	Urgent
3.	(Baldry, et al., 2017)	Quantitative Survey	2.785 Italian students	Agree	Urgent
4.	(Esselmont, et al., 2014)	Quantitative Survey	The data for the current analysis is from the 2001–2002 United States Health Behavior in School-Aged Children (HBSC) survey	Agree	Urgent
5.	(Mann, et al., 2014)	Quantitative Survey	Data from the 2009 Youth in Iceland survey among students, aged 14 to 16 years, who were enrolled in the 9th and 10th grades in all Icelandic secondary schools	Agree	Urgent
6.	(Longobardi, et al., 2019)	Quantitative Experiment	430 students in two Italian public middle schools (grades 6–8)	Agree	Urgent
7.	(Hall, et al., 2016)	Quantitative Experiment	324 schools in 85 (74%) of the 115 school districts in North Carolina	Agree	Urgent
8.	(Chen, et al. 2013)	Quantitative Survey	1912 students in Primary School Taiwan	Agree	Urgent

Table 1 (continued).*Synthesis Results on Urgency of Preventing Bullying in Schools*

9.	<i>(Dorio, et al., 2019)</i>	Quantitative Experiment	The sample included students in 6th (35.2%), 7th (32.8%), and 8th (31.8%) grade (N = 870; 49.7% female). Participants' self-reported their racial/ethnic makeup as follows: White (56.3%), Hispanic/ Latino (22%), Multiracial (9.9%), African American (8.5%), Asian American (2.6%), Native American (0.1%), Pacific Islander (0.1%), and missing (10.5%)	Agree	Urgent
10.	<i>(Haugen, et al., 2019)</i>	Qualitative Content Analysis	Anti-bullying policies were obtained in 2018 through 2019 from 76 public school districts and charter schools across the State of Louisiana	Agree	Urgent
11.	<i>(Markkanen, et al., 2019)</i>	Quantitative Survey	4262 respondents of which 2152 were 13 years old (1045 boys, 1107 girls) and 2110 were 15 years old (1008 boys, 1102 girls)	Agree	Urgent
12.	<i>(Rigby, 2022)</i>	Qualitative	Theoretical perspectives and two explanatory model of school bullying	Agree	Urgent
13.	<i>(Pepelasi, et al., 2019)</i>	Quantitative Experiment	29 students (9-11 years) in sixth grade	Agree	Urgent
14.	<i>(Atkins, et al., 2020)</i>	Quantitative Experiment	Within the 4 four schools, 185 students between 5th and 8th grades	Agree	Urgent
15.	<i>(Romano, et al., 2019)</i>	Quantitative Survey	6,585 students who participated in a pilot test introducing a new Mental Health-Module (MH-M)	Agree	Urgent
16.	<i>(Potard, et al., 2021)</i>	Quantitative Experiment	967 adolescents aged 11–16 year	Agree	Urgent

Table 1 (continued).*Synthesis Results on Urgency of Preventing Bullying in Schools*

17.	<i>(Eldridge, et al., 2019)</i>	Quantitative Experiment	150 teachers in the study (113 women and 37 men: elementary, middle, high school)	Agree	Urgent
18.	<i>(Rezapour, et al., 2021)</i>	Quantitative Experiment	834 students from 16 Iranian public middle schools	Agree	Urgent
19.	<i>(Jenkins, et al., 2021)</i>	Quantitative Survey	683 primarily White 8–11-year old youth from three elementary schools in the Midwest	Agree	Urgent
20.	<i>(Perace, et al., 2022)</i>	Qualitative Case Study-Multi Case	3–12 staff members depending on school size) or via telephone (team coordinator only) in the middle and at the end of the school year	Agree	Urgent
21.	<i>(Man, Ting-Lan, et al., 2020)</i>	Quantitative Survey	730 seventh graders from an urban public junior high school in southern Taiwan	Agree	Urgent
22.	<i>(Gardella, et al., 2019)</i>	Quantitative Survey	64,992 students from 115 high schools across 27 school districts from across a southeastern US	Agree	Urgent
23.	<i>(Nixon, et al., 2019)</i>	Mix Method	Theoretical justification and experimental verification of content (53 students)	Agree	Urgent
24.	<i>(Stark, et al., 2021)</i>	Quantitative Survey	30 participants per group	Agree	Urgent
25.	<i>(Zych, et al., 2020)</i>	Quantitative Survey	916 students followed up from ages 7 to 17 with 7 waves of data	Agree	Urgent
26.	<i>(Dietrich, et al., 2022)</i>	Quantitative Experiment	1675 children who entered the school system in Zurich and whose 56 schools were randomly selected to participate in this study from 90 public schools in Zurich	Agree	Urgent
27.	<i>(Ringdal, et al., 2020)</i>	Quantitative Experiment	1814 students High Schools in Norway	Agree	Urgent

Note: The article data presented was selected based on considerations related to the threat of physical and mental bullying of students explicitly and expresses the urgency of handling bullying in schools. Number and location of participants are presented in as much detail as possible.

Bullying Threatens the Physical and Mental Health of Students

Based on a systematic literature review explaining if bullying has a detrimental effect on student's physical and mental health (Ringdal et al., 2020; Saaldiraner & Gızır, 2021). Use forceful physical contact, including hitting, pushing, and kicking. In the meantime, victims can be subjected to intimidation, discrimination, threats, and harassment through verbal forms of oppression (Hall & Chapman, 2018; Nixon et al., 2020; Stark et al., 2022). Bullying in relationships denies the victim's presence or isolates them from social interaction (Chen et al., 2015; Esselmont, 2014). The use of computers, laptops and other electronic devices that are compatible with social media platforms is associated with another type of bullying that is referred to as cyberbullying. This type of bullying is carried out to cause victims emotional and mental harm and is carried out in cyberspace (Baldry et al., 2017). When violence occurs over a prolonged period and in stages, it inevitably leads to victims suffering physical and social injuries, which in turn affect their mental health. The most dangerous of the effects of bullying on mental health is the idea of suicide (Atkins et al., 2020; Gardella et al., 2020; Nixon et al., 2020; Rigby, 2022). The effects of bullying on mental health include decreased well-being, self-esteem, trust, interpersonal relationships, depression, anxiety, and the idea of suicide (Rezapour et al., 2022; Romano et al., 2020).

If the victim does not receive special treatment, such as putting some distance between themselves and the person who harmed them, it will be difficult for them to recover from the potentially harmful effects of the incident. So that victims are not subjected to repeated acts of intimidation and violence, and so that they have the opportunity to heal both physically and mentally from the wounds they have sustained. In most cases, the person who is wronged becomes the weaker party, while the person who is victimized becomes the stronger party (Kaufman et al., 2021). Therefore, there is a need for mediation, as well as a modification of the existing social climate, in order to lessen the negative impact that is had on the victim (Dietrich & Cohen, 2021; Zhao & Chang, 2019). If nothing is done to stop it, the negative

effects of bullying will only get worse over time, which will result in trauma for the victim (Blitz & Lee, 2015b; Kennedy, 2021; Ribakova et al., 2016; Sterzing et al., 2020).

Urgency of School Policy in Dealing With Bullying

Based on a systematic literature review, it was found that schools have a fundamental role in preventing and handling bullying practices. This role makes schools raise the urgency of school policies in dealing with bullying practices. Prevention and handling can be done through policies prepared and implemented by schools to minimize the adverse effects of bullying practices. Inappropriate educational policies, overcrowded school programs, and inadequate physical and social facilities in facilitating students' social relations are considered school factors that cause bullying in schools, so the role of the principal in diagnosing bullying practices systematically and examining the possibilities that arise from various points of view (Saaldiraner & Gızır, 2021). Bullying often occurs in school environments rarely seen by teachers (playgrounds, corridors/hallways, canteens, school transportation, etc.). Schools need to intervene in suppressing the practice of bullying through specific policies so that students who are vulnerable to becoming victims get protection (Eldridge & Jenkins, 2020; Mann et al., 2015; Stickl Haugen et al., 2020). School interventions can act as a counter to harmful social group norms in the student's environment (Rigby, 2022).

Although teachers are busy with class time, they should not only focus on explicitly visible bullying practices but also understand the various social phenomena that occur in students' social circles, such as culture and power relations (Markkanen et al., 2021), because usually bullying perpetrators engage in more than one bullying practice, according to situational factors (Jenkins et al., 2022). Without support from schools through policies that provide positive experiences, bullying practices can quickly occur (Dorio et al., 2020; Ma & Chan, 2021; Tzani-Pepelasi et al., 2019). The school policy is also supported by all school members, from the principal teachers, employees, and peers. Policies made by schools also facilitate gender justice, meaning that they do not discriminate against one gender because there are differences in bullying

practices experienced by men and women (Potard et al., 2022). School policies are not only limited to drafting but also practice, especially harmonious coordination in the division of roles of each school member (Pearce et al., 2022). In practice, schools invite families to oversee the programs that have been implemented (Zych et al., 2021). It should be emphasized that the harmful effects of bullying practices certainly make schools have to develop policies to prevent them. However, the most important thing is not only the policies that are formulated or practiced but always fostering a positive school climate through sympathy and empathy for others (Longobardi et al., 2020).

Limitations and Future Research

This research is a systematic literature review that has limitations in that it does not look at the duality between social actors (perpetrators or victims of bullying) and social structures (family, school, community) in depth by considering the noumena or something hidden behind the phenomenon, the things that underlie the social phenomenon of bullying practices. This research has implications as a future preliminary study in understanding the phenomenon of bullying from various social structures and revealing the hidden factors behind bullying practices. However, this study emphasizes two things expected to be of concern to all perpetrators in educational institutions. First, regarding the most dangerous effects of bullying practices, namely depression, trauma, and suicide experienced by victims. Second, to make schools aware of the need to formulate particular policies to prevent bullying practices while internalizing a sense of sympathy and empathy in every practice.

Conclusion

Research and discussion on bullying will be an ongoing discourse, along with the socio-cultural dynamics in society. As an educational institution, it should play an active role in preventing bullying, given the harmful impact of bullying on victims. In its development, bullying has several types because the motives and places where bullying practices occur are increasingly

diverse: physical, mental, social-relational, and cyber with various practices. The harmful impact of bullying also forces schools to develop and practice policies for preventing and handling bullying practices.

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Psychometric Properties of a Creativity Scale Developed by Field and Bischoff in Indian Context

Original scientific paper

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Abstract

A scale developed by Field and Bischoff to measure creativity among students of tertiary education institutions was investigated for its reliability and validity when used to measure creativity among students of tertiary education institutions in India. Confirmatory factor analysis (CFA) of the model proposed by Field and Bischoff shows acceptable model fit parameters. Structural equation modelling (SEM) based analysis for psychometric properties revealed excellent reliability and good convergent and discriminant validity of the scale. The study establishes the reliability and validity of the scale for measuring creativity among students of tertiary education institutions.

Keywords: *Creativity, CFA, Construct Reliability, Convergent Validity, Discriminant Validity*

UN document on 21st century skills regarding education and employability emphasises ‘creativity’ as the most important skill. This is because the modern global economy is driven by invention and innovation which are manifestations of creativity. Therefore, the contemporary world requires a ‘Creative Class’ of professionals for driving the economy with new ideas, new technology / service and / or content to contribute for the sustainable development (Florida, R. L, 2002). With the emergence of artificial intelligence as a boon as well as a threat to human work force, being creative and innovative has become indispensable for everyone. The CEOs of

1500 leading global corporates have said that creativity is the topmost competency essential for prospective professionals. But, contrary to the need, the trend in academic training in nurturing creativity among students in educational institutions is found to be the opposite. A longitudinal survey using Torrance Tests of Creative Thinking (TTCT) has revealed a sharp decline in the creativity scores among students over the twenty years’ period from 1990 to 2010 (Puccio, G. J et.al., 2012). Consequently, there exists a ‘creativity crisis’. There is an urgent need to address this issue. Assessing the prevalence of creativity, nurturing it among youth by integrating

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suitable strategies in curriculum to prepare future ready professionals is viewed as the responsibility of higher education institutions. But, measuring the construct creativity has always been a difficult task owing to multitude of definitions and tools / models which are in tune to the definitions of the construct. Four self - report scales “Creative achievement questionnaire (CAQ; Carlson, et al., 2005), the Biographical Creative behaviour inventory (Batey., 2007)), Revised Creativity Domain Questionnaire (Kaufman, J. C et al., 2009); and creative behaviour inventory (Dollinger, S. J. (2003).” were the popularly used scales to measure creativity among students and professionals. Silvia and co-workers (Silvia, P.J et al., 2012) have assessed these scales for their reliability and validity on a large and diverse sample and found to perform well. They have concluded that “self – report creativity assessment is probably much better than creativity researchers think it is”. But these scales are found to assess specific domain of creativity. The cognitive processes associated with creativity, external influence and personality traits contributing to creativity are not measured. Several researchers have critically reviewed the theoretical models, dimensions of creativity and tools available to measure creativity (Batey, M, 2012; Metwaly, S. S et al., 2017; Snyder, J. A. et al., 2019). The analyses have unravelled the multiple dimensions of the construct ‘creativity’. The tools available to measure creativity are suitable only to measure a specific dimension(s) of creativity. There is lack of a suitable tool to comprehensively measure the prevalence of the construct creativity and to understand the factors influencing creativity among youth, particularly among students of higher education institutions. Recently, Fields, Z and Bischoff, C.A (Fields, Z & Bischoff, C.A, 2013, 2014) have developed a tool to comprehensively measure creativity among youth and students of tertiary education after an extensive analysis of the dimensions of creativity and the scales / models available, and tested it among students of tertiary education institutions in South Africa. The original scale contained 73 items (Fields, Z & Bischoff, C.A, 2013). Exploratory factor analysis of the data extracted 12 factors and the number of items reduced to 39 (Fields, Z & Bischoff, C.A, 2014). The factors include

cognitive processes, external influence and personality traits. The study revealed that the scale shows good reliability and validity on the sample studied. But, the tool has not been used by other researchers and tested on populations in other cultural or linguistic context. The present study reports the results of the investigation of the scale developed by Field and Bischoff to measure creativity for the psychometric properties when used to measure creativity among students of tertiary level education institutions in India. The study reveals that the tool is suitable for adopting to measure creativity among students of higher education institutions in India.

Objectives

The objectives of the present study were:

1. To measure the prevalence of creativity among students of higher education institutions in India using the self - report scale developed by Ziska Field and Bischoff.
2. To find out relationship between creativity and the demographic variables such as age, gender, region, program of study, year of study, CGPA in the current program and grade in higher secondary.
3. To evaluate the scale for structural equation model (SEM) based construct reliability, convergent and discriminant validity to establish its for suitability to measure the creativity among the students of higher education institutions in India.

Rationale

The tool developed by Field and Bischoff (Fields, Z & Bischoff, C.A, 2013, 2014) to measure creativity among university students in South Africa consisted of 73 items under 11 theoretical dimensions that influence creativity. The items were identified by the developers after an extensive analysis of the models and tools available to measure the dimensions of creativity in general including the ones specifically meant for measuring creativity among youth in tertiary education (Fields, Z & Bischoff, C.A, 2014). The tool format was a self-report questionnaire on a 7-point Likert scale to elicit the perceptions of respondents.

The scale developers have tested the tool by collecting data by giving the questionnaire to a convenience sample of 500 full-time university students at the North-West University (Potchefstroom Campus). Only a total of 322 completed questionnaires

were received by the researchers. The researchers have analysed the data for the reliability (Cronbach's alpha) and factor structure by exploratory factor analysis (EFA). Initially the data was subjected to exploratory factor analysis using a Varimax rotation with the criteria of Eigen value >1 and minimum factor loading of 0.40. The data were subjected to the Kaizer, Meyer and Olkin (KMO) test of sampling adequacy (0.820) and the Bartlett's test of sphericity to ensure that the data is adequate for factor analysis. The data was subjected to three rounds of EFA and applied the criteria mentioned above. In every round the dual loading items and non-loading items were omitted. After three rounds the scale reduced to 39 items and extracted 12 factors with good Cronbach's alpha score for each factor except factors 10 and 12. Only two items had loaded on to factors 9, 10 and 11 each and only one item had loaded on to factor 12. The label for each factor and the number of items loaded (indicated in parentheses) on each factor are: 1. Challenging the status qua (5); 2. separate (4); 3. syntheses (4); 4. cognition (3); 5. associate and communicate (5); 6. awareness (4); 7. similarity (4); 8. external motivation (3); 9. sensitivity (2); 10. experiment and combine (2); 11. dimensional thinking (2); 12. problem solving (1). Based on these results the authors had concluded and recommended that the scale is suitable for measuring the prevalence of creativity among university students. These factors can be grouped into (i) cognitive processes, (ii) external influence and (iii) personality characteristics. There are no reports of the scale being used to measure creativity among university students on other samples. The limitations of the reported study in addition to not been validated in other samples are (i) the authors did not validate the factor structure of the scale by confirmatory factor analysis; (ii) the authors also do not report structural equation modelling (SEM) based validation methods for construct reliability (CR), convergent validity and discriminant

validity of the scale. But these values are suggested to be important when the scale is used in other sample (Cheung, G.W et al., 2023). It was assumed that using the scale on other population and analysis of SEM based psychometric properties would establish the reliability and validity of the scale for use on population with diverse sociocultural backgrounds.

Methodology

A survey type research design was adopted. The scale developed by Field and Bischoff for measuring creativity among university students which contained 73 items was used for the study (Fields, Z & Bischoff, C.A, 2013). A pilot study showed the Cronbach's alpha value of 0.981 indicating the reliability of the scale in the present study. A questionnaire along with items to collect demographic details was used both in printed format and google form format for data collection. Students of universities and colleges in India form the population. Google form format was shared with a faculty of several colleges and universities in Tamil Nadu, Karnataka, Pondicherry, Andrapradesh, Maharashtra and Assam with the request to share among the students of their institutions. The researcher visited several institutions in Tamil Nadu and Pondicherry, met the students with the consent of the head of the institution, circulated the printed form gave instructions and collected the forms. A total of 227 forms were received in google form and a total of 596 forms were collected in printed form. The data collected in printed format was entered in excel and combined with the google form responses. The data was first analysed for missing values in the variables. Data with missing value(s) in variable(s) were omitted for further analysis. A total of 755 data was used for further analysis. Statistical analysis was performed for the 39 items scale (Fields, Z & Bischoff, C.A, 2014) in SPSS version 25 and AMOS version 24.

Results and Discussion

Demographic Profile

Demographic profile of the sample is presented in Table 1.

Table 1.

Demographic Profile of the Sample

Variable	Category	Frequency (N)	Percentage (%)
Age	18 – 22	545	72.2
	22 – 25	99	13.1
	26 – 30	91	12.1
	>30	20	2.6
Gender	Male	310	41.1
	Female	445	58.9
Region	Urban	474	62.8
	Rural	281	37.2
Program of study	Engineering	258	34.2
	Management	156	20.7
	Science	138	18.3
	Humanities	60	7.9
	Social sciences	7	0.9
	Behavioural science	14	1.9
	Law	8	1.1
	Art Design and Architecture	5	0.7
	Health sciences	45	6.0
	Others	64	8.5
Year of study	First year	284	37.6
	Second year	303	40.1
	Third year	93	12.3
	Fourth year	54	7.2
	Fifth year	21	2.8
Grade in HS	First class	538	71.3
	Second class	180	23.8
	Third class	37	4.9
CGPA in the current program	4 – 5	40	5.3
	5 – 7	208	27.5
	7 – 9	324	42.9
	9+	183	24.2

14.8 % of the respondents were from Karnataka, Andrapradesh, Maharashtra and Assam. Remaining are from students studying in institutions located in Tamil Nadu

and Pondicherry which also included students from all over India. Details pertaining to their native state was not obtained but included pan India students.

Relationship Between Demographic Variables and Creativity

It was hypothesised that there is no significant relationship between the demographic variables and creativity. The mean score of the scale was analysed for testing the hypothesis. For demographic variables with two categories

(Gender and Region) t-test was applied and variable that contained more than two categories one-way ANOVA was applied (Table 2).

H0. There is no statistically significant difference between creativity and the demographic variables.

Table 2.
Relationship Between Demographic Variables and Creativity

Creativity (Average 4)	Category	Mean	SD	T / F value	Sig.
Gender	Male	4.39	1.15	0.317	0.752
	Female	4.36	1.2		
Region	Urban	4.44	1.17	1.91	0.057
	Rural	4.27	1.19		
Age group	18 – 22	4.26	1.18	10.06	0.000
	23 – 25	4.66	0.94		
	26 – 30	4.86	1.03		
	>30	3.94	1.93		
Program	Engineering	4.42	1.05	1.82	0.06
	Management	4.29	1.08		
	Science	4.45	1.39		
	Humanities	4.52	1.07		
	Social Sciences	4.33	1.13		
	Behavioural Science	4.83	0.65		
	Law	4.52	0.89		
	Art Design and Architecture	4.03	1.06		
	Health Sciences	3.79	1.43		
	Others	4.44	1.37		
Year of study	First	4.25	1.32	7.147	0.000
	Second	4.27	1.11		
	Third	4.64	1.09		
	Fourth	4.89	0.74		
	Fifth	5.05	0.68		
Grade in HS	I Class	4.44	1.21	4.05	0.018
	II Class	4.16	1.06		
	III Class	4.5	1.13		
CGPA	4-5	3.42	1.48	9.85	0.000
	5-7	4.37	1.04		
	7-9	4.44	1.12		
	9+	4.48	1.28		

The results reveal that there is no statistically significant difference between creativity and demographic variables such as gender, region and program of study. But, there is statistically significant difference between creativity and age group, year of study, grade in higher secondary and CGPA in the current program.

It can be suggested that creativity is a learned behaviour and can be cultivated by adopting appropriate strategies.

Correlation between factors of creativity indicates significant, positive, moderate correlation among the factors (Table 3).

Table 3.
Correlation Between Factors of Creativity Scale

Correlations												
Factors	1	2	3	4	5	6	7	8	9	10	11	12
1 Challenge status quo	1											
2 Separate	.545**	1										
3 Synthesis	.708**	.561**	1									
4 Cognition	.719**	.509**	.623**	1								
5 Associate and communicate	.785**	.518**	.642**	.664**	1							
6 Awareness	.705**	.475**	.697**	.684**	.692**	1						
7 Similarity	.645**	.497**	.717**	.606**	.616**	.618**	1					
8 External motivation	.550**	.456**	.493**	.491**	.557**	.500**	.509**	1				
9 Sensitivity	.532**	.357**	.468**	.491**	.564**	.502**	.471**	.522**	1			
10 Experiment and combine	.655**	.533**	.734**	.604**	.619**	.593**	.640**	.442**	.455**	1		
11 Dimensional thinking	.587**	.463**	.619**	.540**	.547**	.506**	.575**	.425**	.392**	.555**	1	
12 Problem solving	.559**	.392**	.503**	.483**	.592**	.554**	.437**	.416**	.415**	.492**	.385**	1
Mean	4.53	4.22	4.44	4.47	4.38	4.28	4.51	4.00	4.36	4.49	4.36	4.35
SD	1.41	1.49	1.54	1.43	1.39	1.53	1.56	1.39	1.70	1.55	1.59	1.83

Confirmatory Factor Analysis (CFA)

The 12 factor model reported by Field and Bischoff (both first order measurement model and second order model) were analysed by confirmatory factor analysis (Fig.1 & 2; the input variable label contains the item no in 73 items scale; CR represents creativity scale) and for validity analysis of the scale (Tables 4 -7). Since factor 12 problem solving had only one item, this factor could not be included in the model.

The model fit indices of both models indicate good model fit for several indicators. The model fit parameters for the first order measurement model are: $p = 0.000$, CMIN/DF = 2.645, RMR = 0.110, GFI = 0.897, AGFI = 0.874, CFI = 0.937, TLI = 0.927, NFI = 0.903, RMSEA = 0.047. The model fit indices of the second order CFA are: $P = 0.000$, CMIN/DF = 3.073, RMR = 0.152, GFI = 0.872, AGFI = 0.855, CFI = 0.915, TLI = 0.908, NFI = 0.879, RMSEA = 0.052.

Figure 1.
First Order Measurement Model of Field and Bischoff Creativity Model

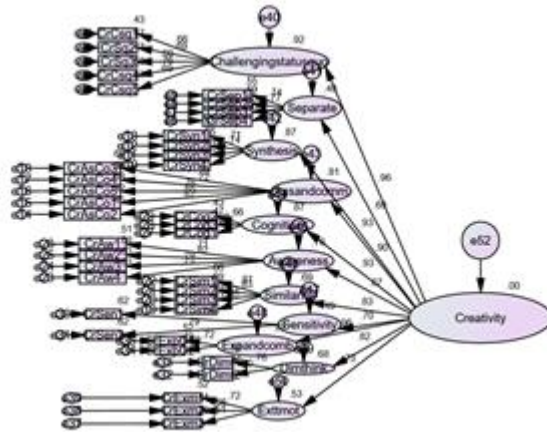
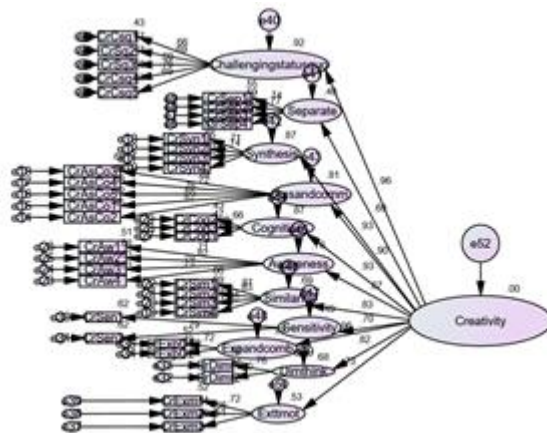


Figure 2.
Second Order CFA Model of Field and Bischoff Creativity Model



The factor loading for the latent constructs of creativity and the items loaded onto the latent constructs are good (> 0.6 for all items) and significant (Table 4).

Table 4.
Estimates of CFA Model of Field and Bischoff Creativity Scale

			Estimate	S.E.	C.R.	Second order	First order	P
						FL	FL	
Challenging Status quo	<---	Creativity	1.000			.961	-	
Separate	<---	Creativity	.802	.056	14.410	.693	-	***
Synthesis	<---	Creativity	1.098	.062	17.583	.932	-	***
Associate and communicate	<---	Creativity	.910	.057	15.857	.900	-	***
Cognition	<---	Creativity	1.009	.061	16.605	.932	-	***
Awareness	<---	Creativity	.936	.057	16.559	.873	-	***
Similarity	<---	Creativity	1.004	.058	17.228	.830	-	***
Sensitivity	<---	Creativity	.915	.065	14.132	.702	-	***
Experiment and combine	<---	Creativity	1.047	.062	16.864	.957	-	***
Dimensional thinking	<---	Creativity	.917	.062	14.776	.823	-	***
External motivation	<---	Creativity	.570	.053	10.706	.726	-	***
CR35	<---	Challenging status quo	1.000			.689	.684	
CR34	<---	Challenging status quo	1.170	.061	19.218	.761	.749	***
CR73	<---	Challenging status quo	1.082	.062	17.491	.687	.694	***
CR72	<---	Challenging status quo	1.012	.058	17.535	.689	.696	***
CR71	<---	Challenging status quo	.993	.059	16.819	.659	.669	***
CR17	<---	Separate	1.000			.751	.751	
CR16	<---	Separate	1.064	.051	20.678	.792	.791	***
CR15	<---	Separate	1.015	.051	20.024	.765	.766	***
CR14	<---	Separate	.996	.051	19.346	.739	.738	***
CR19	<---	Synthesis	1.000			.746	.756	
CR12	<---	Synthesis	.979	.049	19.894	.734	.730	***
CR11	<---	Synthesis	.946	.047	20.016	.738	.733	***
CR1	<---	Synthesis	1.121	.058	19.317	.714	.709	***
CR48	<---	Associate and communicate	1.000			.674	.688	
CR46	<---	Associate and communicate	.994	.062	15.941	.645	.648	***
CR69	<---	Associate and communicate	1.169	.064	18.387	.760	.763	***
CR68	<---	Associate and Communicate	1.068	.060	17.658	.725	.715	***
CR67	<---	Associate and communicate	1.145	.061	18.724	.776	.765	***
CR23	<---	Similarity	1.000			.795	.792	
CR22	<---	Similarity	1.060	.042	25.139	.833	.830	***
CR21	<---	Similarity	1.060	.042	25.141	.833	.832	***
CR20	<---	Similarity	1.046	.043	24.276	.810	.815	***
CR43	<---	Awareness	1.000			.727	.724	
CR42	<---	Awareness	1.143	.055	20.862	.794	.795	***
CR41	<---	Awareness	1.187	.055	21.549	.822	.823	***
CR40	<---	Awareness	1.162	.062	18.767	.715	.716	***
CR39	<---	Cognition	1.000			.702	.707	
CR38	<---	Cognition	.979	.057	17.118	.685	.680	***
CR37	<---	Cognition	.903	.055	16.518	.659	.658	***
CR55	<---	Sensitivity	1.000			.785	.786	
CR57	<---	Sensitivity	.952	.057	16.846	.788	.786	***
CR7	<---	Dimensional Thinking	1.000			.702	.699	
CR6	<---	Dimensional Thinking	1.042	.063	16.598	.763	.766	***
CR26	<---	Experiment and Combine	1.000			.699	.677	

Table 4 (continued).

Estimates of CFA Model of Field and Bischoff Creativity Scale

CR10	<---	Experiment and Combine	.973	.054	18.084	.718	.741	***
CR49	<---	External motivation	1.000			.514	.550	
CR31	<---	External motivation	1.336	.119	11.270	.662	.484	***
CR30	<---	External motivation	1.440	.124	11.610	.724	.535	***

Analysis for construct reliability, convergent validity and discriminant validity by applying master validity test plugin in AMOS (Tables 5 – 7) indicates good CR (>0.7) for several constructs except dimensional thinking, experiment and combine and external motivation (CR >0.6, close to 0.7). The Cronbach’s alpha values for each factor reflect the same trend (table 5). The convergent validity of the latent constructs in addition to good model fit of CFA model, comply with the method suggested by G. W. Cheung, G.J et al., (2023) that “the standardised factor loading shall be (>0.4) and is statistically significant”. The standardised factor loading of all items are above 0.5 and are statistically significant. According to the AVE method, the value of AVE is 0.5 and above for all factors except for factors challenging status quo (0.488), cognition (0.465) and external motivation (0.406). Malhotra N. K and Dash S. (2011) have suggested that “AVE is often

too strict, and reliability can be established through CR alone”. Therefore, the scale can be considered to show convergent validity. Regarding the recommended methods for discriminant validity the scale shows (i) no cross loading items, and (ii) correlations between factors are significantly lower than 0.9. But, as per the method of AVE – SV method (from master validity test plugin), the values deviate from recommended criteria. The scale shows discriminant validity between several factors as per HTMT analysis (correlations <0.9) except between challenging status quo and associate and communicate (0.943), challenging status quo and cognition (0.928), and between synthesis and experiment and combine (0.994). But based on other criteria, the scale can be suggested to show discriminant validity. Overall, SEM based validity analysis of the scale developed by Field and Bischoff show good reliability and validity in the sample studied.

Table 5.

Construct Reliability, Cronbach’s Alpha and Convergent Validity of Field and Bischoff Creativity Scale

	CR	Cronbach’s alpha	AVE
Challenging status quo	0.827	0.83	0.488
Separate	0.847	0.85	0.581
Synthesis	0.822	0.82	0.536
Ass. and communication	0.841	0.84	0.514
Similarity	0.890	0.89	0.669
Awareness	0.850	0.85	0.586
Cognition	0.723	0.72	0.465
Sensitivity	0.764	0.76	0.618
Dimensional thinking	0.699	0.697	0.538
Experiment and combine	0.670	0.67	0.504
External motivation	0.669	0.64	0.406

Table 6.
Discriminant Validity of Field and Bischoff Creativity Scale

	1	2	3	4	5	6	7	8	9	10	11
1 Challenging status quo	0.699										
2 Separate	0.649	0.762									
3 Synthesis	0.866	0.676	0.732								
4 Association and communication	0.937	0.609	0.773	0.717							
5 Similarity	0.757	0.570	0.850	0.705	0.818						
6 Awareness	0.843	0.557	0.831	0.813	0.706	0.766					
7 Cognition	0.930	0.649	0.813	0.846	0.752	0.875	0.682				
8 Sensitivity	0.667	0.443	0.597	0.700	0.571	0.623	0.661	0.786			
9 Dimensional thinking	0.777	0.600	0.821	0.710	0.729	0.652	0.752	0.542	0.733		
10 Experiment and combine	0.878	0.711	0.997	0.822	0.823	0.782	0.858	0.631	0.823	0.710	
11 External motivation	0.691	0.576	0.646	0.687	0.637	0.619	0.664	0.703	0.588	0.626	0.637

Table 7.
HTMT Analysis of Field and Bischoff Creativity Model

	1	2	3	4	5	6	7	8	9	10	11
1 Challenging status quo											
2 Separate	0.652										
3 Synthesis	0.858	0.676									
4 Associate and communicate	0.943	0.615	0.776								
5 Similarity	0.752	0.573	0.842	0.714							
6 Awareness	0.843	0.565	0.834	0.825	0.712						
7 Cognition	0.928	0.650	0.806	0.852	0.754	0.874					
8 Sensitivity	0.668	0.443	0.593	0.705	0.572	0.628	0.659				
9 Dimensional thinking	0.774	0.603	0.819	0.716	0.731	0.661	0.759	0.538			
10 Experiment and combine	0.881	0.710	0.994	0.828	0.831	0.792	0.867	0.637	0.816		
11 External motivation	0.757	0.620	0.684	0.761	0.675	0.684	0.722	0.747	0.637	0.677	

Conclusion

The scale developed by Field and Bischoff to measure creativity among university students, when used on a sample in India shows good psychometric properties in terms of scale reliability, construct reliability, convergent validity and discriminant validity, thus the quality of the scale is good and the

scale can be used to assess creativity among students of higher education institutions. Also, the relationship between creativity and demographic variables indicates that creativity can be suggested to be a learned behaviour and can be nurtured through education by integrating suitable strategies in curriculum.

Appendix

Measuring Creativity Among Students of Tertiary Education Developed by Ziska Fields & Christo A. Bisschoff (73 items version)

S.No	Item	1	2	3	4	5	6	7
1	To help me find solutions or generate ideas I look for the uniqueness in processes							
2	To help me find solutions or generate ideas I look for the uniqueness in processes objects							
3	To help me find solutions or generate ideas I look for the uniqueness in processes features							
4	To help me find solutions or generate ideas I look for the uniqueness in processes situations							
5	I consider the dimensionality of an issue to create ideas in terms of space							
6	I consider the dimensionality of an issue to create ideas in terms of time							
7	I consider the dimensionality of an issue to create ideas in terms of cost							
8	I consider the dimensionality of an issue to create ideas in terms of colour							
9	I determine if things can be done from different points of view							
10	To find creative solutions, I combine objects							
11	To find creative solutions, I combine concepts							
12	To find creative solutions, I combine processes							
13	To find creative solutions, I separate concepts							
14	To find creative solutions, I separate processes							
15	To find creative solutions, I separate resources							

Note: (1) Strongly disagree, (2) Disagree, (3) Somewhat disagree, (4) Neither agree nor disagree, (5) Somewhat agree, (6) Agree, (7) Strongly agree

		1	2	3	4	5	6	7
	continuation							
16	To find creative solutions, I separate objects							
17	To find creative solutions, I separate dimensions							
18	I like to modify my creative solutions							
19	I look for similarity in concepts							
20	I look for similarity in problems							
21	I look for similarity in solutions							
22	I look for similarity in patterns							
23	I look for similarity in processes							
24	To find the best creative solution, I estimate							
25	To find the best creative solution, I simulate							
26	To find the best creative solution, I experiment							
27	I have the ability to produce a great number of ideas							
28	I have the ability to produce solutions to problems in a short period of time							
29	I can simultaneously propose a variety of solutions to a specific problem							
30	I am driven by external pressures (including other people) to solve problems							
31	I am driven by external pressures (including other people) to solve self-discovered problems							
32	I am self-motivated to resolve externally defined problems							
33	I am self-motivated to solve self-defined problems							
34	I am always motivated to be creative in my own interest areas							
35	I am motivated to be creative in an environment that tears down my barriers to creative thinking.							
36	I am always motivated by other people to use my creative skills							
37	I attain understanding from a variety of information sources without difficulty							

Note: (1) Strongly disagree, (2) Disagree, (3) Somewhat disagree, (4) Neither agree nor disagree, (5) Somewhat agree, (6) Agree, (7) Strongly agree

		1	2	3	4	5	6	7
	continuation							
38	I can discover different links and relationships (obvious and not so obvious) when I look at different information sources							
39	I can cope with complexities when I need to resolve a problem							
40	I do not get stuck on a set of rules to solve a problem							
41	I can easily see different aspects of a problem							
42	I can recognise gaps in my existing knowledge							
43	I can identify contradictions in accepted knowledge							
44	I can predict appropriate creative solutions to a problem after analysing the contradictions in a problem							
45	I agree that the use of scientific approaches outside a specific field of study can be helpful to develop creative solutions							
46	I am able to persuade others that my ideas are valuable							
47	I use communication as a tool to reveal my creative ideas to knowledgeable others							
48	I propose new ideas on a regular basis							
49	I intentionally engage in unpopular ideas							
50	I am able to redefine a known problem from a completely different perspective							
51	I can find the connection between items							
52	I find new solutions by using associations between items							
53	I like to combine various concepts to find solutions to problems							
54	I am able to see problems in a novel way							
55	I am a sensitive person							
56	I can recognise difficulties within a task easily							
57	I am sensitive to the various aspects of a problem							
58	I consider the consequences for humanity when I look for solutions to a problem							

Note: (1) Strongly disagree, (2) Disagree, (3) Somewhat disagree, (4) Neither agree nor disagree, (5) Somewhat agree, (6) Agree, (7) Strongly agree

		1	2	3	4	5	6	7
	continuation							
59	I consider immediate personal gains when I look for solutions to a problem							
60	I think about the consequences of my ideas							
61	I can anticipate consequences							
62	I do not prematurely judge ideas							
63	I think ideas through carefully and developing on it							
64	I develop ideas to find the best solutions for a given situation							
65	I make random attempts to solve a difficult problem							
66	I prefer to break away from preconceived perceptions to find solutions to problems							
67	I generate new ideas by actively searching for associations among concepts							
68	I use brainstorming to make associations regarding a given concept							
69	I make the effort to actively search for associations							
70	I generate ideas by finding as much alternatives as possible							
71	I always look at the big picture							
72	I like to take initiative and challenge assumptions							
73	I like to challenge assumptions							

Note: Source: Ziska Fields and Christo A. Bisschoff
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Commentary on the Inclusion of Females from the Roma, Ashkali, and Egyptian Communities Through the Education System (A Comparative Study Between Three Communities in Kosovo)

Review paper

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Abstract

This study focuses on the difficulties women in Kosovo's Roma, Ashkali and Egyptian populations have in their educational pursuits. The study tries to comprehend why women in these communities experience higher educational challenges than males by utilising a comparative and quantitative technique and historical and descriptive methodologies. The article discusses measures to improve the situation while eradicating discrimination against women in these communities. It analyses the major causes of the lack of education in the Roma, Ashkali and Egyptian villages. The study emphasises the value of education for all communities, especially minority groups, to promote social cohesion and economic growth. Despite flaws in the integration system and societal mentality, the findings of this study on the educational problems faced by the Roma, Ashkali, and Egyptian populations in Kosovo indicate progress. In particular, there has been a minor increase in emancipation for women from the Roma, Ashkali, and Egyptian communities between 2015 and 2021, notwithstanding challenges.

Keywords: *Communities, Education, Females, Kosovo, RAE*

Kosovo is a small country located in the Balkans region of Europe. It declared independence in 2008. Kosovo's diverse population includes Albanians, Serbs, Bosniaks, and other ethnic groups. Among these groups, Roma, Ashkali, and Egyptians (RAE) communities are considered one of the most marginalised and socially excluded groups in Kosovo. They are often subject to discrimination and poverty and have

limited access to essential services such as healthcare, education, and housing. In Kosovo, the term 'minorities' is not legally recognised. Instead, the term 'communities' is used. According to the Republic of Kosovo Constitution, Article 3, paragraph 1 (2008), "The Republic of Kosovo is a multiethnic society composed of Albanians and other communities."

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This research is essential because it focuses on the experiences of three minority groups in Kosovo: Roma, Ashkali, and Egyptians (RAE). Understanding these groups' challenges can help develop strategies to improve their situation and ensure they receive the same opportunities as other members of society.

Education in RAE communities in Kosovo, with a particular emphasis on females, is an important and complex topic that requires a thorough examination of the cultural, economic, and social factors that affect these communities. A comparative case study of education in these three communities would likely involve a detailed analysis of the educational opportunities and challenges faced by females in each community, as well as an examination of the social and cultural factors that influence the educational experiences of these groups. This may include examining the role of family, community, and government in shaping educational opportunities and analysing these communities' economic and social status and the impact this has on academic outcomes. The study would likely examine the effectiveness of current education policies and programs in addressing the needs of these communities and recommendations for future policy and program development.

Studying education in RAE communities in Kosovo is crucial because it could shed light on the educational disparities marginalised communities face and the factors contributing to them. The findings can inform the development of policies and programs that aim to improve the educational outcomes for RAE communities and other marginalised groups, which can positively impact the individual and society. Furthermore, studying education in RAE communities in Kosovo can also provide insights and lessons that can be applied to other contexts where marginalised communities face similar educational challenges.

Finding separate data on RAE communities is almost impossible because they are often treated as one category. However, standard data are available (e.g., for schools) and will be considered later. The fact that the data are often classified under the initialism RAE means that we also have very little on women alone, and when they do exist, they are similarly classified. This

makes it difficult to carry out comparative research.

In developing countries such as Kosovo, minority communities are a concern. Education is the subject of particular attention. Unfortunately, gender discrimination still exists in the sector, favouring males over females (UNFPA, 2016).

The research will focus on the question:

- What is the effectiveness of current education policies and programs in addressing the needs of RAE communities, and how can they be improved for future policy and program development?
- The central question of the present study is why women from RAE communities find it more challenging to receive an education than their male counterparts.

Also, the study will be focused on two main hypotheses:

- H1. By analysing the challenges faced by the RAE communities regarding education, it is possible to design and implement strategies that improve access to education and equal opportunities for these groups.
- H2. Women from RAE communities face more barriers to education than men, resulting in a higher dropout rate among female students from these communities.

Using official data from the Kosovo Agency of Statistics, the present study will compare levels of education among communities for 2015–2021 (Kosovo Agency of Statistics, 2022). According to the 2011 Kosovo census, the RAE communities represent a small group relative to the general population; the Ashkali community is the largest of the three. Each community has an almost equal male-to-female ratio. The RAE communities in Kosovo are a minority group that faces significant social and economic challenges. Despite making up a small portion of the overall population, their situation is essential to understand because it highlights broader issues of discrimination and marginalisation that affect minority groups worldwide. These communities often experience high levels of poverty and lack of access to education and essential services and are disproportionately affected by unemployment and poor health outcomes. It needs to be aware of these issues to understand the broader context of minority

rights and the importance of addressing discrimination and marginalisation in all its forms.

To further justify the importance of understanding the education situation among the RAE communities in Kosovo, it is important to note that education is a fundamental human right and essential for individuals to participate fully in society. It is also a key driver of economic development and can help break the poverty and marginalisation cycle. However, the RAE communities in Kosovo face significant barriers to accessing education, including discrimination, lack of resources, and language barriers. This can lead to high rates of dropouts and low levels of literacy among these communities, exacerbating their socioeconomic struggles. Additionally, a lack of education can perpetuate the marginalisation of RAE communities by limiting their employment and political participation opportunities.

Furthermore, understanding the education situation among the RAE communities in Kosovo will also provide insight into the challenges faced by minority communities in post-conflict societies and the education system's effectiveness in addressing these issues. Therefore, understanding the education challenges faced by the RAE communities in Kosovo is crucial for addressing the broader issues of discrimination and marginalisation faced by minority groups worldwide.

Literature Review

Protecting and promoting the rights of the RAE communities in Kosovo has been

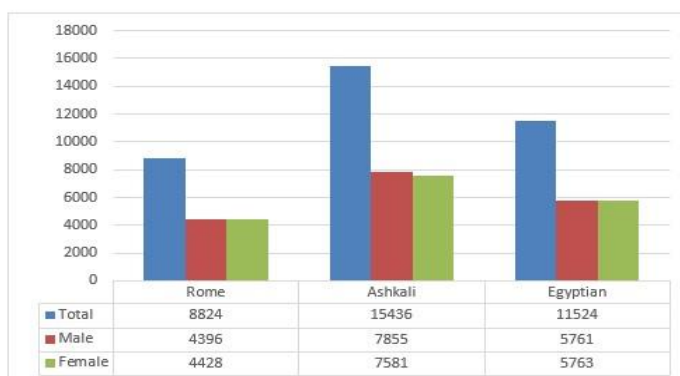
(and remains) a constitutional responsibility. The RAE community has rights protected by the Constitution of the Republic of Kosovo. Article 3 defines Kosovo as a multiethnic society, and Articles 22, 59, 60, 61, and 62 guarantee RAE representation at the local, state, and national levels (Bexulli et al., 2018).

The integration of minority communities can take several forms. The first is political inclusion, based on society's emancipation, empowerment, and democratisation (Tholen & de Vries, 2004). In the case of Kosovo, even non-majority citizens (such as RAE communities) can choose candidates to represent them locally and nationally. The second illustrates that political inclusion or representation alone is insufficient, so minorities often have group-specific rights (Tholen & de Vries, 2004). These include the right to primary and secondary education (and textbooks) in the mother tongue and university scholarships. Jobs in public administration may also be ringfenced. According to Schuelka et al. (2020), scholarships in education are more beneficial when oriented toward systems that incorporate the socio-cultural aspect. According to the Kosovo Agency of Statistics, the 2011 population census recorded the following number of people in RAE communities:

- Roma: 4,428 females and 4,396 males, a total of 8,824.
- Ashkali: 7,581 females and 7,855 males, a total of 15,436.
- Egyptian: 5,763 females and 5,761 males, a total of 11,524.

Figure 1.

Population from the 2011 census in RAE communities and breakdown by gender



Source: (Kosovo Agency of Statistics, 2011)

The RAE communities in Kosovo face many social, economic, and, occasionally, security-related challenges (Tmava & Beha, 2009). Family pressures, traditions, and cultural imperatives also encourage early marriage, negatively impacting young people's education, particularly women's. Unfortunately, a lack of statistical data means that the relative sizes of the RAE communities in Kosovo still need to be determined. It is known that the Roma community is not educated in its mother tongue. However, the law states that "the language of the community will have the status of the official language in the municipality and will be in equal use with the official languages" if a group comprises 5% or above of the population of the said municipality (Tmava & Beha, 2009).

The African proverb says: "If you educate a man, you educate an individual. But if you educate a woman, you educate a nation" (Lahiri, 2023). Women's lives in RAE communities are complicated in every sphere, including education and employment (Lamaxhema, 2019).

Another issue that impacts education amongst the RAE communities is the division between school personnel and the students, who, as has been noted, need to be educated in their mother tongue. However, they can attend Albanian, Turkish, or Serbian language schools (Kasai, 2004). Most, therefore, integrate with students from the general population or the Serb and Turk communities.

For some students, realising the disconnect between their education and the outside world leads to a lack of engagement with school, which can sometimes result in physical or psychological withdrawal (Reimers, 2006). Access to education for the RAE communities continues to be a significant problem. With low attendance, high dropout rates (especially girls), and a lack of study materials, children from this community are discriminated against based on cultural stereotypes and prejudices (Minority Rights Group International, 2018).

The issue of female education in RAE communities in Kosovo merits further study. For the above reasons, minimal improvements must be made to the situation. However, there is no prospect of holding seminars on gender equality amongst the respective groups.

Organisations such as UN Women (2021) are continuing to develop awareness campaigns for women of the RAE communities regarding early and forced marriages and the consequences these marriages carry. Among the most severe consequences is dealing with socioeconomic problems.

The Education System in Kosovo

Primary and lower secondary education in Kosovo is compulsory (15-16 years old) (Arifi & Brovina, 2023). The Constitution of the Republic of Kosovo, in Article 47 (Right to Education), states that: "1. Every person enjoys the right to primary education free of charge. Compulsory education is regulated by law, and public funds provide funding; 2. Public institutions provide equal opportunities for everyone to be educated according to their unique abilities and needs" (Constitution of the Republic of Kosovo, Right to Education, 2008).

In addition to this article in the Constitution of the Republic of Kosovo, there is also Article 59 (Rights of Communities and Their Members), paragraph 2, which states that: "Members of communities have the right to receive public education individually or as a community in all levels of education, in one of the official languages of the Republic of Kosovo, according to their choice" (Constitution of the Republic of Kosovo, Rights of Communities and their Members, 2008).

Article 59 also contains paragraph 4, which states that Members of communities have the right to establish individual or as a community, but also to manage private education and training institutions, for which public financial assistance can be provided, always by international law and standards (Constitution of the Republic of Kosovo, Rights of Communities and their Members, 2008).

The educational system in Kosovo, referring to the pre-university Law No.04/L-032 (2011) and Law No.04/L-037 on Higher Education (2011), is structured as follows:

- Preschool education is optional and begins at the age of 4.
- Compulsory primary education begins at six and lasts for nine years.
- Secondary education is divided into lower secondary education (4 years) and upper secondary (2-3 years).

- Universities and other institutions of higher education provide higher education.

However, the Republic of Kosovo's constitution appoints laws on primary and secondary education, which imply that the purpose of obtaining Primary and Secondary education, among other things, exists to prepare pupils to lead a responsible life in a free society. The community's perspective on a more inclusive education dates back 40 years (García & García, 2023). Inclusivity is a globally addressed element and entirely depends on the framework teachers build at specific times based on their established beliefs (Kadrijaj & Zabeli, 2024). Intercultural education is critical as it is a valuable model for fostering significant social and human sustainability. It contributes to the development and sustainability of cultural diversity while combating racism and breaking down ethno-social barriers (including gender and racial equality) (Orellana et al., 2019). Promoting understanding and tolerance between all ethnic and religious groups without prejudice about their origin or background is the core of all democratic institutions aiming to sustain stability and harmony within a country. Multicultural education emphasises that every student, irrespective of their gender, sexual orientation, social status, or ethnic, racial, and cultural background, deserves an equal chance to succeed in school (Banks & Banks, 2019). Even in Kosovo, the concept of schooling should be interpreted as a foundation that provides knowledge or skills for the younger generations and a way of promoting peace and awareness of equality between sexes—building new friendships among people of all ethnic and religious groups without discriminating against any person of their Indigenous origin.

The misinterpreted role of women among RAE communities is negatively distinguished, causing a tremendous setback that triggers the stagnation of this minority community's full integration within Kosovar society. In improving education among females in this community, our society must build a foundation that helps enhance their educational development. Recognising the role of academic institutions in sustaining injustice and oppression is a crucial first step in fostering development (Hart, 2019).

Also, in support of the RAE community, Learning Centers have been established and exist in Kosovo, which is of great importance in helping the development and advancement of education. These centres aim to improve school performance and help integrate them into society. Learning Centers operate in the community and at school. There are currently 50 Learning Centers operating in 20 municipalities in Kosovo (KOSINT 2020, 2019). It should be noted that learning centres are managed by several NGOs, funded by international donors, and intended to function based on the needs of communities (UBO Consulting, 2015). According to UBO Consulting (2015), the Learning Centers are: "A place where out-of-school services are provided for children and a bridge between the community and schools. A place where community children can build and develop their capacities and thus integrate into the society in which they live. **Bethany Christian Services** manages only one Learning Center. The work in this Learning Center is based on the Ministry of Education, Science Technology curriculum for the preschool program and compulsory education. This centre deals with improving the lives of individuals and communities. It also organises social and educational activities and health care services. In this Learning Center, it should be emphasised that RAE communities are involved in the research, and as such, we will present the data of the students engaged in the centre. From 2011 to 2015, there were 320 students every year; over the years, there were 1600 students (UBO Consulting, 2015).

Caritas Kosovo manages two Learning Centers. One centre focuses on teaching the Albanian language, mathematics, and other subjects. No student from the Roma community was reported to have participated in this centre (UBO Consulting, 2015).

Terre Des Hommes manages seven Learning Centers. These centres offer homework help and literacy. Of the total number of students in these centres (225 students), no participants from any Roma community were reported (UBO Consulting, 2015).

The Ideas Partnership manages several Learning Centers. This centre assists mothers with the mother's program (microfinance projects). Youth activities, health services, a girls' club, and many other weekly activities are organised. In the centres managed by

this NGO, the number of RAE students engaged in these centres is: in 2011, a total of 10 students; in 2012, a total of 70 students; in 2013, a total of 45 students; in 2014, a total of 45 students; In total over the years there have been 170 Roma students in these Learning Centers (UBO Consulting, 2015). **Voice of Rome, Ashkali and Egyptians** manage fifteen Learning Centers. These centres aim to improve the lives of communities, their integration into society, poverty reduction, non-discrimination, reliance on infrastructure, settlements, health services, human rights and education. Of all the Learning Centers managed by Voice of Rome, Ashkali and Egyptians, the number of RAE students engaged in these centres is: in 2011/2012, a total of 133 students; in 2012/2013, a total of 128 students; in 2013/2014 a total of 159 students; in 2014/2015 a total of 159 students. Over the years, there have been 579 RAE students in these Learning Centers (UBO Consulting, 2015).

Now we also have the 2022-2026 Education Strategy issued by the Ministry of Education, Science and Technology, where the main elements of this strategy are:

- Improving the quality and importance of education and training; Development of a more efficient and effective education and training system;
- Promoting access to education and training for all, including marginalised and vulnerable groups;
- Promoting lifelong learning and adult education;
- Encouraging innovation and entrepreneurship in education and training;
- Developing a more efficient and effective system of scientific research and technological development growth;
- Promoting international cooperation in education, science, and technology (Ministry of Education, Science and Technology, 2022).

As can be seen, promotion and access to education for marginalised groups, including RAE communities and specific girls from these communities, are included among the main elements. Also, the Action Plan for this strategy has been compiled, specifying how the 2022-2026 Strategy will be implemented (Ministry of Education, Science and Technology, 2022).

Women's Role in Family and Society

Many males and females in the RAE communities think women must stay at home and that family is more important than education and careers. Unfortunately, women's role in these communities has not changed much in the past few decades, as their functions are gender-biased and institutionalised. The number of RAE women who are prominent either in industry, government, sports or the media is non-existent; it can be emphasised here that it is a difficult task for women in these communities to further advance in education and their careers because so far, there is no example of an RAE woman for other women to take as an example of success (Huibregtse, 2018). The persistent idea that early marriage is a healthier tradition for building and maintaining a family and that giving birth at an early age is more beneficial for both the mother and the newborn greatly influences the idea of women's role in these communities. The strict patriarchal rules define how families should function and place the power of decision-making in the hands of the oldest male in the family. In the early stages of their childhood, females are raised with the idea that men in the family should make all the decisions, and the restricted roles of females are reflected throughout their lives. It would say that family systems that dictate levels of female autonomy are likely to influence gender inequality in education (Baten et al., 2021).

Women in all communities in a democratic society should be entrusted with more prominent roles compatible with their male counterparts, including more responsibility than childcare and housework. Education is the key to preventing the females of these communities from remaining detached from the outside world and leading them toward providing income for themselves and their families. The literacy rate amongst females in these communities has not sufficiently increased with our country's industrial and technological advancement. With modernisation, women of all ages and ethnic groups can think more independently and participate more equally alongside their male counterparts (Lakshmi, 2011).

Although gender and ethnic discrimination are still present in our society, this negative tendency has started to diminish

in many developed fields and improve living standards. Although society’s view of female education has begun to change drastically, the illiteracy problem of females in RAE communities remains a primary concern. They improve the community's view and understanding of education and increase awareness of female social integration. Many non-governmental organisations (NGOs) and government support have been exploited. They have delivered various programs to significantly develop the RAE communities because they are considered Kosovo's less prosperous minority group (OSCE, 2020).

Early Marriages

Early marriage is a marriage or partnership that occurs when one or both individuals are under 18 (Wodon et al., 2017). Early marriages, specially arranged ones, are abundant among the young females in Kosovo's RAE communities. This widespread phenomenon is usually justified by being deeply rooted in tradition and patriarchal dominance. Early marriage is considered essential for the well-being of these young girls in terms of their social and financial security and their purpose in domestic and maternal activities given to them from early childhood

(MICS, 2019-2020; Qenaj 2022; The Ideas Partnership, 2020).

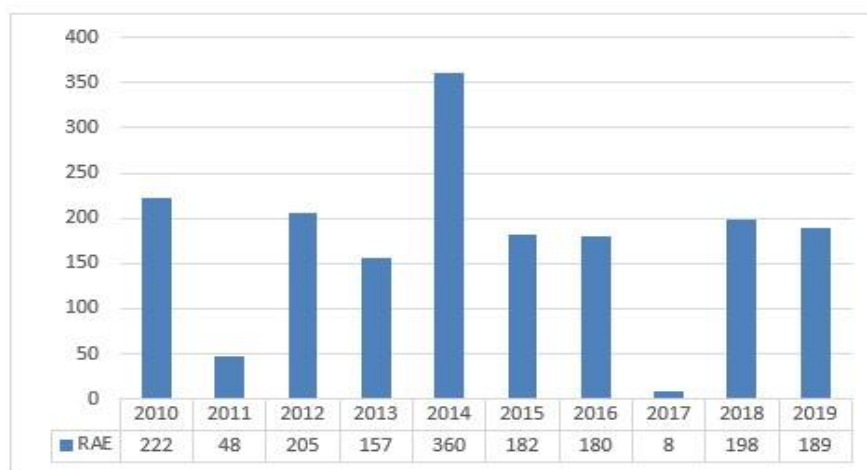
The laws of the Republic of Kosovo highly prohibit child marriage activities; these marriages are not prohibited or punished by the Kosovo authorities because they usually remain unreported. Unfortunately, it is seen as acceptable by the community. It, therefore, remains an internal problem, leaving the young girls as victims (Official Gazette of the Republic of Kosovo, Law No. 06/L-084, 2019; Provisional Institution of Self-Government Kosovo, 2006).

The early marriage tradition carries various consequences. It is the preliminary cause of the dispersion of schooling, unemployment due to lack of education, and health threats due to the high birth rates. The birth of the couple’s first child usually happens soon after their marriage, and several more follow in the following years of marriage. RAE young females are expected to mature rapidly and take on the obligations of their youngsters at a very early age (Qenaj, 2022).

The chart below shows marriages in the RAE community from 2010 to 2019. 2014 had the most marriages, while 2017 had the fewest.

Figure 2.

Marriages by Ethnicity – Community RAE



Source: (Kosovo Agency of Statistics, 2018)

Methods

The secondary data for this paper were obtained mainly from KAS (KAS Metadata¹) for different periods (2011, 2018, 2022). However, KAS was one of many sources of secondary data. This data was collected to analyse the educational situation of the RAE communities, specifically of the female gender.

This research was done in the Republic of Kosovo, specifically the females in the RAE communities, to investigate the evolution of their education at all levels in Kosovo. This research is based on various information (mainly from the Kosovo Agency of Statistics) from quantitative sources. These data primarily included intensive online research and were influenced by previously written reports on gender equality in Non-Governmental Organizations in Kosovo. The collected data are secondary and contain the necessary content to convey the current education situation among the RAE communities. Therefore, our unit of analysis is Country (Kosovo), community/minority (Roma Ashkali and Egyptian), gender, education and year.

The data in Fig. 3 was obtained from KAS for RAE education from 2015-2021. The variables of age, ethnicity, and all levels of education were selected as mandatory, and the data shows the education trend over the years for ages 4 to 30. The authors have redesigned the figure/graph.

The data for the study was collected from different sources, such as the Kosovo Agency of Statistics, the University of Pristina, and reports from the Kosovo Center for Gender Studies. The data was based on registration and attendance estimates of RAE students, including their enrollment at the University of Pristina and completion rates. The data also showed the literacy rates among RAE women and men, with a higher percentage of illiteracy among RAE females (25%) compared to males (8%). The study also reported on the education levels of RAE women and men, with most of them not receiving a secondary education (78% of RAE women and 62% of men) and a small minority attending and completing university.

The data also revealed that patriarchal ideology and the belief that women's role is to marry rather than receive an education were some reasons for the low education levels among RAE women and girls. The data on school dropouts for the years 2016/2017 and 2017/2018 were collected by KOSINT (2020, 2019). The data suggest that the Ashkali community had the highest number of students dropping out of school, followed by the Roma and the Egyptian community. The data indicate that the number of male and female students who dropped out of school was almost equal in all three communities, with a slight difference between the two genders. The data were collected by counting the number of students who dropped out of school in the three communities in the specified years.

The data on the education status of RAE communities were collected through surveys and statistical analysis. The primary data sources include research conducted by Gundara & Peffers (2005) and the Kosovo Agency of Statistics (2018). These sources provide information on the literacy rates, enrollment and attendance of RAE communities in primary, secondary, and tertiary levels of education. The data also includes information on the number of students who dropped out of school in 2016/2017 and 2017/2018 in the RAE communities. The data were analysed to compare the literacy rates between male and female RAE and to understand the differences in educational attainment between the RAE communities. Another source of data on the education status of RAE communities is the Kosovo Center for Gender Studies report (Vuniqui & Demolli, 2008), which provides information on the level of education completed by RAE women and girls and the barriers they face in accessing education. The data was collected through surveys and analysed to understand the impact of gender on the education of RAE communities. The data shows that a significant proportion of RAE women and girls are illiterate and that fewer RAE women attend and complete higher education than RAE men.

Information on the employment status of

¹Reference metadata or quality reports describe the concepts and methodologies for collecting and generating data. They also provide information on the quality of the data. In this way, they help users to interpret the data correctly. Currently, the KAS uses two standard forms for documenting reference metadata: ESMS (Structure of Euro Methods SDMX) and ESQRS (ESS Quality Reporting Structure), which are standards used in the European Statistical System. The purpose of ESMS format reports is to document methodologies, quality aspects, and statistical production processes in general, while ESQRS format reports provide more information to assess data quality.

RAE women was collected through surveys, as reported in the Kosovo Center for Gender Studies report (Vuniqi & Demolli, 2008). This data provides insights into RAE women's occupation and employment status and how it relates to their education level.

Data integrity is reliable because KAS is a public institution. The Kosovo Statistics Agency is a professional, independent institution that collects and publishes official statistical data in Kosovo. The Kosovo Statistics Agency is committed to guaranteeing coherent, reliable and accurate statistical information in Kosovo (Ministry of Labor, Finance and Transfers, 2023).

The secondary data were analysed by selecting the variables specified in the KAS. The extracted data were processed using the SPSS program, while the graphs were used in the Excel program.

Findings

Kosovo's Standpoint

The education system in Kosovo suffers from stereotypes and gender inequalities in both the majority and the minority populations. However, the education problem seems insufficient for women in Kosovo, especially RAE ethnic communities, because of our system's flaws regarding gender representation. However, according to the Strategy for Inclusion of Roma and Ashkali Communities in the Kosovo Society 2017-2021, the government of Kosovo has set particular objectives and activities that would lead to improving education within RAE communities in Kosovo.

The Government Strategy states that: *"Implementing school policies and practices aimed at comprehensive processes is a precondition that enables increased inclusion and prevents dropouts. Increased inclusion and prevention of dropouts cannot evolve without fully implementing the legal framework. Also, this is a complex issue and requires the mobilisation of schools, including the local and central levels of authorities. The critical element of this objective is providing opportunities to realise the potential of members of the two targeted communities. All citizens have the right to quality education, and the state must provide*

such instruction. It is even more crucial for marginalised groups because it creates new personal development and employment opportunities" (Government of the Republic of Kosovo, 2017).

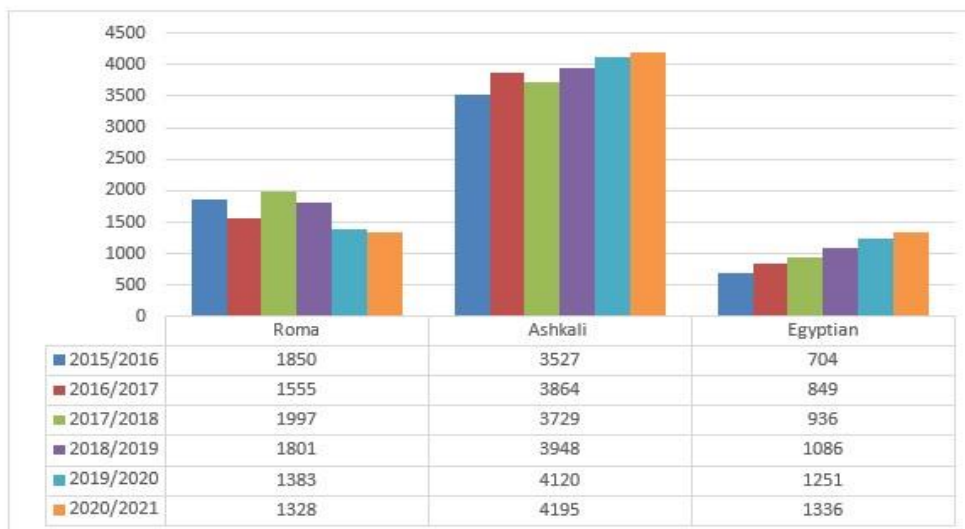
In addition, the Ministry of Education, Science and Technology has drafted the Strategy for the Integration of Roma, Ashkali and Egyptian Communities in Kosovo (Education Component 2007-2017) (Ministry of Education, Science and Technology, 2007). However, the Office of the Prime Minister has also issued the Strategy for the Inclusion of Roma and Ashkali Communities in Kosovo Society 2017-2021 (Office of the Prime Minister, 2017).

Thus, referring to laws, strategies, and the constitution, a very suitable social and legal environment has been created for marginalised communities to have the opportunity and free access to education because it would improve their lives and society. As a result of such strategies, there has been a slight improvement in the education of the RAE set.

Education in the RAE communities has never been satisfactory for women. Many factors, such as early marriages and lack of employment after school, have influenced this.

The data presented below show the actual situation of these communities at all levels of education from 2015 to 2021.

Referring to Fig. 3 regarding the numbers, it can be easily identified that the Ashkali community has generally had the most success in terms of education over the years analysed, followed by the Egyptian community and then the Roma community. This trend is consistent from 2015/2016 to 2020/2021. However, it is worth noting that the Roma community's educational statistics fluctuated over the years, showing a decline since 2018/2019. The Ashkali community, on the other hand, has shown an overall increase in the level of education over the years, except for a slight decrease in 2017/2018. The Egyptian community has also seen a rise in the level of education over the years, with a 100% increase from 2015/2016 to 2020/2021.

Figure 3.*Education in Roma, Ashkali and Egyptian Communities from 2015 to 2021**Source: (Kosovo Agency of Statistics, 2022)*

Let us analyse and compare this data in the vertical form over the years in these three communities in a particular form. We can see that: From this point of view, the results show that the Roma community fluctuated in education statistics, but since 2018/2019, there has been a decline, and the years 2019/2020 and 2020/2021 have had a more drastic reduction in education; The Ashkali community has been more successful, showing an increase in the level of data in education, year after year, except for 2017/2018, where there was a slight decrease; The Egyptian community, although with statistics weaker than the other two communities, still as a community in itself has had an increase year after year, and if we compare the period 2015/2016 with the period 2020/2021, then we see that the number of people educated has risen to a 100 % increase.

Because of the perceived role of women within the RAE communities, many females are directly or indirectly forced to leave school at an early age. As a result, the RAE communities are the least educated in Kosovo. More than 16% of them are unable to read or write. Illiteracy is said to be higher amongst RAE females (25%) than males (8%) (Gundara & Peffers, 2005). Overall, 25% of RAE children do not receive primary education.

Meanwhile, approximately 78% of RAE women and 62% of men do not receive secondary education, and of those who do, only 1.4% complete it (Gundara & Peffers, 2005). A tiny minority attend and complete university. More information regarding registration and attendance estimates for RAE students who pursue higher education is available at the Kosovo Agency of Statistics. The data show that although there are university (and tertiary-level) quotas for RAE students, reports from the University of Pristina suggest that they have been abused. Only 62 RAE students (just 0.18% of the student population, 34,324) were enrolled at the University of Pristina between 2017 and 2018 (Kosovo Agency of Statistics, 2018). Women from the RAE communities are encouraged by their parents to believe that their goal in life should be to marry (not least for economic reasons). Meanwhile, the patriarchal ideology of the RAE communities has afforded men—considered the heads of their families—more tremendous educational advantages.

Cases of RAE females who register for secondary schools are rare; they are non-existent for further education colleges or universities. A Kosovo Center for Gender Studies report (Vuniqi & Demolli, 2008) has revealed that 38.3% of RAE women and girls are illiterate; 38% have eight years of uncompleted school education, and 3%

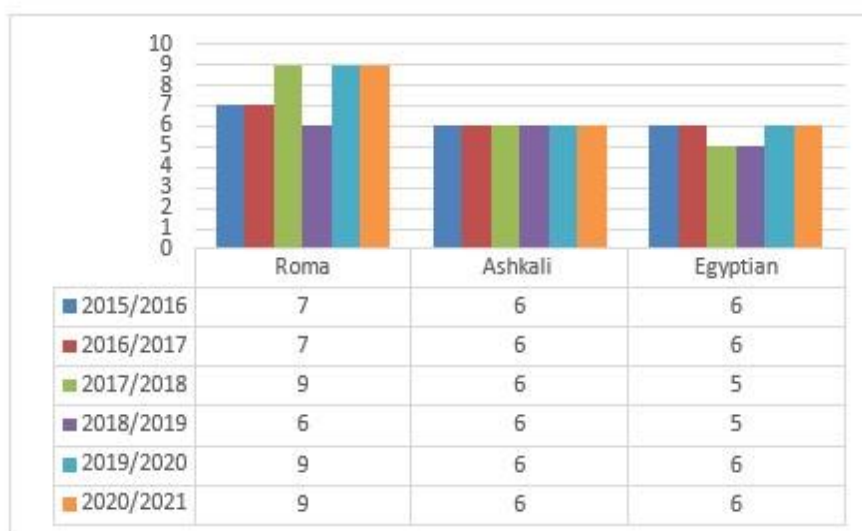
have an uncompleted high school education. High schools accept less than 1% of women and girls, and colleges/faculties less than 1%. Regarding school dropouts, there are only data for 2016/2017 and 2017/2018 (KOSINT 2020, 2019). Regarding school dropouts, the data available for 2016/2017 and 2017/2018 suggest that the Ashkali community had the highest number of students dropping out of school, followed by the Roma and the Egyptian community. The number of male and female students who dropped out of school was almost equal in all three communities. In 2016/2017, a total of 26 students dropped out of school in the Roma community, 12 of them male and 14 female; in the Ashkali community, a total of 61 students dropped out of school, of which 40 were male and 21 female; in the Egyptian community, a total of 32 students

dropped out of school, of which 19 were male, and 13 were female. In 2017/2018, 17 students dropped out of school in the Roma community, of which 14 were male and three were female; in the Ashkali community, 54 students dropped out of school, of whom 26 were male and 28 were female. In the Egyptian community, 17 students dropped out of school, of which 14 were male and three were female.

Also, referring to the data in KAS about the teachers of this community, we have a small number in this aspect. As for the number of teachers according to these three communities, from 2015 to 2021, we had a total of: in the Roma community, there were around 6-9 teachers; in the Ashkali community, there were six teachers; and in the Egyptian community, there were 5-6 teachers.

Figure 4.

Teachers in Three Communities from 2015 to 2021



Source: (Kosovo Agency of Statistics, 2022)

Unemployment due to lack of Education

Illiteracy, lack of training and professional education, and gender and ethnic discrimination have created significant barriers to females' roles and integration in the RAE communities. These factors result in lower employment rates and living conditions than most people and other minorities living in Kosovo. Due to the circumstances of high unemployment, female RAE communities are often obliged to seek work and formally or informally end

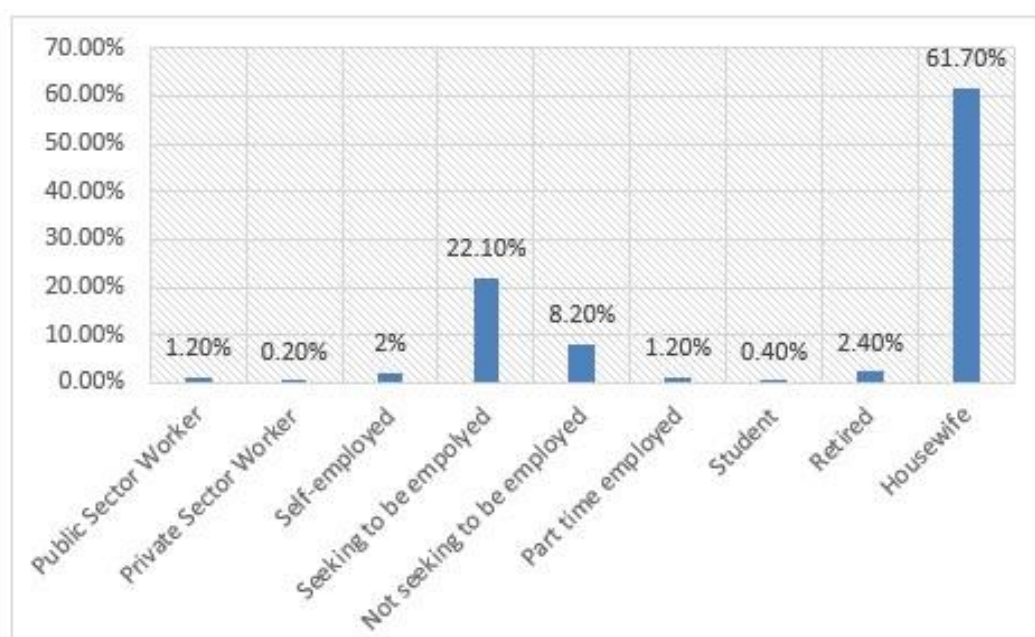
their contribution to the economic sector in Kosovo. RAE communities attend school for a shorter time. This is reflected in lower attainment than in other communities, and as such, it is implied that they are more disadvantaged, especially the female gender, in RAE communities (Vuniqi & Demolli, 2008).

Statistics show that RAE communities need to be more educated. Over 16% of RAE communities can not read or write. Within the female gender, illiteracy goes up to 25%, in contrast to the

male gender, which goes to 8%. 25% of the children of the RAE communities do not attend primary schooling, while in secondary schooling, approximately 78% of women are outside this level of education, in contrast to men who remain outside this level of education with 62%. Only 1.4% of both sexes managed to finish high school. Few RAE have completed or attended university (Gundara & Peffers, 2005).

Figure 5.

Social status of RAE women



In the graph above, 61.7% of respondents declare themselves homemakers, 2.4% are retired, 0.4% attend school, 1.2% are employed part-time, and 8.2% do not seek employment. 22.1% of them are looking for a job. Only 2% are self-employed, 0.2% work in the private sector and 1.2% of women work in the public sector in Kosovo (Vuniqi & Demolli, 2008).

There is also a mainstream idea that females of RAE communities do not see employment as necessary because they believe their family's aid is enough to survive. We could see a high dependency on child welfare and unemployment benefits that evolve with time. However, it could be confirmed that the employment of females in the RAE communities could increase the household budget and improve their living conditions and families more than any combination of social welfare they potentially get. Although social welfare payments do not meet the basic needs of some people, they remain the primary element of survival for their existence. Therefore, the primary step that should improve the employment rate amongst females in these communities starts with advancing the participation of the females in

schooling and training programs that would enable them to have enough knowledge and competencies to acquire and sustain jobs in Kosovo (International Labour Organization, 2017; Huibregtse, 2018).

Discussion

The research results on the education challenges faced by the RAE communities in Kosovo have shown progress despite the weaknesses in the integration system and societal mentality. Specifically, between 2015 and 2021, despite difficulties, there has been a slight increase in emancipation for women of the RAE community. This research provides unique insights as it addresses the changes in the legal framework related to education and includes examining the state of education for RAE communities,

particularly for women. This topic has yet to be thoroughly studied.

Regarding the debate on the results shown, the challenges of the RAE community are very diverse. Therefore, verifying the first hypothesis has shown us that some implemented strategies have given some results regarding education at all levels. However, we cannot say that it is at very satisfactory levels. There is a need to invest more in the direction of offers for families to be encouraged in different ways to pursue education on a larger scale. Also, referring to the results of the second hypothesis that has been verified, to a large extent, women of these communities do not follow education, especially for reasons of early marriages. The findings of this research are essential for filling the gaps in knowledge on RAE communities and their education and providing a comprehensive picture. Ensuring proper education and opportunities for RAE communities, particularly for women, is crucial for promoting social integration, economic development, gender equality, and sustainable growth. This study's results are relevant to ongoing debates on education, community rights, and gender equality in Kosovo and beyond.

Conclusion

This paper emphasises the importance of education amongst females within the RAE communities. The interpretation of the data in this research is of particular importance for the emancipation of the role of women in minority communities in transition states. The selection of methods has been the only possible option due to the restrictions of the pandemic. However, these methods have given excellent interpretable results, but future research would suggest that they be done with quantitative methods, and their processing should be done with the R program.

In general, the population data of these three communities show that the Ashkali community was followed first by the Egyptians and then by the Roma. In education, we see that the Ashkali community is again in first place for the period we analysed compared to the other two communities. However, it should be noted that the Roma community was the third largest in population. Education in the Roma

community has taken second place in almost all the years analysed.

From 2016/2017 to 2017/2018, school dropouts decreased in these three communities, highlighting an increase in female dropouts in the Ashkali community. Otherwise, there is a drastic decrease in school dropouts among females in the other two communities, indicating improvement.

The above data showed us that the RAE communities are on the right track to increasing participation in education. Still, increasing the number of teachers in these three communities is recommended because it could be higher than the number of educated (2015-2021) and teachers (2015-2021). Some suggestions for the future development of this issue might include increasing the efficiency of schooling, especially for the minorities in Kosovo; forming different organisations that specialise in this particular problem; and creating awareness seminars and workshops encouraging parent and student participation.

The further empowerment of law implementation, as well as a higher engagement of the different levels of both governmental and non-governmental institutions, can establish new and safer grounds for progress and a more functional education system and execution of gender equality not just amongst the minority groups but within the entire population of this country.

Institutions and decision-makers who create policies and civil society should help advocate the reduction of the phenomenon of early marriages and the negligence of the educational attainment of females in these communities. The absence of education, economic conditions, incorporation into society, and raising awareness consequently results in the lack of development of this minority group. By not having a sufficient level of education, females in these communities cannot sustain an adequate quality of awareness of their rights.

Nonetheless, the programs that deal with gender equality should further address strategies that come from issues like the lack of education among women and the economic empowerment of women of community groups in Kosovo. Although Kosovo inhibits excellent and well-prepared laws, the lack of accurate and practical life implementation has led every community to

live according to their traditions and cultures. In most cases, these traditions include not allowing females to attend schooling. Still, instead, it leads them to marriage and pregnancy in the very early stages of their lives.

A further recommendation can be to promote employment and entrepreneurship participation amongst the women of community groups in Kosovo, which would eventually lower their dependency on their spouses, lower the pressure around early marriages, lower the overall unemployment rate within these communities, and improve the widespread unemployment of the poverty rate. A multiethnic and more integrated education system should be attainable if, as rational citizens of this country, we all equally see and believe that better and higher education, especially for the younger generations, is the key to nourishing a better future for all.

The limitations we had during this research were the nature of finding data. It was impossible to conduct empirical research (questionnaires, interviews) and obtain primary data from the RAE communities due to COVID-19 restrictions.

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The Mediating Role of Motivation and Students' Engagement in the Relationship Between Perceived Feedback and Academic Success

Research paper

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Abstract

The aim of this study was to investigate the mediating role of motivation and students' engagement in relationship between perceived feedback and academic success. Using the survey method, data were collected through physical means. The final sample comprised 327 students learning in middle schools. Structural equation modeling (SEM) analysis, utilizing IBM Amos version 23, was employed to assess the hypothesized model. Results shows that perceived feedback shows a marginal positive impact with academic success, but this relationship lacks statistical significance. Perceived feedback significantly influences motivation and positively impacts students' engagement. Motivation strongly predicts academic success. Although there's a negative relationship between student engagement and academic success, it's not statistically significant. Motivation positively affects students' engagement. Sequential pathways from perceived feedback to academic success through motivation and student engagement are significant. Additionally, perceived feedback influences academic success through motivation and student engagement. The results highlight how crucial customized feedback techniques are in learning environments. Teachers should place a high priority on giving students timely, relevant, and customized feedback since it can improve motivation, engagement, and eventually academic success.

Keywords: *Perceived Feedback, Motivation, Academic Success, Student Engagement*

Scholarly study on the impact of feedback on academic success in education has attracted a lot of attention. Numerous studies have explored various aspects of perceived feedback and its impact on factors

such as self-efficacy, interest, perceived learning, and motivation (Koka & Hein, 2005; Cheah & Li, 2020; Suhoyo et al., 2017; Liu & Gumah, 2020). Despite this extensive exploration, there remains a gap in

understanding the underlying mechanisms that determine the efficacy of feedback in enhancing academic success (Wang & Zhang, 2020).

Perceived feedback, defined as the information shared by teachers with students about their performance or understanding (Dempsey et al., 1993), is frequently taken for granted that it will easily fit into students' learning processes. But research indicates that it's more complicated than previously believed for pupils to integrate feedback into their cognitive and motivational frameworks (Harks et al., 2014). Although most students want feedback, using it effectively is still difficult, which affects their participation and performance in class (Pokorny & Pickford, 2010).

On the other hand, students' motivation is a critical factor in determining their level of engagement and academic success (Schunk et al., 2014). Understanding motivation as a dynamic process that guides individuals towards goal attainment (Glynn et al., 2011), it becomes imperative to explore its interplay with feedback and academic outcomes. Although other studies have emphasized the significance of motivation in improving student engagement and learning results (Nayir, 2017; Turner & Patrick, 2004), further investigation is still required to fully understand how motivation affects the relationship between academic success and feedback.

Moreover, academic performance, as measured by students' GPA, serves as a tangible indicator of learning outcomes. However, the intricate dynamics between perceived feedback, motivation, students' engagement, and academic performance warrant further investigation (Wang & Zhang, 2020). This study aims to fill the gap by examining not only the direct link between perceived feedback and academic success but also the mediating role of motivation and students' engagement.

The main theoretical framework directing how the variables interact in this study is the goal-oriented theory which states that people are motivated by specific, challenging goals (Elliott & Dweck, 1988). Studies examining goal-oriented theories and academic success have consistently shown that an achievement-oriented goal orientation correlates with greater performance, effort,

and persistence, as well as lower levels of anxiety and despair (Sideridis, 2005). According to the Goal-Oriented Theory framework, students' pursuit of academic goals is critically dependent on motivation. Engagement, a fundamental component of the educational paradigm, is directly linked to both motivation and feedback. Effective feedback not only sparks students' interest but also makes the learning process more relevant and meaningful. Motivation, stemming from well-defined academic goals, further enhances engagement by fostering passion and commitment to the learning process. The Goal-Oriented Theory framework presents the relationship between motivation, engagement, academic performance, and feedback as a cyclical process. Motivated students actively seek out and implement feedback to improve their understanding and academic success, while engagement drives the pursuit of learning goals and helps refine them (Elliott & Dweck, 1988; Kaplan & Maehr, 2007). This cyclical dependence highlights the reciprocal nature of the interactions between these variables and emphasizes their collective influence on goal attainment. This article makes a substantial contribution to the existing literature by thoroughly examining the mediating role of motivation and student engagement in the relationship between perceived feedback and academic success. It fills key gaps in prior research, particularly in understanding how feedback translates into academic outcomes. By emphasizing the role of feedback in boosting both motivation and engagement, the study provides actionable insights that educators can use to refine their feedback techniques and improve student performance. The application of structural equation modeling (SEM) lends robust empirical support to these findings, enhancing their relevance for real-world educational settings. Future researchers can extend this work by exploring its broader implications or testing its applicability in various educational environments and learner demographics. Additionally, the article offers a solid framework for developing professional development programs that empower educators to deliver more effective, personalized feedback, thereby addressing critical challenges in modern education.

Literature review

Perceived Feedback and Academic Success

A complex interaction between these variables has been shown by the literature's considerable exploration of the relationship between perceived feedback and academic success. A substantial feedback effect on academic performance was noted by Adams et al. (2020), underscoring the significance of prompt and pertinent feedback in improving student outcomes. Conversely, Mulliner & Trucker (2017) discovered discrepancies in the feedback choices made by students and teachers, emphasizing the need to align feedback delivery with student expectations. Selvaraj et al., (2021) pointed out the drawbacks of written feedback but underlined its benefits for students' academic advancement, arguing that teachers' tailored remarks enhance students' growth and learning. Brown et al., (2016) noted a favorable relationship between students' self-regulated learning, self-efficacy, and their perceptions of feedback, emphasizing the role of feedback in shaping students' beliefs and behaviors towards learning. Furthermore, research by Indudewi & Subadi (2017) and Whitelock (2015) shown the various ways that feedback might support academic success. While Whitelock (2015) highlighted how automated formative feedback systems can help students receive individualized support, Indudewi & Subadi (2017) underscored the value of mentors' constructive criticism in facilitating student growth. Gonfa (2020) underlined the significance of timely and relevant feedback in promoting academic performance once more, putting out the argument that the timeliness and relevance of feedback determines its impact. Student perceptions of feedback in higher education impact academic success. Detailed, personal, and varied feedback modes are valued (Glazzard & Stones, 2019). All of these results highlight how complex perceived feedback is and how much of an influence it has on academic success.

H1: Perceived feedback has a positive effect on Academic Success.

Perceived Feedback and Motivation

Considerable knowledge on the relationship between motivation and feedback, as well as how they affect academic success, has come from research on these topics. According to Busse's

(2013) research, students' motivation is influenced by the quality and specificity of their feedback, with inadequate feedback leading to lower motivation levels. Similarly, academically successful students are more likely to actively seek out feedback, as de Jong et al. (2017) discovered, underscoring the mutually reinforcing nature of motivation and performance.

Furthermore, research by Zong et al. (2021) and Murtagh (2014) has highlighted the beneficial effect that perceived feedback has on students' motivation. While Zong et al. (2021) revealed many incentives driving feedback delivery, driven by course structure, Murtagh (2014) highlighted the significance of feedback interpretation in influencing student motivation. Tricomi & DePasque (2016) emphasized the importance that positive feedback plays in activating brain regions linked to reinforcement learning and reward value, underscoring its significance as a predictor of motivation and performance. Furthermore, Baadte & Schnotz (2014) discovered that the effect of feedback on performance, effort, and mood is influenced by the learner's self-concept. Zedan (2021) also offered proof of the beneficial impacts of teacher evaluations, which include feedback, on student motivation and academic results. According to Kaymaz (2011), social links can be strengthened and insecurities clarified through performance feedback, which will have a direct effect on motivation. Students' perception of feedback quality improved post-intervention, impacting writing motivation positively (Siekmann et al., 2023). Perceived feedback and teaching presence predict student motivation in online courses (Cole et al., 2017).

We put out the following hypothesis in light of these researchers' findings and the nature of the link between these variables:

H2: Perceived feedback has a positive impact on Motivation.

Perceived Feedback and Student's Engagement

Several research have investigated the connection between student engagement and perceived feedback. Mayordomo et al. (2022) discovered evidence of a noteworthy correlation between students' engagement and perceived feedback, underscoring the significance of feedback in promoting proactive student involvement in the learning process. Winstone et al. (2021) have

noted certain obstacles related to students' interaction with feedback, especially in learning management systems where grades may not always be directly linked to feedback. However, it is acknowledged that technology has the ability to overcome these issues, offering chances to improve student interaction with feedback (Price et al., 2011).

In order to improve student engagement with feedback, Esterhazy & Damşa (2019) suggested a conceptualization of feedback that places an emphasis on the co-construction of meaning from feedback remarks. In a similar vein, Carvalho et al. (2015) discovered a strong correlation between students' identification with their school and their level of participation overall and their impression of feedback. Perceived feedback directly influences online learning engagement (Cao & Han, 2024). Constructive feedback positively impacts students' learning cycle, enhancing engagement (Dorji & Wangchuk, 2022). Furthermore, according to Ali et al. (2018), there may be differences in students' attitudes and feedback-taking behavior throughout their academic careers, and the academic year is a significant predictor of these things. We put the following hypothesis based on the results of these studies:

H3: Perceived Feedback has a positive impact on Students' Engagement Motivation, Student's Engagement, and Academic Success

Numerous research works have elucidated the critical role that motivation and engagement play in academic success, emphasizing the complex interplay among these variables. In addition to providing strong evidence for the influence of motivational elements on academic performance, Sedaghat et al. (2011) underlined the crucial role that motivation plays in supporting student success. A strong correlation exists between academic motivation and engagement, with studies showing that higher motivation leads to increased engagement in academic activities (Muhammad et al., 2023). Engagement is further influenced by the learning environment, with smaller study groups fostering better motivation and engagement, particularly in online settings (Davidovitch & Yavich, 2023).

Self-regulated learning, characterized by motivation and emotional regulation,

significantly predicts academic success, with better self-regulated learners demonstrating higher engagement and improved outcomes (Han et al., 2022). Positive motivation and engagement levels are crucial for academic success, particularly in language learning contexts, where they directly affect students' GPAs (Alzaanin, 2023). Gupta & Mili (2017) discovered a positive correlation between academic success and motivation, suggesting that motivated students are more likely to be high achievers. Haider et al. (2015) offered proof of the advantages of both intrinsic and extrinsic motivation for academic success in a similar manner.

According to Berkovits (2014), academic success can be improved by prescribed learning goals, especially when paired with internal performance goals for mastery and success acknowledgment. Furthermore, in order to incorporate different ideas and elements related to motivation and engagement and highlight their significance for educational results, a multidimensional framework known as the "motivation and engagement wheel" has been proposed (Collie & Martin, 2019). The intricate structure of student motivation in connection to participation was highlighted by Nagabhushan (2012). Moreover, a number of variables, such as student enthusiasm and engagement, influence academic success, according to recurrent research findings (Doğan, 2015).

Drawing on this body of literature, we posit the following:

H4: Motivation exerts a direct and positive influence on Academic success

H5: Student's Engagement positively affects Academic success

H6: Motivation has a positive direct effect on Engagement

The relationship between Perceived Feedback, Motivation, Academic Success

The relationship between perceived feedback, motivation, and academic success is multifaceted, influenced by factors such as autonomy support, intrinsic motivation, and the quality of feedback received. Studies have consistently shown that students' motivation plays a crucial influence in their academic success by acting as a mediator between several variables. Research conducted separately by Chik & Abdullah (2018) and Ning & Downing (2012) revealed that motivation plays a mediating role in

the link between academic success and learning experience. Additionally, motivation is important because it acts as a major mediator in the complex relationship between academic success and perceived feedback. (Ning & Downing, 2012; Honicke et al., 2020;). As many academics in the subject have noted, this emphasizes the significance of motivation as a key element determining the relationship between the perception of feedback and the realization of academic success. Research indicates that perceived autonomy support from teachers enhances students' motivation and self-regulation, leading to better academic performance (Jeno & Diseth, 2014). Positive feedback can boost intrinsic motivation, particularly in males, while negative feedback tends to diminish motivation across genders (Deci, 1973). However, the correlation between academic motivation and success is not always strong, as seen in studies where motivation and learning approaches explained only a small portion of academic success (Cetin, 2015). Furthermore, students emphasize the need for timely and specific feedback to enhance their learning experience (Murphy & Cornell, 2010). Based on characteristics of these variables, we put the following hypothesis:

H7: Motivation plays a mediating role in the relationship between perceived feedback and academic success.

The relationship between perceived feedback, students' Engagement, Academic Success

Several research have shown that student engagement has a major impact on the relationship between perceived feedback and academic success (Adams et al., 2020; Wang & Zhang, 2020; Gerber, 2013). The role of academic self-efficacy as a mediating element in the relationship between academic success and feedback is particularly highlighted in Adams et al.'s (2020) study. In a similar vein, Wang and Zhang (2020) draw attention to the way that learning efficacy mediates the link between academic accomplishment and perceived instructor feedback. Furthermore, it is demonstrated by Gerber et al. (2013) that student involvement moderates the relationship between academic success and engagement. Feedback is essential for students to understand their academic performance and areas for improvement (Bevan et al., 2008). Students who perceive feedback as

constructive are more likely to engage actively in their learning process, fostering a sense of ownership over their academic journey (Ansari & Usmani, 2018).

Academic engagement, influenced by feedback, significantly correlates with academic success. A study found that motivational factors and self-efficacy mediate this relationship (Ashkzari et al., 2018). Positive student-teacher relationships, bolstered by effective feedback, enhance engagement and contribute to better academic outcomes (Amerstorfer & Münster-Kistner, 2021).

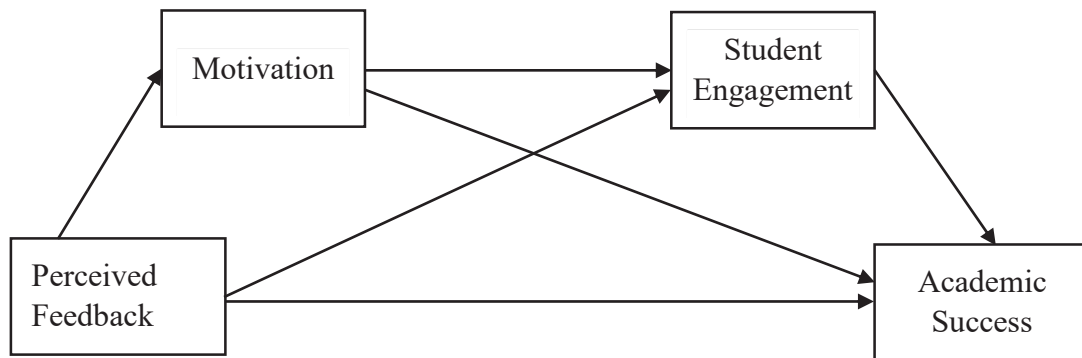
We hypothesis:

H8: Student's engagement serves as a mediator in the connection between perceived feedback and academic success
Perceived Feedback, Motivation, Student's Engagement, Academic Success

Perceived feedback has a significant impact on academic success; this relationship is mediated by learner engagement (Wang & Zhang, 2020). Interpersonal motivation has been found to be a favorable predictor of engagement in terms of motivation, which in turn leads to better academic success (Ito & Umamoto, 2022). Academic outcomes are strongly correlated with feedback orientation—the process by which students assimilate and utilize feedback—and extrinsic motivation. Additionally, a key mediator of the link between academic performance and feedback perception is academic self-efficacy (Adams et al., 2020; Dogan, 2015; Stock et al., 2019). Self-determined motivations, such as identified and introjected regulation, directly influence self-regulated learning abilities, which are essential for academic success (Kim, 2019). Achievement goals, particularly mastery goals, correlate positively with academic self-efficacy, further enhancing engagement and academic performance (Samareh & Moghadam, 2016). Additionally, academic engagement serves as a mediator between emotional intelligence, resilience, and academic success, highlighting its importance in educational contexts (García-Martínez et al., 2021). A positive motivational climate in classrooms fosters higher levels of school engagement, which in turn leads to improved academic outcomes (Gutiérrez et al., 2017). We make the following hypothesis in light of the research findings and the characteristics of these variables:

H9: Motivation and student's engagement have a mediating effect on the relationship between perceived feedback and academic success.

Figure 1.
Conceptual Model



Methodology

Data collection

The study population encompassed middle school students in Kosovo. Due to practical limitations in reaching the entire student population, this study employed the convenient sampling method. Data collection was carried out physically. In the initial phase, 330 questionnaires were distributed to students across secondary schools in the Prizren region, involving direct communication with them to solicit their participation. Written permit was secured from the Municipal Directorate of Education, authorizing the survey's administration to students. Out of the Consequently, the study sample consisted of 327 students. From these students 121 (37.0%) were in grade 6th, 113 (34.6%) were in 7th grade, 42 students of 12.8% students were in grade 8th and 51 students or 15.6% were in grade 9th. From the respondents 150 (45.87%) were male, while 177 were female (54.13%) as presented in Table 1.

Measures

Perceived Feedback: Perceived feedback was evaluated using the questions developed by Wang and Zhang (2020), employing a 5-point Likert scale where “1 = Strongly Disagree” and “5 = Strongly Agree.” The scale demonstrated good

reliability ($\alpha = 0.836$).

Motivation: Motivation was assessed using twenty-five items adapted from the scale developed by Glynn et al (2011). The reliability of this scale was high ($\alpha = 0.917$). Responses were recorded on a 5-point Likert scale where “1 = Strongly Disagree” and “5 = Strongly Agree.”

Student Engagement: Student engagement was measured utilizing the scale developed by Doğan (2014), which exhibited a reliability coefficient of ($\alpha = 0.865$). Responses were collected using a scale where “1 = Never” and “5 = Always” and was used only the first two dimensions of the questionnaire,

Students' GPA: Academic success was assessed by students' GPA in academic subjects.

Measurement model estimation

To conduct the statistical analyses, IBM SPSS v.26 and AMOS v.23 were employed. The Structural Equation Model (SEM) was conducted.

Common method variance (CMV)

Podsakoff et al. (2012) provided guidelines on how to reduce the possibility of common method variance (CMV) in cross-sectional data collected at a single moment in time. Firstly, the study's voluntary and anonymous nature was emphasized in the instruction letter. Finally, all of the items

were subjected to an exploratory factor analysis (EFA) with a maximum of one component. Less than 0.50 percent of the

explained variance could be attributed to a single factor, indicating that CMV was not a problem.

Table 1.
Demographic Data

Demographic	Frequency	Percentage
	<i>n</i>	%
<i>Gender</i>		
Female	150	45.87
Male	177	54.13
<i>Class</i>		
6	121	37.0
7	113	34.6
8	42	12.8
9	51	15.6

Table 2.
Descriptive Statistics and Correlations Between Latent Variables

	Mean	SD	Per Feed.	Motiv.	StdEng.	AcadSucc.
1. PerFeed.	4.124	0.493	1			
2. Motiv.	4.154	0.575	0.588**	1		
3. StdEng.	4.496	0.505	0.608**	0.606**	1	
4. AcadSucc	6.047	0.836	0.438**	0.436**	0.661**	1

PerFeed-Perceived Feedback, Motiv – Motivation, StdEng – Student Engagement, AcadSucc– Academic Success

***p* < 0.01 **p* < 0.05.

Results

Table 3.
Results of the Mediation Analysis

H:	Hypotheses Test	Std. Estimate	Lower Bound	Upper Bound	P-value
H1:	PerFeed. → AcadSucc.	0.054	-0.101	0.211	0.590
H2:	PerFeed. → Motiv.	0.522	0.418	0.609	0.000
H3:	PerFeed. → StdEng.	0.278	0.154	0.418	0.000
H4:	Motiv. → AcadSucc.	0.530	0.407	0.650	0.000
H5:	StdEng. → AcadSucc.	-0.266	-0.540	-0.027	0.066
H6:	Motiv. → StdEng.	0.657	0.512	0.769	0.000
H7:	PerFeed. → Motiv. → AcadSucc.	0.283	0.190	0.407	0.000
H8:	PerFeed. → StdEng. → AcadSucc.	0.310	0.108	0.793	0.031
H9:	PerFeed. → Motiv → StdEng → AcadSucc.	0.203	0.070	0.323	0.018

PerFeed-Perceived Feedback, Motiv – Motivation, StdEng – Student Engagement, AcadSucc– Academic Success

Numerous links between perceived feedback, academic success, motivation, students' engagement are revealed by the analysis. The study's initial findings, indicated by a normalized coefficient of 0.054, indicate a somewhat positive association between perceived feedback and academic success but not statistically significant ($p=0.590$), rejecting Hypothesis 1 (H1). The standardized coefficient of 0.522 indicates that motivation is highly impacted by perceived feedback, on the other hand. Significantly, this relationship achieves statistical significance ($p < 0.05$), offering strong proof of the link between motivation and perceived feedback, confirming Hypothesis 2 (H2). Moreover, perceived feedback positively influences students' engagement, with a standardized coefficient of 0.278 ($p < 0.05$), lending strong support to Hypothesis 3 (H3). Motivation emerges as a crucial factor influencing academic success, with a substantial standardized coefficient of 0.530. The relationship is statistically significant ($p < 0.05$), supporting Hypothesis 4 (H4). However, a negative relationship exists between student engagement and academic success, indicated by a standardized coefficient of -0.266. Yet, this relationship does not reach statistical significance ($p = 0.066$), thereby rejecting Hypothesis 5 (H5). Furthermore, motivation positively influences student engagement, evident from standardized coefficient of 0.657 ($p < 0.05$), supporting Hypothesis 6 (H6). The sequential pathway from perceived feedback to motivation to academic success emerges as significant, with each step contributing positively to academic success. This is supported by a standardized coefficient of 0.283 ($p < 0.05$), thus affirming Hypothesis 7 (H7). Similarly, a significant sequential relationship is observed from perceived feedback to students' engagement to academic success, highlighting a positive impact on academic success. This pathway is characterized by a standardized coefficient of 0.310 ($p < 0.05$), supporting Hypothesis 8 (H8). Additionally, perceived feedback influences academic success through motivation and student engagement. This demonstrates a positive effect on academic success, with a standardized coefficient of 0.203 ($p < 0.05$) thereby supporting Hypothesis 9 (H9).

Discussions

The aim of this study was to explore the mediating role of motivation and students' engagement in relationship between perceived feedback and academic success. The study's findings regarding the relationship between perceived feedback and academic success align with the broader literature, which acknowledges the multifaceted nature of feedback's impact on academic success. Although our results show a weakly positive relationship between academic success and perceived feedback, the absence of statistical significance raises the possibility that academic success cannot be reliably predicted by perceived feedback alone, which is consistent with the findings of other studies (Adams et al., 2020; Mulliner & Tucker, 2017; Selvaraj et al., 2021). It seems that other criteria, such feedback's timeliness, relevance, and consistency with students' expectations, may have an impact on how beneficial it is at improving academic success (Gonfa, 2020). Our results support previous studies that show the important influence of perceived feedback on motivation. The idea that students' motivation levels are elevated when they receive constructive feedback is supported by the significant statistical significance found in our study (Murtagh, 2014; Zong et al., 2021). This positive relationship provides empirical support for the theoretical framework put forth by goal-oriented theory by highlighting the critical role that feedback plays in promoting students' inner drive to interact with learning materials and pursue academic goals (Tricomi & DePasque, 2016). The findings of our research support the idea that students' engagement is positively impacted by perceived feedback. The results suggest that effective feedback contributes to heightened student engagement (Mayordomo et al., 2022; Carvalho et al., 2015). However, it is essential to acknowledge the challenges associated with student engagement with feedback, particularly in digital learning environments, as identified in previous literature (Winstone et al., 2021). Our findings on the impact of engagement and motivation on academic success are consistent with prior research highlighting the crucial roles these variables play in determining educational outcomes. The substantial result observed is for motivation

which direct positive impact on academic success (Sedaghat et al., 2011; Gupta & Mili, 2017). These results underscore the importance of fostering students' intrinsic motivation in promoting academic success, consistent with the tenets of Goal-Oriented Theory (Elliott & Dweck, 1988). The mediation analyses conducted in our study provide further insights into the underlying mechanisms linking perceived feedback, motivation, engagement, and academic success. Consistent with theoretical frameworks proposed in the literature (Ning & Downing, 2012; Gerber et al., 2013), our findings support the mediating role of motivation and engagement in the relationship between perceived feedback and academic success. These results underscore the interconnectedness of these variables and highlight the need for holistic approaches to feedback implementation that consider its impact on motivation, engagement, and ultimately, academic success.

Implications And Conclusions

The results highlight how crucial customized feedback techniques are in learning environments. Teachers should place a high priority on giving students timely, relevant, and customized feedback since it can improve motivation, engagement, and eventually academic success. Teachers can increase the efficacy of feedback interventions by coordinating feedback procedures with learning objectives and student expectations. Our findings demonstrate the necessity of continuous professional development programs for teachers to improve their ability to provide feedback. The main goal of training programs should be to give teachers the information and abilities they need to give constructive criticism that encourages enthusiasm and involvement from their students. Institutions can foster a culture of efficient feedback practices that enhances student learning outcomes by allocating resources toward instructor development. The results highlight how crucial it is to incorporate feedback systems into curriculum design. Curriculum designers ought to view feedback as a crucial part of the learning process and create curricula that make it easier for students to provide and use feedback. Students can be empowered to actively engage with

feedback and increase their motivation and engagement by incorporating opportunities for formative feedback and self-assessment. Student support services that encourage motivation, engagement, and academic performance should be given top priority by institutions. Counseling services can give students the skills they need to handle criticism well, overcome obstacles to motivation, and improve their participation in class activities. Institutions can foster an environment that supports the success of their students by providing extensive support services. Using educational technology to its full potential can improve how feedback is delivered and made available to students. Academic institutions want to investigate the utilization of digital platforms and learning management systems as a means of optimizing feedback procedures, expediting the delivery of feedback on time, and fostering student involvement. Technology-enabled feedback mechanisms can support a culture of continual improvement in education and accommodate a variety of learning preferences. Legislators ought to give top priority to creating regulations that facilitate efficient feedback procedures in learning environments. Policies ought to support the application of research-based techniques for providing feedback, provide funding for the professional development and training of educators, and provide incentives for educational institutions to make feedback a top priority. Through the integration of feedback-oriented policies into educational frameworks, policymakers may ensure that all students have fair access to high-quality education.

Limitations

Because of the cross-sectional form of the study, it was more difficult to determine the causes of the variables. Although associations between academic success, motivation, engagement, and perceived feedback have been identified, longitudinal studies are necessary to understand the temporal dynamics of these relationships and track how they have changed over time. Moreover, the sample size of the study, which consists of respondents, can restrict the applicability of the results to larger groups. Larger and more varied sample sizes should be the aim of

future research projects in order to support the findings' external validity and guarantee their applicability to a range of educational settings and demographic types. The reliability and consistency of these measures may vary, even if standardized questionnaires were used to assess motivation, engagement, and perceived feedback. It is necessary to do additional validation research to confirm the psychometric qualities of the instruments used and validate the correctness of the collected data. Because the study was conducted in a particular educational environment, its findings may not be fully applicable in other contexts. Diverse populations and educational environments may experience differing effects on the relationships between motivation, engagement, perceived feedback, and academic success due to cultural, institutional, and contextual factors. Although motivation and engagement were found to have mediating roles in the relationship between perceived feedback and academic success, a thorough examination of various mediation models and confounding variables was not carried out. Subsequent investigations ought to involve more extensive analyses of other mediators and moderators in order to provide a more thorough comprehension of the complex mechanisms underlying these associations.

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Specific Learning Difficulties in Younger School-Aged Children

Professional article

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Abstract

Learning difficulties represent a significant problem for children that needs to be identified and diagnosed in a timely manner. This paper describes the three most common learning difficulties encountered in younger school-aged children, namely: dyslexia, dysgraphia, and dyscalculia. In addition to a detailed analysis of the aforementioned difficulties, this paper will also discuss the relationships between children with specific learning difficulties and their peers and teachers. All of the above constitutes the theoretical part of this master's thesis. The methodological part of the research will analyze and describe relevant scientific studies on the topic of specific learning difficulties in younger school-aged children. In this master's thesis, we will attempt to determine the importance of timely diagnosis and treatment of children who have problems with reading, writing, calculation, and speech, in order to address these issues as quickly and efficiently as possible from a professional standpoint, thus contributing to the children's success in mastering school material. Additionally, the importance of examining how specific learning difficulties (SLDs) affect the child's emotions, behavior, and environment will be explored. Methods used include descriptive, analytical, comparative, and theoretical-methodological approaches. The general hypothesis that children with specific learning difficulties require multidisciplinary support due to psychological, behavioral, and emotional challenges, with the key role of teachers and parents, has been fully confirmed.

Keywords: *Difficulties, Learning, Treatment, Speech Therapist, School*

Specific learning difficulties have drawn considerable attention from experts and researchers in recent decades. One of the key issues that captures the attention of researchers

is the early detection of disorders, as early diagnosis enables timely intervention, leading to the most positive outcomes (Obradovic et al., 2011). This issue, which many teachers

and educators in schools face, is not discussed enough. There is an insufficient number of specialized personnel in the school system to focus exclusively on detecting and diagnosing this increasingly prevalent problem among children. To tailor the pace and approach of work to the individual abilities of students, which is critical for selecting and applying appropriate, alternative, and/or compensatory learning strategies aimed at achieving optimal development for each student in line with their individual capabilities, it is essential that subject teachers recognize these difficulties in a timely manner. It is crucial not to attribute poor performance to laziness or lack of effort but to explore the potential presence of a disorder and respond promptly. Therefore, proper teacher education in recognizing specific learning difficulties in children is essential (Stepanovic, 2023).

In most of the educational systems so far, and in the current school system, reading and writing serve as the foundation for acquiring overall knowledge. It is well known that children with specific learning difficulties do not have the same opportunities to acquire knowledge as other children, resulting in learning difficulties and poorer academic performance. Children with developmental challenges are often rejected in classrooms and groups they attend, and they do not establish interaction or communication with their peers. This motivated my desire to investigate the success of prevention, identification, and treatment of specific learning difficulties. Knowledge about the "existence of the problem," deviations from typical development in areas of communication, language, speech, reading, and writing, and subsequently learning difficulties, the phenomenon of the specificity of these difficulties and needs in children, ways to seek help, and methods of mitigating the consequences of specific learning difficulties bring us closer to fulfilling the rights of children diagnosed with specific learning difficulties. This understanding leads to recognizing their uniqueness and addressing their specific interests, needs, and rights, particularly their right to participation (Convention on the Rights of the Child, 1989).

Theoretical approach

The most commonly used definition relied upon by researchers and practitioners in many countries is the definition from the International Classification of Diseases (ICD-10). According to this theoretical definition, specific learning difficulties encompass disorders that manifest as specific and significant impairments in acquiring school skills (Lazarevic, 2019). The new manual from the American Psychiatric Association (DSM-5) offers a broadly accepted definition that is increasingly applied in research and is recognized by associations advocating for the rights of individuals with specific learning difficulties.

The term DSM-5 uses is "specific learning disorder," which is diagnostically defined as: "Difficulties in learning and using academic skills, indicated by the presence of at least one of the following symptoms that have persisted for at least 6 months, despite interventions aimed at addressing these difficulties." The criteria (in brief) are: inaccurate or slow and effortful reading, difficulty understanding the meaning of what is read, difficulty with spelling, difficulty with written expression, difficulty mastering number sense, number facts, or calculation, and difficulty with mathematical reasoning. Academic skills are significantly and measurably below what is expected for the person's chronological age and interfere with academic, work, and daily life. They need to be assessed individually. Below-average achievement for age—school grades and teacher evaluations indicate poor performance. Many children avoid activities that involve reading, writing, or math. Difficulties begin in school years, but for some individuals, problems may only become apparent when demands increase, leading to later discovery of the difficulties (Stepanovic, 2018).

These difficulties cannot be better explained by intellectual disabilities, vision or hearing problems, other mental or neurological disorders, psychosocial adversity, inadequate instruction in the academic language, or inappropriate teaching (Lencek, 2017).

Prevalence and diagnosis

The number of children with learning and behavioral difficulties is about 30% of the total population. What is common to all learning difficulties is that the difficulties must be clearly expressed. These difficulties are present in less than 3% of the school-age population and cannot be linked to mental retardation, neurological diseases, or educational neglect. The causes of specific learning difficulties are not precisely defined, but it is believed they stem from abnormalities in cognitive processes, largely resulting from some form of biological dysfunction (Golubovic, 2004).

The detection and early diagnosis of specific learning difficulties at the beginning of schooling are crucial, as this is the age when a diagnosis can be made with high certainty. In the diagnostic procedure of specific learning difficulties, four diagnostic models are most commonly used (Proctor & Prevatt, 2003; Sparks & Lovett, 2009; Weis & Syke, 2012): the discrepancy model, the low achievement model, the DSM-IV model, and the comprehensive cognitive model.

Types of specific learning difficulties

Each type of learning difficulty is characterized by a set of different symptoms and characteristics, which manifest differently in each individual. Since each person is a unique individual who needs an individualized approach, learning difficulties are also unique clinical entities. We will explain these in detail to understand the essence and impact of these disorders on the individual dealing with them. Each learning difficulty may occur in isolation or, as is more common, in combination with other difficulties. It is also important to note that these difficulties do not imply a complete inability to learn. Symptoms may be mild, moderate, or severe. Children with these learning difficulties have normal or above-average intelligence. With appropriate treatment, the application of specific modifications and accommodations in teaching methods and knowledge assessment, and continuous support from parents and therapists, these children can learn well, and some can excel.

Dyslexia

The International Dyslexia Association (IDA, 2002) defines dyslexia as: "Dyslexia is a specific learning disability of neurobiological origin. It is characterized by

difficulties with accurate and/or fluent word recognition, poor spelling, and decoding abilities. These difficulties arise from deficits in the phonological component of language and are often unexpected in relation to other cognitive abilities and classroom instruction. Secondary consequences may include problems with reading comprehension and reduced reading experience, which can impede the growth of vocabulary and background knowledge."

Dyslexia is a reading disorder despite the presence of normal intelligence, good vision and hearing, systematic instruction, adequate motivation, and other favorable educational, psychological, and social conditions. Dyslexia represents a significant mismatch between actual (existing) and expected reading levels relative to mental age (Golubovic, 2000). Dysgraphia (writing difficulties) and dyscalculia (math difficulties) often co-occur with dyslexia. Dyslexia appears in early childhood and is typically detected in early school years when children begin to acquire reading and writing skills. Children with dyslexia are of average or above-average intelligence and are often very creative, with a developed unique way of thinking. Early developmental deviations can predispose a child to reading difficulties, but unfortunately, such deviations often receive little attention, and parents usually believe they are temporary. Dyslexic children may change the order of letters or syllables in a word, substitute or omit certain letters, or add or omit words while reading. These children often describe seeing words turn in different directions, letters "dancing," being unable to follow a line, or sentences blending together into one.

The handwriting of dyslexic children is often messy and illegible. They also frequently omit or substitute letters and syllables and have difficulties expressing their thoughts in written form. Dyslexic children are often disoriented in time and space and cannot accurately determine the sequence of events. Depending on the type and level of dyslexia, a child may have some or all of these symptoms. Some of these symptoms may also appear in children without dyslexia, which can confuse parents and teachers. However, the symptoms in dyslexic children are more numerous, more pronounced, and longer-lasting. Dyslexia is also characterized by slow reading, meaning

these children take more time to read text than their peers. When reading longer texts and sentences, slow reading can lead to significant difficulties in understanding what they read.

Dysgraphia

Most definitions of developmental dysgraphia refer to a handwriting disorder and emphasize the motor components of writing: the child may have difficulties in letter formation, pressure applied on the paper, and writing speed, which manifests as slow and messy writing with uneven letters. Additionally, due to certain linguistic deficits, these children often omit letters, write incomplete words, and confuse symbols. Dysgraphic difficulties always exhibit a specific combination of symptoms that vary in severity (Lazarevic, 2012). Dysgraphia involves issues with handwriting. There are several types of dysgraphia. Some people with dysgraphia have handwriting that is often illegible, with letters that are uneven and irregular. Others write legibly but very slowly and/or in very small letters. When these individuals revert to printing letters, which often occurs, their handwriting becomes a random mix of uppercase and lowercase letters. In all cases of dysgraphia, writing requires excessive amounts of energy, effort, and time (Stepanovic, 2019).

Dysgraphia is a learning disorder in writing or the acquisition of writing ability despite normal intelligence, good vision and hearing, appropriate education, and favorable social conditions (Golubovic, 1998).

Specific difficulties (symptoms) associated with writing are most often (Pavlic-Cottiero, 2007): difficulties in connecting phonemes with graphemes, substitution of letters that are graphically or phonetically similar, prolonged "mirror" writing of letters or numbers, structural errors (insertion, addition, transposition), omission of letters, parts of words, or words, difficulties in following the direction of writing.

Non-specific difficulties associated with writing are: slowness, untidiness in work, poor legibility of handwriting, difficulties in applying spelling and grammar rules, and disrupted sense of syntax.

Dyslexia and dysgraphia often occur simultaneously in a child, but specific writing difficulties (i.e., dysgraphia) can also appear as a separate condition. Children with some

form of dysgraphia make recurring writing errors. These typical dysgraphic writing errors, their persistence, and frequency are the recognizable features of dysgraphia. The mistakes made by children when writing most commonly occur at the level of letters, syllables, or entire sentences. Most children with some form of dysgraphia also struggle with holding the pencil, as well as writing letters, words, or sentences on the line. Children with dysgraphia have untidy handwriting, problems with learning spelling, difficulties in expressing thoughts on paper, organizing ideas, and storing ideas, among many other challenges in the domain of writing (Berninger & Wolf, 2009). Writing requires the coordinated work of numerous muscles, which must be synchronized with visual-motor perception. The difficulties encountered by individuals with dysgraphia manifest in deficits in various abilities, such as concentration, organization, fine motor skills, and difficulties keeping up in school classes.

Dyscalculia

According to the International Dyscalculia Association and DSM-5, dyscalculia is a neurodevelopmental disorder of biological origin that manifests as learning difficulties and problems in acquiring academic skills significantly below age expectations. These difficulties become apparent in early school years, persist for at least six months, and are not due to intellectual disabilities, developmental disorders, or neurological and motor impairments. Mathematical difficulties belong to the category of specific learning disabilities, i.e., neurodevelopmental disorders. According to Golubovic, developmental dyscalculia usually occurs independently of proficiency in lexical and language abilities, which are unrelated to problems with mathematical operations. Developmental dyscalculia is characterized by delayed and difficult acquisition of mathematical knowledge, meaning that arithmetic abilities are significantly below the expected level compared to the child's age, general intellectual abilities, and schooling. The deficits are primarily in the areas of basic arithmetic operations such as addition, subtraction, multiplication, and division.

Long-term studies of difficulties in acquiring mathematical skills enabled Sharma (2001) to categorize the most

common errors made by students with dyscalculia into the following groups: paraphrasing substitutions, perseverations, mirror errors, slowness, placing numbers in mutually incorrect spatial positions, visual errors, procedural mistakes, poor memory, and difficulty recognizing numerical sequences. Students with dyscalculia also exhibit specific difficulties in solving mathematical problems. These challenges can be grouped into four types of arithmetic difficulties: issues in logic, difficulties in planning, perseveration of inappropriate actions, and inability to perform simple arithmetic operations. The difficulties seen in individuals with dyscalculia manifest as deficits in various abilities, particularly in arithmetic and counting. They also face challenges in time and spatial orientation, as well as memory issues.

The diagnosis of dyscalculia can be made through an individual assessment of the child's abilities, which includes: general assessment of intellectual abilities, application of tests to assess mathematical skills, and evaluation of pre-mathematical abilities. Standardized tests such as the WISC and math ability tests are used to compare the child's individual capabilities with expected abilities for their peer group.

Quantitative processing difficulties (quantitative dyscalculia) manifest as issues in counting and calculation, while qualitative processing difficulties (qualitative dyscalculia) involve problems with understanding instructions and following task sequences. Problems in mathematics become noticeable when the child begins school. Parents often report that early psychomotor development is usually normal (Golubovic, 2004). It is important to know that dyscalculia is not temporary, but a neurological condition for which the student is not responsible.

Methods

Research Subject

The subject of this research is the investigation of the causes, manifestations, and consequences of specific learning difficulties in children of younger school age.

Research Aim

Specific learning difficulties are increasingly manifesting and being recognized as a problem among children

of younger school age. Therefore, the aim of this master's thesis is to highlight the necessity of a broader understanding and engagement with this issue. The goal is to ensure that professionals, primarily speech therapists and educators, are provided with various scientific studies on the given topic, enabling them to improve their work methods in helping children with specific learning difficulties and contributing to the successful acquisition of school skills in these children. The aim of the research is also to emphasize the importance of timely diagnosis and treatment for children who have difficulties in reading, writing, math, and speech, in order to address these problems more effectively and contribute to their academic success. Additionally, the research aims to explore how specific learning difficulties (SLD) affect the child's emotions, behavior, and environment.

Research Objectives

Based on the stated aim, the following research objectives will guide our analysis of related studies on this topic:

- Investigate risk factors, specifically identifying genetic, neurological, and social factors that contribute to the development of learning difficulties in children of younger school age.
- Analyze educational methods used when working with these children.
- Investigate the impact of specific learning difficulties on the psychosocial development of the child.
- Explore and analyze support strategies for teachers and parents working with children with specific learning difficulties.

Hypotheses

General Hypothesis: Children with specific learning difficulties require multidisciplinary support due to psychological, behavioral, and emotional challenges, with teachers and parents playing a key role.

Specific Hypotheses:

- Children with specific learning difficulties, besides psychological and behavioral problems, lack self-confidence and need support from their environment.
- Teachers and educators are adequately trained to work with children with specific learning difficulties and to conduct early diagnosis of SLD.
- Collaboration with parents is a crucial factor in treating children with SLD, as well as in the successful integration of students

with specific learning difficulties into the wider community.

- A large number of younger school-age children have specific learning difficulties, and this number is increasing over time.
- Among all specific learning difficulties, dysgraphia is the most common, and boys have dysgraphia more frequently than girls.
- In developmental dyslexia, difficulties occur only in reading, while both spoken and written speech remain intact.

Research Method

To achieve the research objectives of this master's thesis, the following methods were used:

- Descriptive
- Analytical
- Comparative
- Theoretical-methodological

Interpretation of the research

When it comes to scientific research on the topic of this master's thesis, it is important to first state that the selected and reviewed studies focus on a narrow topic: the timely detection and diagnosis of specific learning difficulties in children and their proper treatment by speech therapists and educators, with the support of parents. Specific learning difficulties (SLD) represent a distinct group of developmental disorders, encompassing a wide range of possible symptoms and causes. According to research conducted by Jelisaveta Todorovic, as part of a project by the Ministry of Science and Technology, No. 1341 (2003), specific developmental disorders are classified as a diagnostic category that includes a broad spectrum of childhood disorders. These disorders are not caused by mental retardation, brain damage, educational neglect, or emotional issues. They typically emerge early in childhood and may affect speech, reading, writing, math, or general motor clumsiness.

The research conducted by Prof. Dr. Nadezda Krstic, Violica Povse-Ivkic, and Ana Radojkovic (Povse-Ivkic et al., 2008) focused on the detection of developmental dyslexia in younger school-age children. Based on their findings, we concluded the following: Developmental dyslexia is generally accompanied by underdeveloped psychomotor skills that are below the expected level for the child's age. Dyslexic children experience difficulties with motor tasks even when at rest (>80%), exhibiting a

significantly higher degree of psychomotor agitation. Dyslexic children also demonstrate uncoordinated use and gestural lateralization of upper limbs and senses (over 60%). Deficits in gnostic organization were found in 40% of the sample. Half of the children had speech issues, 15% exhibited dysgraphia, and around 40% of the sample showed one or more behavioral difficulties.

Another study by Prof. Ilic-Stosovic, Nikolic, and Milivojevic (2011), conducted in Belgrade, aimed to identify differences in the perception of causes of school failure between students with special needs and typical development. The results of this study concluded that children with special needs and SLD lack environmental support, feel inferior, and have low self-confidence, which supports our hypothesis that children with specific learning difficulties, in addition to psychological and behavioral issues, also feel insecure and lack external support.

The research by Ilic-Stosovic, Nikolic, and Janjic presented in the paper: *"Orthographic Competence and Phonological Awareness in Children with Developmental Coordination Disorder"* (2021) aimed to determine the relationship between phonological awareness and spelling achievements in children. Writing difficulties, such as underdeveloped fine motor coordination or insufficient knowledge of orthographic rules, will impact the fluency and quality of written expression not only in younger school-age children but also in older grades (Flanagan & Alfonso, 2011).

The study titled *"Characteristics of Reading and Spelling in Children with Dysgraphic Handwriting"* (Golubovic et al., 2020), aimed to determine the frequency of dysgraphic handwriting, the frequency and types of spelling errors, and analyze reading speed, the number of mistakes, and comprehension of reading material in children with dysgraphic handwriting and typically developing children of younger school age. The results showed that dysgraphic handwriting was identified in 13.8% of younger school-age children, with 53.8% classified under "graphomotor dysgraphia" and 46.2% under "linguistic dysgraphia." Among the entire sample, 28% of the children had an incorrect pencil grip, 7% were left-handed, and 30% exhibited poor posture while completing language tasks. In the paper *"Characteristics of Reading*

and *Spelling in Children*" (Golubovic et al., 2020), we found interesting guidelines, suggestions, and recommendations for working with children with dysgraphia, which was one of the objectives of this master's thesis. One practical suggestion is to focus on teachers and the assessment of content quality in written form, despite the presence of dysgraphic handwriting or brief written texts.

Muhamed Rizvic, in his 2022. study, which we cited, focused on learning disabilities and attention deficits, clearly analyzing the correlation between speech therapists, teachers, and children with difficulties. He proposed clear guidelines on how working with children with developmental disorders, particularly from a sociological, emotional, and psychological perspective, can be of great benefit to school staff. Based on his research, he also provided directions and recommendations for working with these children.

Studies on dysgraphia presented us with intriguing results regarding gender, frequency, and type of dysgraphia in younger school-age children. They also led us to question why dysgraphia and SLD in general have become so common, and whether the number of affected children will continue to rise.

In addition to parents, teachers and educators play a crucial role in working with children with learning difficulties. This study referenced several pieces of research highlighting the importance of teachers and educators in this process. These studies helped us confirm whether our hypothesis about teachers was accurate. One of the first studies mentioned in this paper, conducted by Obradovic, Zlatic, and Vucetic, "*Specific Learning Difficulties - Dyslexia, Dysgraphia, and Dyscalculia in Preschool Age*" (2011), examined the extent to which educators in preschools in Serbia are trained to detect and identify specific learning difficulties early.

Another study from our region that discusses the significance of teachers in recognizing specific learning difficulties is the research titled: "*Teachers' Intuition and Knowledge in Recognizing Specific Learning Difficulties*," conducted by Prof. Dr. Svetlana Obradovic and Prof. Dr. Nadezda Krstic (2012), which was presented in this master's thesis.

We also presented research conducted by

students from the Faculty of Philosophy in Osijek, with the help of teachers and speech therapists from an elementary school in Osijek. The aim of this research was to assess specific and non-specific reading and writing difficulties in students from 3rd to 8th grade diagnosed with dyslexia and dysgraphia (speech therapist assessment) and to examine how well teachers adhere to general pedagogical principles and evaluation criteria for these children.

Discussion

Based on the research conducted by Jelisaveta Todorovic, which is cited in this paper as Study No. 1, we can see what are not the causes of learning disabilities (LD). She concludes that LDs manifest early in childhood, but the exact causes have not been thoroughly researched. This study mentions that a significant number of children with LDs also have disorders in temporal-spatial perception. Additionally, children with dyslexia and dysgraphia often exhibit disturbed spatial and rhythmic perception, or they may develop emotional and behavioral disorders. I believe this research is useful because, when we observe a problem like a rhythmic disorder in a child, we can suspect dyslexia. Similarly, if we notice a problem with spatial orientation, we can suspect dysgraphia. Based on the detailed description of this research in the paper, we can confirm our hypothesis that children with specific learning disabilities, in addition to psychological and behavioral issues, also experience insecurity and a lack of external support.

This paper also cites a study indicating that in a primary school in Nis, "Ucitelj Tasa," 50% of preschool children exhibit speech difficulties, which, in my opinion, is a significant number. Based on these results, we can confirm our hypothesis that a large number of children in schools have specific learning disabilities.

The research by Nadezda Krstic, Violica Povse-Ivkic, and Ana Radojkovic, focused on the detection of developmental dyslexia in younger school-aged children. Based on the research results, the following was concluded: Developmental dyslexia is generally accompanied by underdeveloped psychomotor skills that are below the expected level for the child's age. Dyslexic

children struggle with motor tests in rest (>80%), exhibiting a significantly elevated level of psychomotor agitation. Among children with dyslexic difficulties, there is a presence of uncoordinated use of upper limbs and sensory lateralization (in over 60%). Gnostic organization deficits are often found (in 40% of the sample). Half of the children also have speech problems, 15% have dysgraphia, and around 40% of the sample showed one or more forms of behavioral disorders. Based on all the above, as well as the obtained results, we can state that our hypothesis that children with specific learning disabilities, in addition to psychological and behavioral issues, also experience insecurity and a lack of support from their environment, is confirmed. The study conducted by Ilic-Stosovic, Nikolic, and Janjic, presented in the paper "Orthographic Competencies and Phonological Awareness in Children with Developmental Coordination Disorder," aimed to determine the connection between phonological awareness and spelling achievement in children. This study is particularly noteworthy because it describes dysgraphia and the different types of dysgraphia that exist. Dysgraphia is a unique form of specific learning disability, but little is known about its cause. It is widely recognized that both fine and gross motor skills are crucial for writing. This study compared children with developmental coordination disorders to those without such issues. The results showed significantly below-average phonological awareness and spelling skills in children with developmental coordination disorders. This demonstrates that good coordination and motor skills are critical for acquiring spelling and writing skills, and that developed speech is a prerequisite for mastering spelling. Children begin practicing fine and gross motor skills at an early age. One might wonder how activities like climbing, jumping, and crawling are related to children's spelling abilities, but this study shows that they are indeed connected. Children with well-developed coordination also have well-developed phonological awareness and spelling skills, leading to better educational outcomes.

Regarding dysgraphia, most studies on writing abilities over the past decades have focused on analyzing aspects of dysgraphic

handwriting, including qualitative analysis of graphemes, control of slant size, and pencil grip. A common characteristic of children with dysgraphic handwriting is that, even with appropriate encouragement, they do not reach the maturity level of handwriting typical for their age. Dysgraphic handwriting lacks consistency, proper spatial organization, appropriate grapheme size and shape, and adequate spacing between words, none of which are due to carelessness or lack of motivation (Golubovic, S. et al., 2020).

The study titled "Characteristics of Reading and Spelling in Children with Dysgraphic Handwriting" by Prof. Dr. Golubovic, Jecmenica, Panic, and Zikic aimed to determine the frequency of dysgraphic handwriting forms, the types of spelling errors, and to analyze reading speed, the number of errors, and reading comprehension in children with dysgraphic handwriting and typically developing children of younger school age. The results showed that dysgraphic handwriting was identified in 13.8% of younger school-aged children, with 53.8% classified under "graphomotor dysgraphia" and 46.2% under "linguistic dysgraphia." Among the total sample, 28% of younger school-aged children were found to hold the pencil incorrectly while writing, 7% were left-handed, and 30% had poor posture while sitting at a desk during language tasks. The study also found that, among the group with dysgraphic handwriting, 11% of boys and 50% of girls were left-handed, 88% of boys and 75% of girls had poor posture at their desks, and all children in the group (100%) held their pencils incorrectly. Additionally, there was a higher prevalence of dysgraphic handwriting among boys (69.1%) compared to girls (30.9%). Based on this study, we can confirm our hypothesis that dysgraphia is the most common specific learning disability, and boys are more likely to have dysgraphia than girls.

Research on dysgraphia has presented us with interesting results regarding gender and the frequency and types of dysgraphia in younger school-aged children. It also raises the question of why dysgraphia and specific learning disabilities in general have become so common, and whether the number of affected children will continue to grow. In my opinion, one possible cause is the declining fine motor and graphomotor skills

in children, which I attribute to the increasing use of phones, tablets, and joysticks, instead of engaging in free play.

One study included in this paper related to the role of teachers and parents in working with children with learning disabilities highlights that, in addition to parents, teachers, educators, and caregivers who work with children with learning disabilities are crucial. As the name suggests, these disabilities are specific, and they must be approached in a specific, unique, and individual way based on the child's needs. In this paper, we mentioned several studies showing how important teachers, educators, and caregivers are in working with these children. These studies helped us determine whether our hypothesis about teachers was correct. The first study on teachers and educators, conducted by Obradovic, Zlatić, and Vučetić ("Specific Learning Disabilities—Dyslexia, Dysgraphia, and Dyscalculia in Preschool Age," 2011), examined to what extent preschool educators in Serbia are trained to detect and identify specific learning disabilities early. The results show that educators are familiar with the conceptual definitions of learning disabilities but lack expertise in early detection and identification. Educators recognized these developmental difficulties in children exclusively as language problems, although their nature is much broader and involves altered cognitive functioning. Based on this research, we can refute our hypothesis that teachers in schools and educators are adequately trained to work with children with specific learning disabilities and to diagnose learning disabilities early.

Another study from our region, which highlights the importance and distinctiveness of teachers in identifying learning disabilities, is the study titled "Teachers' Intuition and Knowledge in Recognizing Specific Learning Disabilities," conducted by Svetlana Obradovic and Nadežda Krstić. This study examined the success of teachers in identifying discrepancies between abilities and achievements as a sign of specific developmental learning disabilities. The results showed that more than 60% of children classified as GPH (children with harmonious abilities and achievements) displayed a discrepancy between achievements in mastering target school skills and general intelligence.

The study registered a correlation between the disharmony within a child's school achievement and the accurate assessment of discrepancy by teachers, which consequently confirms our hypothesis that teachers and educators are adequately trained to work with children with specific learning disabilities and to diagnose them early.

Conclusion

Specific learning disabilities present significant challenges for every child, both in daily life and in interactions with their social environment as they grow up. Starting school represents a more complex relationship in educational work and the way it is systematically applied to children, as they begin to develop skills they hadn't used before. Therefore, it is extremely important to observe and address any problems or difficulties early on, even among children with typical psycho-physical development, although it is a fact that learning disabilities are usually noticed only when a child starts primary school. This master's thesis aimed to draw relevant conclusions based on theoretical and methodological research on the topic of specific learning disabilities in children in lower primary school grades. It succeeded in highlighting the most optimal methods and approaches to working with children who have learning disabilities.

Before employing these methods and approaches, the most important step is early diagnosis and detection of specific difficulties, so that work with the child can begin immediately. This allows speech therapy, the pedagogical approach, and the way parents live and work with their child who has difficulties to be facilitated and systematized to the greatest extent possible.

The program of inclusive education and its application to children with specific learning, developmental, and behavioral disabilities is necessary and highly effective, especially when it comes to the success of speech therapy treatments in helping the child master school skills and curriculum. This ensures that the child's further education and quality of life are normalized and enhanced, allowing the child to lead a normal life and be accepted into socialization by other children in the group and the immediate environment. The role of parents and their cooperation with the classroom teacher,

speech therapist, and other school staff is crucial in ensuring that the applied treatment has the best effect on the child and their success in overcoming learning difficulties.

Every problem, whether big or small, can be resolved to a greater or lesser extent if parental support is consistently present and if collaboration between professionals and parents is not lacking. Once a learning disability is detected in a child, it is essential to begin diagnostics and treatment as soon as possible, with individualized work both at school and at home. Due to their difficulties and challenges, the child should feel secure in every environment and be able to overcome learning problems as easily as possible. Believe in every child, just as they believe in us but not everyone must follow this path. Many have managed to overcome early developmental difficulties. Goldberg (according to Vladislavljevic) points out that famous figures like Churchill, Edison, and Einstein had dyslexic challenges.

"Every child moves toward reality along the path that is primarily biologically given to them." (S. Bojanin, 1979)

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Survey on Professional Development and Maintenance of Vocational Rehabilitation Practitioners in Japan

Original scientific paper

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Abstract

Vocational rehabilitation practitioners must recognize its significance and assume accountability. This study explored the perceptions of vocational rehabilitation practitioners in Japan regarding their professional development and obtained basic data for improving the vocational rehabilitation system in Japan. An online survey was conducted among practitioners at 336 Employment and Livelihood Support Centers for persons with disabilities, inquiring about their engagement with research, current educational pursuits, and training needs. In total, 155 practitioners responded to the survey. The results suggest that practitioners progressively refine their expertise as they accumulate experience. The study underscores the necessity of integrating research and practice, recommending the adoption of a knowledge translation framework to facilitate this process. In addition, effective use of online training is considered useful for establishing a training system. This data serves as a foundation for building training systems currently under consideration and provides insight into informal peer-to-peer training and involvement in professional associations.

Keywords: *Expertise, Knowledge Translation, Livelihood Support, Self-Improvement, Vocational Rehabilitation*

Achieving employment holds significance for those with disabilities, who often encounter barriers to social participation (Trombly, 1995). Employment support for individuals with disabilities not only improves their real-life situations, but also contributes to their positive growth, identity formation, and career development (Uno & Maebara, 2022). Supporting individuals with disabilities with job

challenges and enabling them to experience success can enhance their self-efficacy and self-concept (Strong, 1998). Additionally, working has profound significance in the context of maintaining lives and forming identities (Dunn et al., 2008). Employment support providers can significantly affect the lives of individuals with disabilities. Thus, employment support providers must recognize its significance and assume accountability.

Practitioners of vocational rehabilitation are expected to endeavor to fulfill this accountability. In the United States, vocational rehabilitation practitioners are encouraged to become certified rehabilitation counselors through training at higher education institutions (Chan et al., 2004; Rubin & Roessler, 2016). Additionally, Certified Rehabilitation Counselors must renew their certification every five years, engage in self-development by attending lectures, conferences, workshops, writing research papers, books, and so on (Commission on Rehabilitation Counselor Certification [CRCC], 2024). Further investigations are ongoing in the United States to enhance the quality of vocational rehabilitation. These include studies on the possession of master's degrees by support providers and the quality of support (Yu et al., 2023) as well as needs assessments for the Vocational Rehabilitation Technical Assistance Center for Quality Employment (VRTAC-QE), which supports quality improvements in vocational rehabilitation services (Tansey et al., 2023).

In Japan, vocational rehabilitation promotion has been pursued by practitioners who provide specialized support. "The Act on the Promotion of Employment of Persons with Disabilities" in Japan stipulates the promotion of vocational rehabilitation. Direct practice agencies for persons with disabilities defined by this law include local vocational centers for Persons with Disabilities and employment and livelihood support centers for persons with disabilities (ELSCs). The Regional Vocational Centers for Persons with Disabilities, operated by the Japan Organization for Employment of the Elderly, Persons with Disabilities, and Job Seekers (JEED), a national organization, employs vocational counselors for persons with disabilities. A system was established to provide specialized training to those employed as vocational counselors for persons with disabilities after studying related fields at universities. ELSCs, commissioned by the national government to regional welfare agencies, support both employment and living, providing support for independence in vocational life in collaboration with organizations such as Local Vocational Centers for Persons with Disabilities (Maebara, 2021).

However, these two specialized professions in vocational rehabilitation in Japan do not have qualifications that guarantee their expertise. Although there are national qualifications related to employment support for persons with disabilities such as social workers, mental health social workers, and occupational therapists, there is no national qualification for vocational rehabilitation specialists. Consequently, few researchers specialize in vocational rehabilitation at higher education institutions in Japan, and no courses exist for training vocational rehabilitation specialists. In Japan, efforts are required to develop human resources at universities and other higher education institutions to improve the expertise of vocational rehabilitation practitioners (Maebara et al., 2021; Maebara & Nawaoka, 2021; Ogawa, 2019) and develop appropriate training systems (Matsui, 2013).

Recently, efforts have been made in Japan to develop a training system that maintains and improves the expertise of practitioners. The national government held the "Committee on Strengthening Cooperation between Employment and Welfare Policies for Persons with Disabilities" to discuss the development and securing of human resources supporting employment for persons with disabilities (Ministry of Health, Labour and Welfare, 2022). Ultimately, they decided to provide *basic training* to equip practitioners with cross-sectional knowledge and skills in the fields of employment and welfare (Ministry of Health, Labour and Welfare, 2021). This discussion improved the training system for support providers at ELSCs, which was left to the discretion of individual facilities regarding expertise acquisition (Ministry of Health, Labour and Welfare, 2024).

However, research on the expertise and human resource development of vocational rehabilitation practitioners in Japan is scarce. It focuses on clarifying the specialized knowledge and skills required by practitioners. Studies have examined the competencies required by vocational rehabilitation practitioners, such as vocational evaluation, vocational counseling, job coaching skills, and transition support skills (Kitakami & Yaeda, 2014; Yaeda, 2003). Yamaguchi and Yaeda (2017) indicated knowledge and skills related to

relationship formation and management, knowledge and skills regarding laws and policies related to employment support, and the necessary knowledge and vocational rehabilitation practices. Although discussions on expert competencies in vocational rehabilitation practitioners have been conducted in these studies, the debate remains inconclusive. Issues related to the development of human resources for vocational-rehabilitation practitioners in Japan have also been reported. The National Institute of Vocational Rehabilitation (NIVR), a national research institute for vocational rehabilitation, reported that organizations engaged in human resource development have effective support skills, but such human resource development efforts are few (National Institute of Vocational Rehabilitation [NIVR], 2022). Ohkawa et al. (2023) indicated that issues related to employee treatment and management influence the implementation of human resource development, emphasizing the need for policy support to address these issues. Previous studies have revealed that Japanese vocational-rehabilitation practitioners do not possess sufficient knowledge or skills (Maebara et al., 2022; Maebara & Yaeda, 2024; Yaeda et al., 2013). These problems exist in vocational rehabilitation in Japan. The lack of a formal educational system in Japan for the professional development of vocational rehabilitation practitioners necessitates individual efforts for training. It is vital for Japan's future to strive towards improvement. Therefore, understanding the perceptions of Japanese vocational rehabilitation practitioners regarding their own expertise and surrounding conditions is crucial as a baseline for future improvements.

Japanese vocational-rehabilitation practitioners are expected to fulfill their professional responsibilities. Therefore, this study aims to clarify the perceptions and surrounding conditions of expertise among ELSC practitioners in Japan.

Methods

Participants

This study targeted the ELSCs, one of Japan's representative vocational rehabilitation institutions. As of April 1, 2022, Japan had 336 ELSCs. Practitioners affiliated with these facilities were included

as research subjects.

Survey Period and Procedures

Between September 15 and October 31, 2022, a request letter containing a URL link to the online survey form was mailed to ELSCs across Japan. Responses were obtained from 155 practitioners out of 336 surveyed ELSCs, yielding a response rate of 46.1%.

Survey Items

This study explored "Perceptions of research and training," "Situations related to research and training," and "Needs for training methods". The author developed the survey items to establish a baseline for vocational-rehabilitation practitioners in Japan. To enhance the item's validity, we referred to previous studies on vocational rehabilitation practices in Japan. Furthermore, the author, experienced in vocational rehabilitation practice and research, crafted these items after soliciting insights from field practitioners.

Basic Attribution:

Respondents were asked to select their sex from the following options: male, female, or other. In addition, they were asked to specify their age as of March 31, 2022. Respondents were required to indicate their highest educational attainment by selecting the following: junior high school, high school, vocational school, junior college, university, master's program, or doctoral program. Finally, they were asked to record their years of employment support as of March 31, 2022.

Perceptions of Research and Training:

Respondents were asked to provide their perceptions of "difficulty" (1 = difficult, 2 = somewhat difficult, 3 = neither, 4 = somewhat easy, 5 = easy), "usefulness" (1 = not useful, 2 = somewhat not useful, 3 = neither, 4 = somewhat useful, 5 = useful), and "enjoyment" (1 = painful, 2 = somewhat painful, 3 = neither, 4 = somewhat enjoyable, 5 = enjoyable) of research / training. The grading scale was employed to enable vocational rehabilitation practitioners to express their perceptions of their practices realistically.

Situations Related to Research and Training:

Respondents were asked to rate their agreement with the following statements on a 5-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neither, 4 = agree, 5 = strongly agree).

- For research:
 - "There is someone who can provide guidance and advice on research."
 - "I have basic knowledge to conduct research."
 - "I am interested in research activities."
 - "I feel the need for research activities."
- For training:
 - "It is easy to obtain the necessary literature and materials for self-study."
 - "I can secure time for self-study."
 - "I incorporate self-study into support."
 - "There are opportunities for exchanging opinions on support."
 - "I feel the need for training."

Needs for training methods:

Respondents were asked to rate their need for the following training methods on a 5-point Likert scale (1 = not preferred at all, 2 = not preferred, 3 = neither, 4 = somewhat preferred, 5 = strongly preferred).

Online training: Learning through live lectures using software programs such as Zoom.

- On-demand training: Learning by viewing text and image content distributed in Internet browsers.

In-person training: traditional face-to-face learning by attending training venues.

Text Distribution: Learning by Reading Distributed Texts.

Data Analysis

IBM SPSS Statistics 29 was used for the statistical analysis of this study.

Basic Information

A simple tabulation was then performed. For educational attainment, Junior High School was coded as nine years, High School as 12 years, Vocational School as 14 years, Junior College as 14 years, university as 16 years, Graduate School (master's program) as 18 years, and Graduate School (Doctoral Program) as 21 years. This was based on the shortest completion period for the numerical conversion of education levels.

Perceptions of Research and Training

A paired *t*-test was conducted to compare the mean perceptions of highest educational attainment (below university, university, and above). A one-way analysis of variance (ANOVA) was conducted to compare the mean perceptions

by years of experience (1–4, 5–9, 10–19, and 20+ years). Pearson's correlation analysis was performed to examine the relationships between perceptions, educational attainment, and years of experience.

Situations Related to Research and Training

The average scores for the research-related items (four items) were calculated to derive a "research score." The average scores for the professional development-related items (5 items) were calculated to derive a "training score." Cronbach's alpha coefficients were calculated to evaluate the internal consistency of the scores. Pearson's correlation analysis was performed to examine the relationships between educational attainment, years of experience, and perceptions of R&PD.

Needs for Training Methods

A one-way ANOVA was conducted to compare the mean preferences for the different training methods. Pearson's correlation analysis was performed to examine the relationships between Research and Professional Development scores, perceptions of research, and professional development. In this study, Pearson correlation coefficients of 0.2 or higher with significant differences were considered for discussion.

Ethical Considerations

The survey form included a statement that the survey results would be processed in such a manner that personal and facility names would not be identifiable, and that the results would be presented for research purposes in reports and conferences. Consent to participate in the study was obtained. Approval was obtained from the Ethics Committee for Research Involving Human Subjects at the Tegata Campus of Akita University (approval number 4–11 dated June 20, 2022).

Results

Basic attribution

Responses were obtained from 155 practitioners. Given that 336 ELSCs were surveyed, the response rate was 46.1%. Practitioners' basic information is presented in Table 1.

Table 1.
Basic Attribution

Sex	Total	155 persons	
	Male	67 persons	
	Female	88 persons	
	Others	0 persons	
Age	M (SD)	45.0 years	(9.68)
	20~29 years	11 persons	7.1%
	30~39 years	34 persons	21.9%
	40~49 years	58 persons	37.4%
	50~59 years	36 persons	23.2%
	60~69 years	15 persons	9.7%
	No answer	1 person	0.6%
	Educational background	Junior high school	0 persons
High school		16 persons	10.3%
Vocational school		21 persons	13.5%
Junior college		20 persons	12.9%
University		90 persons	58.1%
Master's program		8 persons	5.2%
Doctoral program		0 persons	0%
Years in practice	M (SD)	13.8 years	(9.86)
	1~4 years	26 persons	16.8%
	5~9 years	37 persons	23.9%
	10~19 years	49 persons	31.6%
	Over 20 years	42 persons	27.1%
	No answer	1 person	0.6%

M: Mean, SD: Standard Deviation

Perceptions of Research and Training

Practitioners' perceptions of research and training are presented in Table 2. Next, a test was conducted to examine the difference in the average perceptions of research and training between those with less than

a university education and those with a university education or higher. The results showed no significant differences in terms of "difficulty," "usefulness," and "interest" between the two groups.

Table 2.
Perceptions of Research and Training

Difficulty	M	SD
Research	3.72	0.86
Training	2.70	0.85
Usefulness	M	SD
Research	4.03	0.81
Training	4.26	0.74
Enjoyment	M	SD
Research	3.46	0.78
Training	3.56	0.65

M: Mean, SD: Standard Deviation

Table 3 presents the differences in perceptions of research and training among practitioners with varying years of employment support practice. A significant difference was observed only in the

perception of "difficulty." Practitioners with 1–4 years of experience perceived research as significantly "easy" and training as significantly "difficult".

Table 3.
Differences in the Perceptions Among Years in Practice

Difficulty	Years in practice	M	SD	F		
Research	1~4 years	4.31	0.79	7.64	1~4>5~9**	
	5~9 years	3.41	0.80			1~4>20 over**
	10~19 years	3.84	0.75			
	Over 20 years	3.52	0.89			
Training	1~4 years	2.19	1.02	4.09	1~4<5~9**	
	5~9 years	2.89	0.77			1~4<10~19*
	10~19 years	2.76	0.83			1~4<20 over*
	Over 20 years	2.76	0.73			
Usefulness	Years in practice	M	SD	F		
Research	1~4 years	3.88	0.77	0.51	n.s.	
	5~9 years	4.00	0.85			
	10~19 years	4.12	0.78			
	Over 20 years	4.05	0.85			
Training	1~4 years	4.15	0.67	0.46	n.s.	
	5~9 years	4.22	0.71			
	10~19 years	4.35	0.78			
	Over 20 years	4.29	0.74			
Enjoyment	Years in practice	M	SD	F		
Research	1~4 years	3.19	0.90	0.51	n.s.	
	5~9 years	3.54	0.77			
	10~19 years	3.57	0.71			
	Over 20 years	3.45	0.77			
Training	1~4 years	3.27	1.00	2.44	n.s.	
	5~9 years	3.57	0.55			
	10~19 years	3.67	0.52			
	Over 20 years	3.62	0.54			

* $p < .05$, ** $p < .01$, n.s.: non-significance
M: Mean, SD: Standard Deviation

Situations Related to Research and Training

Table 4 presents situations related to research and training for practitioners. All items constituting the research score had an average score of 3.00 or higher.

Conversely, in the training score, "securing time for training" had the lowest average score at 2.92, while "the necessity of training" had the highest average score at 4.25.

Table 4.
Situations Related to Research and Training

Items	M	SD
Research score ($\alpha=0.71$)	3.25	0.74
There is someone who can provide guidance and advice on research.	3.25	1.22
I have basic knowledge to conduct research.	3.01	0.97
I am interested in research activities.	3.10	0.98
I feel the need for research activities.	3.66	0.85
Training score ($\alpha=0.61$)	3.63	0.58
It is easy to obtain the necessary literature and materials for self-study.	3.63	1.05
I can secure time for self-study.	2.92	1.06
I incorporate self-study into support.	3.46	0.95
There are opportunities for exchanging opinions on support.	3.88	0.85
I feel the need for training.	4.25	0.71

The Pearson correlation analysis among practitioners' education, experience, and scores

Table 5 presents the results of the Pearson correlation analysis between

practitioners' education, years of experience, and their "research score" and "training score." A positive correlation was confirmed between years of experience and the "training score" ($p<.01$).

Table 5.
Correlation Analysis of Situations Related to Research and Training

	Research score	Training score
Years in education	-0.04	-0.10
Years in practice	0.06	.234**

* $p<.05$, ** $p<.01$

Next, Table 6 presents the results of the Pearson correlation analysis between practitioners' perceptions and their "research score" and "training score." For the research score, a negative correlation with the perceived difficulty of research and a positive

correlation with perceived usefulness and enjoyment were confirmed. Additionally, the training score showed positive correlations with the perceived usefulness and enjoyment of both the research and training.

Table 6.
Correlation Analysis of Practitioners' Perceptions

	Research			Training		
	Difficulty	Usefulness	Enjoyment	Difficulty	Usefulness	Enjoyment
Research score	-.251**	.287**	.370**	-0.08	.176*	0.14
Training score	-0.12	.207*	.262**	0.00	.256**	.209**

* $p<.05$, ** $p<.01$

Needs for Training Methods

One-way ANOVA was conducted to compare the mean need for training among all practitioners (Table 7). The results showed a significant main effect of the

training method, $F(3, 450) = 13.60, p < .01$. Multiple comparisons using the Bonferroni method revealed that the preference for text distribution was significantly lower than that for the other methods.

Table 7.
ANOVA of Needs for Training Methods

Methods	M	SD	F	
Online	3.94	0.81	13.60**	Online =
On-demand	3.91	0.90		On-demand =
In-person	3.90	0.81		In-person > **
Text	3.43	1.10		Text

* $p < .05$, ** $p < .01$
M: Mean, SD: Standard Deviation

Pearson’s correlation analysis was conducted between the practitioners’ educational backgrounds and years of experience with their needs for each training method, but no significant correlations were identified. The results of the Pearson correlation analysis of the research score, training score, and need for each training method are presented in Table 8.

A positive correlation was identified between research scores and preferences for online ($p < .01$), on-demand ($p < .01$), and in-person ($p < .05$) training methods. Additionally, a positive correlation was observed between the training score and the preference for the in-person training method ($p < .01$) training method.

Table 8.
Correlation Analysis of Needs for Training Method

	Online	On-demand	In-person	Text
Research score	.288**	.260**	.202*	0.11
Training score	0.08	0.15	.212**	0.10

* $p < .05$, ** $p < .01$

The results of the Pearson correlation analysis between the need for each training method and perceptions of research and training are presented in Table 9. A positive correlation was identified between the perceived usefulness of the research

and preference for online ($p < .01$) and on-demand ($p < .01$) training methods. Additionally, a positive correlation was observed between the perceived usefulness of training and the preference for in-person training ($p < .05$).

Table 9.
Correlation Analysis of Perceptions of Research and Training

	Research			Training		
	Difficulty	Usefulness	Enjoyment	Difficulty	Usefulness	Enjoyment
Online	-0.02	.220**	.200*	-0.11	0.06	0.00
On-demand	0.03	.253**	.198*	-0.13	0.13	0.07
In-person	0.10	0.13	0.10	-0.10	.201*	0.14
Text	0.06	0.08	-0.02	-0.02	0.04	0.08

* $p < .05$, ** $p < .01$

Discussion

Practitioners in Japan's vocational rehabilitation field must continuously enhance their expertise to fulfill their accountability toward their clients. Because Japanese universities do not offer specialized training in vocational rehabilitation, it is necessary to begin discussions on developing future training programs while launching efforts to enhance the expertise of current practitioners. Although the government is working to build a training system, initiatives, such as establishing a supervision system for supporters (Ishihara, 2021; Ishihara & Yaeda, 2019a, 2019b) and promoting interagency collaboration for mutual training in the community (Maebara, 2023a, 2023b) are also considered effective. The results provide foundational data to support such discussions and considerations for enhancing expertise.

Perspectives on Enhancing Expertise

The results revealed that practitioners in Japan's vocational rehabilitation field improved their expertise through case experiences in their practice settings. The practitioners' perceptions of research and training evolved with their employment support experiences. Young practitioners with less experience tended to perceive research as more difficult when they gained experience, whereas their perception of the difficulty of training decreased over time. Furthermore, practitioners recognize the value of research and training, suggesting that gaining experience might lead to increased recognition of the necessity of training. Situations related to research and training were related to practitioners' perceptions of usefulness and interest.

Based on the results of this study, it can be inferred that engaging in support work helps practitioners develop self-awareness of their skills and knowledge. Through their experience, practitioners are expected to acquire perspectives on how to apply their skills and knowledge in practice settings. A notable point related to the growth of practitioners is the increasing recognition of the necessity for training and the potential for research and environmental support to trigger expertise enhancement. While Japan could consider offering more specialized vocational rehabilitation education in universities, there are significant challenges in building

such systems. Therefore, it is necessary to consider ways to enhance the expertise of practitioners.

Knowledge Translation is effective. Recently, KT has been highlighted as a means to overcome barriers such as time constraints and limited access to skills and research, and to enable evidence-based approaches for practitioners (Lui et al., 2014). KT is a method for bridging the gap between research and practice and disseminating and integrating research findings into practice settings. Although reports on KT in Japan are scarce, it has been indicated to have a positive potential for changing practices (Goda & Iwai, 2022, 2023; Maebara & Yaeda, 2020; Takamura, 2013). In particular, new evidence is required to develop new knowledge, ideas, and practices into services, and continuous dialogue and evaluation between researchers and practitioners are necessary (Farkas & Anthony, 2007). Incorporating KT methods into vocational rehabilitation could facilitate collaboration between researchers and practitioners and improve support program outcomes (Leahy et al., 2014). Despite recognizing the significance of research and being proactive in attempting new research-based support approaches, there are challenges in translating knowledge into practical applications (Graham et al., 2013). Given these findings, the integration of research and practice is necessary based on practitioners' needs and circumstances, making it crucial to consider how to introduce KT into Japan's vocational rehabilitation practice.

Strategies to Promote Training

Next, it clarifies strategies for promoting training within the construction of a system that supports expertise enhancement. Practitioners perceive the need for training beyond mere text distribution, recognizing that autonomous learning based on text alone does not produce desirable learning outcomes. The situations related to research and training, as well as the influence of these situations on preferences for training methods other than text, may prompt actions towards training for expertise enhancement. Additionally, the perception of the usefulness of research and training can prompt actions toward training.

An unexpected finding regarding training needs was the strong demand for

training not only in person, but also online or on-demand. Conversely, the low demand for self-study based on text alone was also confirmed. These results suggest the usefulness of online methods for providing effective training opportunities. Studies outside the vocational rehabilitation field in Japan have reported higher participant evaluations of interactive, participatory online formats (Takahashi et al., 2021). Practice reports suggest the necessity of planning training that leverages the advantages of both in-person and online training (Onishi, 2021). Moreover, no differences have been identified in terms of perceived educational effectiveness between in-person and online training (Eda, 2021; Ushida et al., 2020). Online training offers advantages, such as freeing practitioners from time constraints due to busy work schedules, addressing distance issues for training participation, and meeting diverse educational needs (Nagae, 2021; Zheng, 2020). Therefore, it is important to effectively utilize online methods to create training opportunities for vocational rehabilitation practitioners.

Currently, Japan is in the process of building a training system for vocational rehabilitation practitioners and the potential inclusion of online training content is considered. The results of this study highlight the need for practitioners. It is important to consider the forms of training systems that can enhance expertise by incorporating their needs and perspectives.

Limitations and Research Implications

This study aimed to elucidate the perceptions of vocational-rehabilitation practitioners in Japan regarding their expertise. While this study provides meaningful insights into the support perspectives of Japanese vocational rehabilitation practitioners, one significant limitation is the insufficient perspective on improving the research and training situations sought by practitioners. This study did not conduct a cross-analysis of the content of training and teaching strategies, presumably due to anticipated differences in preferred teaching strategies depending on the content. Therefore, this study only identifies broad trends. Future research should conduct a qualitative analysis to elucidate these

details. Moving forward, it is necessary to investigate environmental compensation that would enhance motivation and action toward improving expertise. Future studies should include surveys and qualitative research to better understand these factors.

Conclusion

This study aimed to clarify the perceptions of vocational-rehabilitation practitioners in Japan regarding their expertise. This study empirically presents the current situation of employment support practitioners at disability employment and life support centers in Japan. The discussions revealed that integrating practice and research from the KT perspective and effectively utilizing online training environments tailored to practitioners' needs are crucial for enhancing expertise. The data obtained in this study can be utilized as foundational data for building training systems that are currently under consideration. Additionally, it can provide insight into informal mutual training among practitioners and their activities within professional associations.

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Conflicts of Interest

The author declare no conflicts of interest.

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Exploring the School Experiences of Students Using Augmentative and Alternative Communication (AAC): A Qualitative Study from Parental Perspectives

Original scientific paper

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Abstract

The aim of this study was to explore the experiences of children using augmentative and alternative communication (AAC) in inclusive primary schools from their parents' perspectives. Semi-structured interviews with 18 Saudi Arabian parents provided insights into the academic, social, and emotional challenges their children face, along with the support they receive from teachers. The analysis highlighted both the benefits of AAC and key challenges, such as limitations of low-tech devices, the lack of culturally suitable options, and gaps in teacher training. These challenges affected students' learning, social connections, and emotional well-being. The findings emphasize the need for culturally adapted AAC systems and more consistent teacher training to support AAC use effectively within inclusive settings. By focusing on parents' perspectives, this research offers a foundation for enhancing AAC integration to better support students' development.

Keywords: *Augmentative and Alternative Communication, Inclusive Education, Primary Schools, Parental Perspectives*

Students with communication disorders face significant challenges navigating both academic and social environments within schools. For those who need to use augmentative and alternative communication (AAC) systems, these difficulties are even more pronounced, as

traditional communication methods may not be sufficient to meet their needs (O'Neill & Wilkinson, 2020). Aided AAC systems, ranging from low-tech to high-tech options, are essential in rehabilitation, offering alternative ways for individuals with limited speech to communicate and engage socially

(Alzrayer, 2020; Iacono et al., 2022). While parents often report notable improvements in their children's communication when using these systems, challenges such as lack of motivation and insufficient support from schools still persist (Joginder Singh et al., 2023). These problems highlight that, despite its benefits, the effective use of AAC in schools can be negatively influenced by a variety of factors, such as the school environment, availability of support, and individual student needs (Leatherman & Wegner, 2022).

Research has demonstrated both the benefits and limitations of AAC systems in educational settings. High-tech AAC devices allow for quicker communication and greater expressive possibilities, helping students contribute to class discussions more effectively (Holyfield et al., 2019). In contrast, low-tech systems are more accessible and easier to implement but may limit students' ability to convey more complex ideas in fast-paced environments (Moorcroft et al., 2019). A study by Holyfield and Lorah (2023) emphasized the limitations of low-tech AAC devices compared to high-tech options, including lower engagement from children and a reduced ability to support complex communication needs. These differences reflect both the successes and challenges AAC users encounter at school, where the technology's impact is shaped by its design and implementation.

AAC systems play an essential role in students' social experiences, facilitating peer interactions and helping build friendships, which supports participation in social activities (Iacono et al., 2022). However, traditional AAC technologies often limit children's access to a wide range of vocabulary, primarily because of difficulties in programming relevant words. According to Light et al. (2019), these vocabulary limitations restrict language development and the ability to engage in social interactions effectively. The slow process of updating vocabulary in AAC systems also impedes real-time participation in fast-paced conversations, further highlighting the shortcomings of current AAC technologies (Light et al., 2019).

Despite the challenges, parents frequently express satisfaction when they observe their children using AAC devices successfully. According to Joginder Singh et

al. (2023), AAC systems help parents better understand their children, enhancing their mutual communication. However, many parents also report that the use of AAC in school settings is limited, particularly when there is insufficient support from teachers or a lack of necessary time, knowledge, and skills to implement these systems effectively (Joginder Singh et al., 2023). This indicates that more comprehensive training and support in school environments are needed to maximize the benefits of AAC for students.

In addition to enhancing their academic and social experiences, the use of AAC systems has a significant impact on students' emotional well-being. A study found that AAC interventions, such as video visual scene displays, contributed to increased self-esteem and a sense of accomplishment as students were able to engage in meaningful volunteer activities (Babb et al., 2020). However, frustration is also a significant theme of AAC use, as individuals often experience difficulty expressing themselves quickly, conveying their personality through synthetic voices, and managing privacy in their communications (Broomfield et al., 2024). The mixed responses, both positive and negative, underscore the complex influence of AAC on students' emotional experiences in school.

There remains a significant gap in our understanding of parents' perspectives on AAC use, particularly in non-Western contexts. This study aims to fill this crucial gap in the literature as the first to gather perspectives from parents in Saudi Arabia on their children's experiences with AAC in school settings. The aim of this qualitative research is to provide a detailed understanding of how AAC systems impact students' academic success, social interactions, and emotional well-being. By exploring these challenges and successes, this study contributes valuable insights into how AAC systems can best support students' overall development and hopes to guide future efforts to support AAC implementation in diverse educational settings.

Research questions:

1. What experiences do parents have regarding their children's use of AAC in inclusive primary education?
2. What improvements do parents suggest for enhancing AAC use in inclusive primary education?

Method

Research Design

This study is grounded in interpretative phenomenological analysis (IPA), a qualitative research approach that explores how individuals make sense of significant experiences in their lives (Larkin et al., 2021). IPA was selected for its ability to capture parents' interpretations of their children's experiences with AAC in school settings, offering a nuanced understanding of them. Qualitative research is particularly valuable for exploring such complex, subjective experiences, as it provides depth and insight that quantitative methods may not represent (Merriam & Tisdell, 2015). The qualitative analysis used in this study allowed for an in-depth exploration of participants' lived experiences, revealing the essence of parents' perspectives and the meanings they attribute to their children's school experiences (Creswell & Poth, 2023; van Manen, 2023).

Participants and Sampling

Purposive sampling was employed to recruit parents of students who use AAC in school settings for individual interviews. Compared to convenience sampling, purposive sampling is more suitable for identifying individuals who can provide in-depth insights into the research questions (Etikan et al., 2016). This method was therefore chosen to ensure that participants were well-positioned to contribute meaningfully to the research objectives and had direct and relevant experiences with AAC, allowing for the collection of rich, detailed data (Nyimbili & Nyimbili, 2024; Patton, 2015).

Inclusion criteria

The inclusion criteria were as follows:

- parents of children in primary school (first to sixth grade) who use AAC as their primary mode of communication in inclusive education settings;
- children who had been using AAC for at least one academic semester;
- parents who had regular communication with their child's school regarding their child's educational experiences.

Recruitment Methods

Participants were recruited using social media and flyers distributed in inclusive schools. Social media was used as it is effective for reaching a wide range of targeted participants who meet the inclusion criteria (Zindel, 2023). Flyers were chosen because they allowed parents to see the information multiple times, which often prompted them to make inquiries about the study. Both social media posts and flyers provided details about the study's purpose, eligibility criteria, and a link to the Google Form. Recruitment took place over two months, with initial efforts focusing on social media and flyers, followed by expanded efforts in the second month. Weekly monitoring allowed for adjustments, such as posting during peak times. Participants accessed a Google Form to learn about the study, including its purpose, confidentiality policy, and ethics approval, and provided their contact preferences for follow-up. Follow-up began within a week of submission, with a second attempt after five days if needed to ensure efficient scheduling. A total of 18 parents participated in the study through one-on-one interviews. This sample size aligns with recommendations for qualitative research, which suggest that individual interviews lead to more in-depth discussions, especially when addressing complex topics (Ryan et al., 2009). The final sample consisted of 12 fathers and six mothers, ranging in age from 28 to 48 years ($M = 37.06$, $SD = 5.83$). The children attended inclusive education schools and were in Grades 1 to 6 ($M = 3.33$, $SD = 1.57$). In terms of educational background, five participants had a high school diploma, 11 held a bachelor's degree, and two held a master's degree. Regarding the type of AAC used by their children, 15 used low-tech and three used high-tech AAC devices. Eight of the parents' children were diagnosed with autism spectrum disorder (ASD), five with intellectual disabilities, four with apraxia of speech (AOS), and one with dysarthria. To protect participant confidentiality, demographic information is presented in aggregate form (Table 1).

Table 1.*Characteristics of Participants*

Participant ID	Gender	Age	Highest degree received	Type of AAC used by child	Type of disability	Child's school grade
P01	Male	33	Bachelor's degree	Low-tech	Autism spectrum disorder (ASD)	2nd
P02	Male	45	High school	High-tech	Intellectual disability (ID)	2nd
P03	Female	32	Bachelor's degree	Low-tech	Apraxia of speech (AOS)	4th
P04	Male	34	Bachelor's degree	Low-tech	ASD	3rd
P05	Female	32	High school	Low-tech	ASD	5th
P06	Female	34	Bachelor's degree	High-tech	ID	1st
P07	Male	31	Master's degree	Low-tech	ID	4th
P08	Male	48	Bachelor's degree	Low-tech	ASD	2nd
P09	Male	36	Bachelor's degree	Low-tech	ASD	4th
P10	Female	39	Bachelor's degree	Low-tech	AOS	4th
P11	Male	47	Bachelor's degree	High-tech	ASD	5th
P12	Male	35	Master's degree	Low-tech	ID	2nd
P13	Male	44	High school	Low-tech	ASD	3rd
P14	Male	33	High school	Low-tech	AOS	2nd
P15	Male	37	Bachelor's degree	Low-tech	Dysarthria	4th
P16	Male	41	High school	Low-tech	ID	6th
P17	Female	38	Bachelor's degree	Low-tech	ASD	6th
P18	Female	28	Bachelor's degree	Low-tech	AOS	1st

Note. ASD = autism spectrum disorder; ID = intellectual disability; AOS = apraxia of speech.

Data Collection

Data were collected over Zoom and by phone using 18 one-on-one semi-structured interviews with parents of children using AAC in Saudi schools. Eight interviews were conducted via Zoom, and nine were conducted over the phone. This mixed approach ensured flexibility in accommodating participants' preferences, allowing for the thorough capture of each parent's unique insights (Saarijärvi & Bratt, 2021). Interviews lasted between 55 and 81 minutes, providing sufficient

time for participants to elaborate on their experiences while maintaining their engagement. Semi-structured interviews involve a flexible interview style whereby a set of predetermined questions guide the conversation, but the interviewer can explore topics as they arise, allowing for deeper insights into the participants' perspectives (Kallio et al., 2016; McGrath et al., 2019). According to Hennink and Kaiser (2022), data saturation is typically reached with between nine and 17 interviews. With 18 participants, the current study reached

saturation, ensuring that key themes were thoroughly captured.

Prior to data collection, pilot tests were conducted with two parents to evaluate the clarity and relevance of the interview questions. Feedback from these pilot tests confirmed that the questions were appropriate, and minor adjustments were made to improve clarity (Creswell & Creswell, 2022). Before commencing the interviews, all participants received and signed a detailed consent form outlining the study's purpose, their rights, and confidentiality measures. Participants were informed of their right to review interview transcripts to verify accuracy and were assured they could withdraw from the study at any time. These measures ensured that ethical standards were rigorously upheld throughout the research process (Pietilä et al., 2020).

Data Analysis, Translation, and Trustworthiness

Data were analyzed using IPA as described by Smith et al. (2021), which provided an in-depth exploration of participants' experiences. Given the bilingual nature of the study, a careful translation process was incorporated to preserve cultural and linguistic nuances (Qoyyimah, 2024). Individual interviews were transcribed verbatim in Arabic by a native Arabic-speaking research assistant with expertise in qualitative research, ensuring accuracy and confidentiality. The primary researcher then reviewed each transcript thoroughly to develop a deep understanding of the content (Alase, 2017).

Initial coding focused on identifying key phrases, linguistic features, and conceptual elements while preserving cultural nuances (Nurjannah et al., 2014). Throughout the coding process, memo-writing was used to document emerging thoughts and reflections, grounding interpretations in the data (Goitom, 2020). As the analysis progressed, themes were identified that captured the participants' shared experiences. To reduce bias, an independent researcher reviewed these themes.

This comprehensive process ensured that the final themes accurately captured participants' experiences, with each step thoroughly documented to maintain transparency and accountability (Ozolins et al., 2020). To ensure trustworthy findings, multiple validation methods were employed. Intercoder agreement involved two additional coders recruited independently, targeting a reliability rate between 85% and 90%. Discrepancies were discussed and resolved through joint coding sessions until a consensus was reached, achieving a final agreement of 92%. This high level of agreement demonstrated consistency among the coders and reduced individual bias, thereby enhancing the rigor of the analysis (Cheung & Tai, 2023). Member checking allowed participants to verify that their voices were accurately represented. They reviewed their interview transcripts and the initial interpretations in Arabic and were given two weeks to provide feedback. All of their suggestions were carefully considered and incorporated into the analysis, adding credibility to the findings (Creswell & Creswell, 2022). Additionally, peer debriefing was used as a complementary validation strategy. Two colleagues with expertise in qualitative research, who were not involved in the data collection, reviewed the emerging themes and interpretations. Their role was to challenge assumptions and provide an external perspective, helping to refine the themes and ensuring that the interpretations were well-supported by the data (Janesick, 2015).

Results

The analysis of the participants' responses revealed several key themes and sub-themes that reflect their experiences with AAC systems, providing insight into specific encounters with system features and their impacts on education, social development, and emotional well-being, as well as parental recommendations. Table 2 summarizes the major themes and sub-themes, along with the number of participants who mentioned each sub-theme (Table 2).

Table 2.*Major Themes and Sub-Themes of the Participants' Experiences with AAC Systems*

Major Themes	Sub-themes	<i>n</i> of participants (N=18)
AAC system features	a. Communication limitations due to low-tech systems	17
	b. Cultural and contextual appropriateness of AAC	16
	c. Limited AAC options in schools	15
Educational impact	a. Academic challenges due to slow AAC systems	18
	b. Teacher support and adaptations	16
	c. Barriers to academic progress	14
Social development	a. Peer interactions and friendship challenges	17
	b. The role of teacher interactions in social inclusion	15
	c. Difficulties dealing with group dynamics	13
Emotional well-being	a. Frustration resulting from communication barriers	16
	b. Emotional support from school staff	15
Parental feedback and recommendations	a. Improving teacher training and policies	17
	b. Improving AAC device options	16

The following sections explore each theme and sub-theme in detail, with explanations supported by participant quotes:

Theme 1: AAC System Features

This theme explores the characteristics of AAC systems, and the challenges children face in using them, as viewed from their parents' perspectives. It focuses on the following three key areas: the communication limitations of low-tech systems, the cultural and contextual appropriateness of AAC systems, and the limited availability of AAC options in schools.

Sub-Theme 1: Communication Limitations Due to Low-Tech Systems

Participants discussed how the technical features of AAC systems, especially low-tech options, restrict students' ability to communicate effectively. Parents expressed concerns regarding limited vocabulary availability and slow response times, which made it difficult for students to convey complex thoughts or emotions. P03 explained this limitation and its impact as follows: *"When my son wants to participate in class discussions, it takes him so long to find the right words on the AAC that the conversation has already moved on by the time he's ready. It makes him feel left out."*

Sub-Theme 2: Cultural and Contextual Appropriateness of AAC

This sub-theme highlights concerns about the cultural relevance and contextual suitability of AAC systems. Participants noted that many AAC systems are designed for Western cultural contexts and lack culturally appropriate language and symbols relevant to students in Saudi Arabia. This cultural mismatch limits the system's utility in everyday life. As P02 stated, *"The AAC system doesn't have words that are important in our culture, and my child has no way of talking about the things that matter to him at home or in his social life."*

Sub-Theme 3: Limited AAC Options in Schools

Many parents were concerned about the availability of AAC options in schools. Participants reported feeling restricted in their ability to choose AAC systems that best suited their children's individual needs. Most parents noted that schools predominantly offer low-tech systems, such as Picture Exchange Communication Systems (PECS), which are useful for basic communication but fail to offer the full range of expression that students require. For example, P01 shared: *"We were told by the school that they only offer a basic AAC, but it's not enough for my child. Most of the options we've seen*

are low-tech, and we've had to use PECS. It doesn't give my child the full range of expression he needs."

Theme 2: Educational Impact

This theme explores how AAC systems influence students' educational experiences, focusing on the challenges they face in the classroom. It is divided into three key areas: the academic issues caused by the slow processing of AAC systems, the role of teacher support and adaptations in facilitating learning, and the barriers to academic progress in more complex subjects. Each sub-theme is supported by participants' insights into how AAC systems affect classroom participation, learning engagement, and students' ability to excel in more demanding academic areas.

Sub-Theme 1: Academic Challenges Due to Slow AAC Systems

Participants discussed how AAC systems influenced their child's ability to engage in academic tasks such as completing assignments, answering questions, and participating in classroom activities. Parents noted that while AAC systems helped with accessing academic content, using the devices was time-consuming, making it difficult for their children to keep up with the pace of lessons. As P09 explained: *"In subjects like art, my son can manage with the AAC system, but when it comes to subjects that need more in-depth discussion, like math, he struggles. The device can't keep up with the level of communication needed to express his thoughts fully."*

Sub-Theme 2: Teacher Support and Adaptations

This sub-theme focuses on the role of teachers in supporting students' use of AAC systems. Participants noted that effective adaptations, such as providing pupils with additional time to respond and visual supports, significantly improved their children's learning experience. Teachers who received adequate training in AAC were better able to facilitate their students' academic engagement. However, inconsistent teacher training in AAC led to uneven adaptations across classrooms. P17 shared that *"Some teachers are great at giving my son extra time to respond or using visuals to help him understand the lesson. But others don't seem to know how to adapt their teaching, so he struggles more in those classes."*

Sub-Theme 3: Barriers to Academic Progress

Participants noted that AAC systems often posed barriers to academic progress in subjects that required abstract thinking or quick responses, such as math. While AAC systems were useful for basic communication, they were less effective when students needed to express more complex ideas, which affected their ability to perform well in certain subjects. P07 explained, *"In subjects like math, my son struggles with the AAC system because it takes too long to input answers, and the device can't keep up with the complexity of the content."*

Theme 3: Social Development

This theme explores how AAC systems impact students' social interactions and development within the school setting. The focus is on three key areas: the challenges students face in peer interactions and forming friendships, the role of teachers in facilitating social inclusion, and the difficulties students encounter when participating in group dynamics. Parents shared insights into how AAC systems both help and hinder their child's ability to build meaningful social relationships and participate in group settings.

Sub-Theme 1: Peer Interactions and Friendship Challenges

Parents highlighted the significant role that AAC plays in their child's ability to interact with peers, particularly during structured activities like group work or classroom exercises. Participants noted that while AAC allows their children to engage in basic social exchanges, it often falls short during more nuanced or spontaneous interactions. Several parents mentioned that their children relied on nonverbal communication or pre-programmed phrases to navigate one-on-one social interactions. For example, P06 shared: *"My son uses his AAC system to say things like 'let's play,' but when his friends start joking around or talking quickly, he can't keep up. It makes him feel like he's not really part of the group."*

Sub-Theme 2: The Role of Teacher

Interactions in Social Inclusion Teachers play a critical role in supporting the social inclusion of students who use AAC. Participants discussed how teachers' engagement with their children varied

significantly. Some teachers actively facilitated peer interactions, modeling how to communicate with AAC users and encouraging social connections in the classroom. However, other teachers lacked confidence or training in integrating AAC into both academic and social exchanges. P15 noted: *“One of my daughter’s teachers would always make sure to include her in class discussions, asking her direct questions and waiting for her to respond. This helped her feel more connected to both the teacher and her classmates.”*

P11, however, had a different experience: *“My child’s teacher often avoids using the AAC system altogether because she’s unsure how to incorporate it into social interactions.”*

These findings clearly demonstrate the impact of teacher support on social development. Teachers who proactively engage AAC users help bridge communication gaps, fostering a sense of belonging and participation in the classroom. However, inconsistent teacher involvement leads to missed social opportunities, affecting how well students integrate with their peers. These observations highlight the need for comprehensive teacher training to support AAC users in both academic and social contexts.

Sub-Theme 3: Difficulties Dealing with Group Dynamics

Participants noted that their children faced difficulties participating in group activities, particularly in dynamic social settings like playgrounds or during group projects. The slower communication pace required by AAC systems often excluded students from fast-paced conversations, making it difficult for them to contribute to group interactions in real time. P12 summarized this challenge experienced by many of the children: *“My son has one close friend who understands his AAC and waits for him to respond, but when they’re in larger groups, it’s hard for him to keep up with the conversation. He sometimes feels like he’s on the outside looking in.”*

Theme 4: Emotional Well-Being

This theme examines how AAC systems affect students' emotional well-being, highlighting the frustration caused by communication barriers and the crucial role school staff play in providing emotional support. Parents described the emotional

challenges their children face due to AAC's limitations and how teacher support helps alleviate these issues.

Sub-Theme 1: Frustration Resulting from Communication Barriers

Participants discussed the frustration caused by the limitations of AAC systems. Parents expressed concern over their child's emotional well-being, noting that the inability to communicate freely often led to feelings of isolation, helplessness, and anger. This frustration frequently manifested in emotional outbursts or withdrawal from attempts to engage with others. As P08 explained, *“My son tries so hard to tell me what he’s thinking, but when the AAC device doesn’t have the words, he needs or it takes too long, he gets so frustrated. Sometimes he just throws the device away in anger and stops trying to talk at all.”*

Sub-Theme 2: Emotional Support From School Staff

This sub-theme focuses on the role of teachers and school staff in providing emotional support for students who use AAC. Participants noted that teachers made a crucial contribution to helping students manage the emotional challenges of communication. Teachers who took the time to check how students were feeling helped foster a sense of ease and comfort in the classroom. For example, P04 shared: *“One of the most amazing things I’ve seen is how my daughter’s teacher always checks in with her emotionally before and after class. This really helps her feel more at ease, especially after a tough day when she couldn’t communicate well.”*

Theme 5: Parental Feedback and Recommendations

This theme presents parents' suggestions for improving the use of AAC systems in schools. Parents' recommendations focused on enhancing teacher training, developing policies to provide consistent support, and advancing AAC device functionality to better meet students' needs. Parents shared how these changes could enhance their children's educational and social experiences.

Sub-Theme 1: Improving Teacher Training and Policies

Parents recommended comprehensive teacher training to ensure that all educators are proficient at using AAC systems. They also suggested that schools adopt

standardized policies for AAC integration to ensure that students receive consistent support across classrooms. P05 explained why these changes would be necessary: *“In certain classrooms, teachers demonstrated effective use of AAC devices, which allowed for greater participation from students. But in others, the devices remained unused because the teachers didn’t know how to incorporate them.”*

Sub-Theme 2: Improving AAC Device Options

Many parents emphasized the need for more advanced AAC devices that better meet students' communication requirements. The low-tech systems currently in place were inadequate, limiting students' ability to express more complex thoughts. P02 mentioned that *“The AAC my daughter uses is so basic—it doesn’t allow her to express herself the way she wants to. Schools need to provide AAC devices with advanced features, such as predictive text and customizable vocabularies.”*

Discussion

The findings of this study highlight important challenges in using AAC systems, consistent with prior research. Leatherman and Wegner (2022) noted that educational environments with limited inclusivity can reduce opportunities for students using AAC to communicate and learn effectively. Parents in this study described similar challenges, emphasizing the need for high-tech AAC systems to address complex communication needs in schools. They also stressed the importance of comprehensive teacher training, noting significant variations in teachers' familiarity with AAC devices. Inconsistent training led to unequal adaptations across classrooms, limiting students' ability to participate fully. These findings are reflected in the subthemes *“teacher support and adaptations”* and *“barriers to academic progress”*, which underscore the need for consistent training and effective AAC integration to improve communication, academic outcomes, and social inclusion. These overlapping barriers underscore the critical need for advanced AAC options to address the challenges faced by students using AAC. The findings highlight educational implications,

particularly regarding the development and optimization of AAC technologies. For instance, Broomfield et al. (2024) documented the frustrations of AAC users when communication devices lacked responsiveness, highlighting how delays in device functionality can disrupt interactions. One participant in their study reported that such delays hindered their ability to engage in conversations, resulting in feelings of exclusion. These challenges emphasize the importance of designing AAC systems that are more efficient and responsive to the demands of inclusive education. Similarly, Wilkinson and Wolf (2021) noted that delays in AAC response times hinder students' participation in group activities, increasing social isolation. Research shows AAC systems often lack the speed and adaptability needed for complex academic tasks (Frick Semmler & Bean, 2023). In line with these findings, parents in this study observed that inconsistent teacher training led to unequal classroom adaptations, reducing access to communication support. Addressing these challenges requires collaboration between educators and speech-language pathologists to improve teacher preparation for integrating AAC devices. This approach ensures students using AAC can fully engage in academic and social activities.

Cultural considerations also emerged as a critical factor influencing the effectiveness of AAC systems, especially in non-Western contexts like Saudi Arabia. Parents emphasized that existing AAC tools often lack culturally appropriate language and symbols. Similarly, Joginder Singh et al. (2023) noted that most AAC systems are designed for English-speaking populations, limiting culturally relevant options for non-Western users. Amery et al. (2022) also highlighted this issue, stating that AAC systems remain underdeveloped for minority and Indigenous languages, which poses additional challenges for users. To address these barriers, AAC developers must prioritize cultural and linguistic diversity in their designs. Collaborative efforts between schools and developers can ensure the creation of AAC systems that meet the cultural needs of students, allowing them to communicate effectively in both academic and social contexts.

Social challenges, particularly in forming reciprocal friendships and

participating in group activities, are a significant concern for children using AAC. Biggs and Snodgrass (2020) highlighted difficulties in forming friendships due to differences in engagement and communication methods, such as gestures, vocalizations, and aided AAC. Similarly, Hyppa-Martin et al. (2021) reported that slower communication speeds with AAC systems often limit children's participation in group discussions, making social integration more difficult. Parents in the study echoed these findings, noting that their children frequently faced social exclusion due to the limitations of low-tech devices. Addressing these challenges requires advanced AAC systems. High-tech devices that enable faster and more dynamic communication can improve peer relationships and foster social inclusion. Additionally, Communication barriers have a significant impact on students' emotional well-being, highlighting the need for support systems that integrate technological and social solutions (Noyek et al., 2022). Parents shared that their children often felt isolated and frustrated due to communication challenges, particularly when unable to express their thoughts effectively. These parental accounts align with findings from Murray and Hopf (2022), who observed that communication barriers frequently lead to emotional strain and a decline in motivation. O'Neill and Wilkinson (2020) further noted the adverse effects on self-advocacy, especially in cases where communication demands are excessive, such as delays in AAC device responses. In addressing these challenges, teachers who provided consistent emotional check-ins helped reduce students' frustration and fostered resilience. These findings echo those of Broomfield et al. (2024), who demonstrated that regular emotional support from educators alleviated students' stress and improved their confidence in communication.

Parents identified two key areas for improvement: teacher training and access to advanced AAC devices. Variability in AAC use across classrooms highlights the need for comprehensive teacher training to ensure consistent implementation. Flores and Dada (2024) reported that educators with formal AAC training use these systems more effectively, leading to significant improvements in students' communication outcomes. Aldabas (2022)

similarly emphasized the importance of teacher training in the Saudi context, where inconsistent use of AAC systems remains a challenge. Globally, studies have shown that schoolteachers often lack the knowledge, skills, and necessary training to teach students using AAC (Da Fonte et al., 2022; Aldabas, 2020). This finding aligns with the current study, where parents reported the need for improving teachers' training on AAC use. Additionally, parents emphasized the importance of advanced AAC devices with features like predictive text and customizable vocabularies to better support their children's needs. These features address challenges in academic and social settings, where low-tech devices, though useful for basic communication, often fall short. Building on this, Syriopoulou-Delli and Eleni (2022) found that advanced AAC systems enhance students' ability to express themselves and enable more active participation in both school and social activities. Thus, providing access to such tools is essential for improving the educational and social experiences of AAC users.

Implications for Practice and Research

The experiences of students using AAC systems in schools, as reported by their parents, reveal technical and cultural challenges, particularly in non-Western contexts, such as slow response times and linguistic mismatches. One major issue is slow response times in AAC tools, which hinder real-time communication during activities such as math problem-solving and group discussions. These challenges highlight the need for responsive systems to support classroom participation, particularly in resource-limited countries reliant on low-tech AAC.

Artificial intelligence (AI) has potential to improve AAC devices by enabling features such as predictive text and real-time adaptive learning, addressing issues like slow response times. Coupling AI with hybrid systems that combine affordable hardware, and advanced software could help bridge accessibility gaps, making inclusive technologies available globally.

In addition to technical challenges, there is a lack of alignment between AAC tools and the linguistic and symbolic needs of non-Western countries, such as Saudi Arabia. Current AAC systems are often designed around Western languages and cultural symbols,

which limits their effectiveness in diverse settings. Researchers and developers could focus on integrating regional languages, such as Arabic, and culturally relevant symbols into AAC systems. AI-driven customization could further enhance these systems by learning user preferences and regional nuances, ensuring adaptability across multilingual contexts. These adaptations could improve accessibility and usability, particularly for students in culturally and linguistically diverse environments.

Globally, this study encourages researchers to explore AAC's cultural aspects and their role in inclusive education, fostering culturally responsive systems. Despite this, experiences of AAC users in inclusive education remain underexplored. Researchers can use these findings to develop programs that address barriers and ease challenges for both students using AAC and their educators. Additionally, this study highlights the importance of integrating AAC courses into university academic programs for teachers, enhancing their training, knowledge, and skills to support inclusive classrooms effectively.

Future Directions

Future research should prioritize transforming AAC systems by addressing their technical, cultural, and emotional dimensions to create holistic improvements for diverse users, such as faster response times, culturally relevant adaptations, and support for emotional well-being. AI technologies have notable potential to improve AAC tools by enabling faster response times, real-time feedback mechanisms, and adaptive features that support active participation in academic and social interactions. However, barriers such as high costs, lack of infrastructure, and limited technical support must be addressed, particularly in resource-limited settings. Solutions such as government-subsidized programs and partnerships with technology companies could help make advanced AAC systems more accessible and equitable for underserved populations. These efforts will ensure that AAC systems empower students with complex communication needs in inclusive educational environments.

Future studies should also investigate how teacher perceptions, classroom accommodations, and professional development initiatives influence AAC

success. Understanding these factors could yield valuable insights for improving inclusive education practices globally. Additionally, the emotional well-being of AAC users must be prioritized, as communication challenges often lead to frustration, isolation, and withdrawal. Interventions such as peer mentorship programs and consistent emotional support from trained staff could help AAC users build confidence and resilience, enabling them to engage more fully in school activities. By addressing these interconnected dimensions, researchers can ensure that AAC systems empower students academically, socially, and emotionally in inclusive educational environments.

Limitations

This study sought to understand the experiences of student who use AAC systems through the perspectives of their parents. However, there are a few limitations that must be acknowledged. First, because the data rely on retrospective accounts, participants were required to recall past experiences, which can sometimes lead to memory distortion or bias (Schacter et al., 2011). This might have influenced the richness and accuracy of the information shared, as emotionally charged or significant events tend to be recalled more vividly (Maxwell, 2013). Second, the data are based entirely on parental reports. While these provide valuable insights, they may not fully reflect the students' daily experiences with AAC systems, as parents' perspectives can be influenced by their own emotions or perceptions (Dempsey et al., 2016). Additionally, as is typical in qualitative research, the results are not meant to be generalized beyond the study participants. The findings are specific to this group of parents and students and may not be applicable to other AAC users or educational contexts (Creswell & Poth, 2023). Recognizing these limitations allows for a more careful interpretation of the study's findings.

Conclusion

Parents reported that AAC systems supported their children's participation in academic and social activities. However,

the limitations of low-tech AAC systems and the absence of culturally appropriate options hindered complex communication. These challenges negatively impacted students' educational progress, social integration, and emotional well-being. To address these issues, schools should implement more advanced, culturally appropriate AAC systems to better support students' communication needs. Consistent, standardized, and specialized teacher training is also essential to ensure comprehensive support for AAC users in academic and social contexts.

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The Effect of Cognitive Reserve on the Cognitive Status of Persons With Multiple Sclerosis

Review scientific paper

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Abstract

This literature review examined publications on cognitive reserve and multiple sclerosis cognitive function. Educational attainment proxied cognitive reserve. Google Scholar and KoBSON were used for the literature review. Twelve publications were examined. Cognitive reserve improves multiple sclerosis patients' cognitive functions, according to selected literature. Higher education, as a measure of cognitive reserve, protects the population under investigation against cognitive decline and disability. Cognitive performance is also linked to education quality, cognitive enrichment, and years of education. Regular exercise, reading, and hard work can help low-educated people protect their cognitive reserve. As more research demonstrates that cognitively stimulating activities outside of formal education can improve cognitive function in people with multiple sclerosis, the reviewed studies underscore the need for additional research into parameters influencing cognitive reserve.

Keywords: *Cognitive Deficits, Education, Protective Role*

Multiple sclerosis (MS) is a progressive inflammatory disease of the central nervous system (CNS) that causes grey and white matter lesions, axonal terminal damage, and brain atrophy (Calabrese et al., 2010; Weissert, 2013). MS has a distinct clinical and pathological spectrum that results in a wide range of motor, sensory, cognitive, and psychosocial effects. In terms of cognitive abnormalities, it is believed that 40-60% of patients with MS exhibit cognitive impairment or decline

at some time throughout the disease's progression (Amato et al., 2001, as cited in Lovera & Kovner, 2012, p. 619). Attention, information processing efficiency, executive functioning, information processing speed, and long-term memory are among the most frequent cognitive abnormalities in MS (Chiaravalloti & DeLuca, 2008). The variability of cognitive profiles in MS cannot be entirely explained by clinical variables such as disease duration or physical handicap, or by brain magnetic resonance

imaging findings, which demonstrate brain tissue damage (Benedict et al., 2004; Filippi et al., 2010). Other disorders, such as Alzheimer's disease, natural ageing (Stern, 2012), and Parkinson's disease (Ciccarelli et al., 2017; Guzzetti et al., 2019), have revealed an incomplete relationship between cognitive status and structural findings.

As a possible response to the previous observations, the theory of cognitive reserve (CR) emerged, attempting to explain the individual differences that allow some people to cope with the same level of brain pathology without developing cognitive deficits, whereas others develop deficits associated with the disease (Stern, 2009). CR's role is to modify the relationship between brain pathology and clinical manifestation; that is, high CR acts as a protective factor in the development of various neurological diseases, whereas low CR acts as a vulnerability factor in the manifestation of the disease's clinical picture (Barnett et al., 2006). The immediacy with which cognitive reserve is measured reflects its unique characteristics (Jones et al., 2011). Specifically, the characteristics involved in the assessment of CR include education, occupation, and leisure activities, implying that they rely on life experience elements that can influence CR and its function in brain illness (Grotz et al., 2016). It should be noted that years of education are the most commonly used parameter in measuring CR (Avila et al., 2020), which is especially important in the study of CR in MS, given that the disease typically begins between the ages of 20 and 30, usually after formal education has been completed (Martins Da Silva et al., 2015). An growing number of research have led to MS being seen through the lens of the CR theory, demonstrating that

a higher CR reduces the deleterious impact of disease load on the cognitive status of patients with MS (Sumowski & Leavitt, 2013).

The aim of this study was to assess the existing literature in order to select and analyse articles that investigated the impact of CR on the cognitive status of patients with MS. One of CR's parameters was education.

Method

This literature research was conducted using the Google Scholar and the service of the Serbian Library Consortium for Coordinated Acquisition (KoBSON). The research was conducted in July 2024, using the following keywords: multiple sclerosis, cognitive reserve, education, proxy. Articles were included based on the following criteria: they had to be available in their whole, published in English between 2010. and 2024, have a title or abstract including a key word, focus on the impact of CR on cognitive status of individuals with MS, and use education as a parameter of CR. Upon inputting the specified keywords into the Google Scholar search engine, a total of 10.500 articles were found. Subsequently, after modifying the publication range of articles to include data from 2010. to 2024, a further 8.210 articles were detected. The titles and abstracts of review articles, master's and graduate theses, books, and publications that were not available in their whole and not written in English were excluded from the analysis. Thus, a total of 10 articles were identified that correspond to the search criteria defined on the Google Scholar search engine. The KoBSON search identified two other articles that match the specified criteria.

Results with Discussion

The next section will provide a description and analysis of research that examined the effects of CR on the cognitive function of individuals with MS. The studies under analysis are displayed in Table 1.

Table 1.*Review of the Literature on the Impact of CR on the Cognitive Status of People with MS*

Authors and year	Aim	Sample	Instruments	The most important results
Scarpazza et al., 2013	To investigate the influence of CR and the experienced fatigue on cognitive function.	Experimental group: 50 subjects with relapsing-remitting MS Control group: 157 healthy subjects.	Paced Auditory Serial Addition Task (PASAT); Modified Fatigue Impact Scale (MFIS).	Subjects with MS who have attained a high level of education exhibit less cognitive impairment on neuropsychological tests in comparison to subjects with a lower level of education.
Modica et al., 2015	To examine how CR and brain reserve affect subcortical gray matter atrophy and cognitive decline in people with MS over a three-year period.	Experimental group: 71 subjects with relapsing-remitting and secondary progressive MS Control group: 23 healthy subjects.	Symbol Digit Modalities Test (SDMT); California Verbal Learning Test (CVLT2); Brief Visuospatial Memory Test revised (BVMTR); Magnetic resonance imaging (MRI).	High CR has been shown to be a protective factor in cognitive decline associated with subcortical gray matter atrophy.
Conway et al., 2022	To examine the longitudinal influence of educational attainment on the speed of data processing and on the work status of persons with MS over a period of three years.	13.732 subjects with different types of MS.	Processing speed test; Employment status; Patient Determined Disease Steps.	Increased educational attainment enhances data processing speed and provides protection against unstable employment status, while its effect over the three-year period is minimal.
Benedict et al., 2010	To examine whether differences in CR have a protective role in cognitive dysfunction in people with MS, over a period of five years.	91 subjects with relapsing-remitting, secondary progressive and primary progressive MS.	Paced Auditory Serial Addition Task (PASAT); Symbol Digit Modalities Test (SDMT); North American Adult Reading Test (NAART).	A higher CR has a protective role in the progression of cognitive dysfunction in people with MS.
Luerding et al., 2016	To examine the influence of formal education on the state of CR in people with MS.	128 subjects with relapsing-remitting, secondary progressive and primary progressive MS.	27 tests that assessed basic cognitive functions, attention, executive functions, visual perception and construction, memory and learning, problem solving and language; Occupation; Physical activity; Reading habits.	Stronger correlation exists between longer formal education and superior neurocognitive performance. The benefit of a lengthier formal education in comparison to a shorter one can be counterbalanced by more regular engagement in physical exercise, reading, and demanding professional pursuits.

Table 1 (continued).*Review of the Literature on the Impact of CR on the Cognitive Status of People with MS*

Grant et al., 2023	To examine how three sociobehavioral parameters of CR (years of education, quality of education, and cognitive enrichment) differ in predicting the cognitive performance of people with MS.	82 subjects with relapsing-remitting, secondary progressive and primary progressive MS.	Brief International Cognitive Assessment for Multiple Sclerosis (BICAMS); Complete neurological examination; Expanded Disability Status Scale (EDSS); Wechsler Test of Adult Reading (WTAR); Cognitive Reserve Scale (CRS).	Quality of education and cognitive enrichment are more strongly related to cognitive performance than years of education.
Martins Da Silva et al., 2015	To examine education as an indicator of CR, while controlling for demographic, clinical, and genetic characteristics of subjects.	Experimental group: 419 subjects with relapsing-remitting, secondary progressive and primary progressive MS Control group: 159 healthy subjects.	Complete neurological examination; Expanded Disability Status Scale (EDSS); Multiple Sclerosis Severity Scale (MSSS); Mini-Mental Examination (MMSE); Attentive Matrices (AM); Digit Span; Corsi Block-Tapping Test; Auditory Verbal Learning Test (AVLT); 30-minute recall and 30-minute recognition; Sentence Repetition; Letter Word Fluency; Wisconsin Card Sorting Test (WCST); Hospital Anxiety and Depression Scale (HADS); Genetic parameters of HLA-DRB1 and apolipoprotein E.	The protective effect of education and the justification of using education as a parameter of CR were confirmed. The robust association with education was independent of other clinical and demographic variables.

Table 1 (continued).*Review of the Literature on the Impact of CR on the Cognitive Status of People with MS*

Della Corte et al., 2018	To examine the relationship between two parameters of CR and cognition in MS.	147 subjects with relapsing-remitting and secondary progressive MS.	Complete neurological examination; Expanded Disability Status Scale (EDSS); Rao's brief repeatable battery - version A (BRB); Stroop Color-Word Interference Test (SCWIT); The Wechsler Adult Intelligence Scale (WAIS VOC); Chicago Multiscale Depression Inventory (CMDI); Fatigue Severity Scale (FSS).	Empirical evidence demonstrated a significant correlation between VOC, rather than years of education, and the outcomes of applied neuropsychological tests. The level of education attained a positive link with the executive functions of the participants.
Rimkus et al., 2018	To examine the frequency and characteristics of cognitive impairment in subjects with MS of different educational status. To examine the correlation between T2 lesions (disease burden variable) and cognitive performance in different stages of MS.	Experimental group: 136 subjects with MS Control group: 65 healthy subjects.	Complete neurological examination; Expanded Disability Status Scale (EDSS); Wechsler Adult Intelligence Scale (WAIS III); Hopkins Verbal Learning Test - revised (HVLTR); Brief Visuospatial Memory Test - revised (BVMTR); Controlled Oral Association Test (COWAT); Modified Wisconsin Card Sorting Test (MWCST); Symbol Digit Modality Test (SDMT); Stroop test; Magnetic resonance imaging (MRI).	A higher frequency of cognitive impairment was found among respondents with lower educational levels. The protective effects of higher education are stronger in the early stages of the disease (less than five years).
Nunnari et al., 2016	To examine the influence of certain demographic and clinical variables on the cognitive outcome of subjects with MS, assuming that CR has a protective role against cognitive impairment due to disease burden.	66 subjects with relapsing-remitting, secondary progressive and primary progressive MS.	Rao Brief Repeatable Battery of Neuropsychological Tests (BRB-N); Cognitive Reserve Index Questionnaire (CRIq); Magnetic resonance imaging (MRI).	The CRIq score proved to be a significant predictor of attention, information processing speed, working memory and verbal learning. Education and occupation subscores are significantly related to the cognitive performance of the participants.

Table 1 (continued).*Review of the Literature on the Impact of CR on the Cognitive Status of People with MS*

Sumowski et al., 2012	To examine whether intellectual enrichment protects individuals with secondary progressive MS from cognitive decline in the domains of memory and cognitive efficiency.	Experimental group: 25 subjects with secondary progressive MS Control group: 25 healthy subjects.	Symbol Digit Modalities Test (SDMT); Paced Auditory Serial Addition Task (PASAT); Logical Wechsler Memory Scale Revised - Memory tasks; Open-trial Selective Reminding Test - total learning and delayed recall scores; Wechsler Abbreviated Scale of Intelligence (WASI) - Subtest Vocabulary; Wide Range Achievement Test - Reading subtest.	MS subjects with lower CR had worse cognitive performance compared to the control group in both examined domains, but this difference disappeared at higher reserve levels, both in the domain of cognitive efficiency and in the domain of memory.
Machado et al., 2021	To examine the effects of cognitive and brain reserve on social cognition and compare these effects with the effects of the same on "classical cognition".	Experimental group: 60 subjects with relapsing-remitting and secondary progressive MS Control group: 60 healthy subjects.	Complete neurological examination; Expanded Disability Status Scale (EDSS); Theory of Mind (ToM) testing: Revised "Reading the Mind in the Eyes" Test; ToM videos test; Rao adaptation of Symbol Digit Modalities Test - oral version (SDMT); Rao adaptation of Paced Auditory Serial Addition Test (PASAT); Brief Visuospatial Memory Test-Revised (BVMT); California Verbal Learning Test (CVLT); Judgment of Line Orientation Test (JLOT); Controlled Oral Word Association Test (COWAT); Wisconsin Card Sorting Test (WCST); Magnetic resonance imaging (MRI).	CR and brain reserve have a different protective role in MS, brain reserve showed a positive effect on social cognition, while CR had a positive effect on "classical" cognitive domains.

A study undertaken in Italy, sought to investigate the influence of CR (as evaluated by years of education and occupation) and the occurrence of fatigue on the cognitive function of individuals with MS. Fifty relapsing-remitting MS patients were included in the study; their average age was 39.65, their average educational attainment was 12.88 years, their average illness duration was 105.22 months, and their age at disease beginning was 30.60 years. All participants had not experienced exacerbations in the month prior to the

study. The control group comprised of 157 healthy participants who were matched on age, education, and gender. Cognitive performance was assessed using the Paced Auditory Serial Addition Task (PASAT, Gronwall, 1977, as cited in Scarpazza et al., 2013), a tool that evaluates working memory and speed of information processing. Participants were categorized based on their educational attainment, distinguished as low educational level (less than 13 years of education) and high educational level (greater than 13 years of education). The findings

indicated that adults with MS with a lower level of education had inferior performance on the PASAT test compared to healthy individuals with the same level of education. However, there was no significant difference found between the control group and the experimental group with a higher level of education. Furthermore, compared to MS participants with high levels of education, it was demonstrated that MS subjects with low levels of education performed worse on the PASAT test. This was not the case in the control group, where people with higher and lower levels of education displayed comparable performance. This finding indicates that higher education acts as a safeguard against cognitive impairments induced by multiple sclerosis. Higher education, on the other hand, will have less of an impact on healthy people's cognitive performance.

A three-year longitudinal study examined the impact of brain reserve (BR) and CR on subcortical grey matter (SGM) atrophy and cognitive decline in MS patients. The study sample comprised of 71 individuals diagnosed with MS, with 48 identified as relapsing-remitting MS and 23 as secondary-progressive MS. The average age of the participants was 46.1 years, and the average duration of the condition was 11.5 years. Control group comprised of 23 healthy people. Participants underwent thorough neuropsychological testing to assess cognitive processing speed and memory, as well as magnetic resonance imaging (MRI) of the brain to acquire data on SGM atrophy and BR. Years of education ($M = 14.6$ years for the experimental group and 15.3 years for the control group) were utilised as a CR parameter. The findings indicated that SGM atrophy is present in the control group as well, but it is notably more pronounced in the group of individuals with MS. Moreover, the cognitive processing speed remained constant throughout this time frame in the control group, but individuals with MS showed a decline in cognitive processing speed where lower CR was linked. The authors' conclusion is that a high levels of CR serve as a protective factor against cognitive deterioration associated with SGM atrophy (Modica et al., 2015).

A further longitudinal study was undertaken to investigate the impact of educational achievement on the speed of data

processing, as well as on the employment characteristics of individuals with MS. The research conducted by Conway et al. (2022) utilised a multi-institutional registry known as The Multiple Sclerosis Partners Advancing Technology and Health Solutions - MS PATHS. MS PATHS participants do the processing speed test (PST) at each clinical visit, which is an electronic measure of information processing speed based on the Symbol-Digit Modalities Test (SDMT, Smith, 1968, as cited in Conway et al., 2022). Among the individuals in this registry, 13,732 individuals with MS were found to possess all the necessary data for research purposes. This includes at least one PST result, information on educational accomplishments, and employment status. Educational achievement is categorised as follows: ≥ 12 years - high school diploma; ≥ 16 years - university degree; ≥ 18 years - master's degree. The results indicated a robust association between academic success and the first PST. Nevertheless, the long-term advantage of education was minimal. Individuals with a university degree did not have a lower likelihood of experiencing declines in PST scores during the first, second, or third year compared to those with a high school diploma. Individuals holding a master's degree exhibited a reduced likelihood of experiencing a decline in these outcomes compared to those with a high school diploma, although this benefit was specific to the first and second year, and was absent in the third year. The authors believe that these findings may be a function of CR, emphasising that highly educated people may compensate for neurological damage up to a certain point, but once that point is reached, education loses its advantage.

Similar to the previous study, Benedict et al. (2010) conducted a five-year study to determine whether individual differences in CR have a protective role in cognitive deterioration in persons with MS. Out of 91 MS patients, 71 had relapsing-remitting MS, 17 had secondary progressive MS, and three had primary progressive MS. The mean duration of the chronic condition was 11.0 years, whereas the mean age of the individuals affected was 44.8 years. CR was evaluated based on academic years of study ($M = 14.3$) and performance on the North American Adult Reading Test (NAART, Blair & Spreen, 1989, as cited in

Benedict et al., 2010). The cognitive status of data processing speed was evaluated using the SDMT, a visual modality form of assessment, and the PASAT to measure auditory processing speed and working memory. This study demonstrates that the established parameters of CR influenced the extent of decrease in neuropsychological tests evaluating the speed of information processing. Subjects with low CR were more likely to reduce information processing speed, particularly on the SDMT, as compared to subjects with high CR.

Unlike earlier studies, the German authors were interested in the influence of formal education on the status of CR in a sample of 128 MS patients, with an average age of 48.0 and a disease duration of 6.75 years. The study included 66 individuals with relapsing-remitting MS, 34 with secondary progressive MS, and 21 with primary progressive MS. To assess cognitive status, 27 neuropsychological tests were administered, including basic cognitive skills, attention, executive functions, visual perception and construction, memory and learning, problem solving, and language. The participants were categorised into three groups based on the duration of their formal education in Germany: those with education up to nine years, those with education up to ten years, and those with education of at least 13 years. Furthermore, information was gathered regarding the occupational status, level of physical activity, and reading habits of the participants. While there is a correlation between longer formal education and improved neurocognitive performance among the participants, the most noteworthy finding is that the group with the least formal education exhibited the most significant improvements in cognitive functioning through activities such as reading, physical exercise, and engaging in demanding occupational tasks. According to the authors, persons with a shorter formal education may gain more from the CR factor than those with a longer education (Luerding et al., 2016).

Consistent with the earlier study, Grant et al. (2023) sought to investigate the variations in predicting the cognitive performance of individuals with MS based on three sociobehavioral factors of CR (years of schooling, quality of education, and cognitive enrichment). The sample comprised of 82 participants diagnosed

with MS, with an average age of 50.0 years. The average length of the disease was 11.2 years, and the average years of schooling were 14.8. 75.6% of the participants had relapsing-remitting MS, while 12.2% had both primary and secondary progressive MS. The participants in the study had neurological and neuropsychological assessments, which included word recognition tests, verbal memory, visuospatial memory, and information processing speed. CR data included information on years of education, education quality assessed using the Wechsler Test of Adult Reading (WTAR, Holdnack, 2001, as cited in Grant et al., 2023), and cognitive enrichment evaluated using the Cognitive Reserves Scale (CRS, Leon et al., 2014, as cited in Grant et al., 2023). Furthermore, the participants provided their information of their level of engagement in several cognitive enrichment activities (training-information; daily activities; hobby; social life) during three different time periods (18-35 years; 36-64 years; over 64 years). Empirical evidence indicated that the correlation between cognitive performance and the quality of education and cognitive enrichment was more robust than the correlation between years of education. Nevertheless, there was no correlation between cognitive enrichment and cognitive function among participants who had received a high standard of education. Conversely, among those with poor educational quality, there was a significant correlation between cognitive enrichment and cognitive function. This suggests that active participation in cognitively stimulating activities offers comparable measures of protection as educational quality.

Furthermore, a study conducted by Martins Da Silva et al. (2015) sought to examine education as a predictor of CR, while controlling for demographic, clinical, and genetic profile of the participants. The sample comprised of 419 individuals diagnosed with MS, with 79.2% identified as having relapsing-remitting MS, 10.5% as secondary progressive MS, and 10.3% as primary progressive MS. A median age of 39 (16-71) and an illness duration of 8 (1-47) were observed. Educational status was determined based on the number of years of formal education completed successfully (3-19 years). The control group included 159 individuals who were classified as

healthy and free from neurological or psychiatric disorders. The participants had comprehensive neurological and cognitive assessments, together with the Hospital Anxiety and Depression Scale (HADS, Menses et al., 2009, as cited in Martins Da Silva et al., 2015), and genetic factors including HLA-DRB1 and apolipoprotein E. The study findings validated the protective impact of education and offered a rationale for including education as a determinant of CR. A correlation between the level of education and cognitive impairment was observed in several neuropsychological tests, such as psychomotor speed, visual search, verbal memory, and executive functional abilities. An empirical correlation with education was demonstrated to be unaffected by other clinical and demographic factors.

The two CR parameters and cognition in MS were the focus of the Italian study (Della Corte et al., 2018), in contrast to the prior one. In addition to years of education, CR was also measured using the Wechsler Adult Intelligence Scale - the Vocabulary subtest (WAIS - VOC). Concurrently with CR, neurological and neuropsychological testing were performed, including with an evaluation of depressed symptoms and exhaustion. In the sample of 147 MS patients, 128 had relapsing-remitting MS, 19 had secondary progressive MS, and the average age was 37.76, education 12.46, and disease duration 10.06 years. This study demonstrates that WAIS - VOC, rather than years of education, has a significant correlation with the outcomes of all ten applied neuropsychological tests, which contradicts earlier findings. Conversely, the number of years of education shown a negative link with the executive functions of these participants.

To explore the impact of education on cognition, a study conducted by Rimkus et al. (2018) analysed the occurrence and features of cognitive impairment in individuals with MS who had varying educational backgrounds. The study aimed to determine if the number of years of education serves as a predictor of cognitive impairment. Researchers also looked at the link between T2 lesions (as a measure of disease load) and cognitive function in people with different stages of MS. They studied 136 people with MS and 65 healthy people as a control group. The median age of those diagnosed with MS

was 34 years (17-65 years), and the usual duration of the condition was 6 years (0.3-32.6 years). Based on the number of years of education, participants were split into two groups: low educational level (≤ 12 years) and high educational level (> 12 years). Comprehensive neuropsychological testing was performed on all participants, including assessments of IQ and six cognitive domains (verbal memory, visuospatial memory, executive functioning, speed of information processing, working memory, and selective attention). Additionally, MRI testing was completed. Furthermore, individuals diagnosed with MS had neurological examinations. The findings indicated a greater prevalence of cognitive impairment among participants with lower levels of education, in comparison to those with higher levels of education. Two probable education-cognition interactions in MS were observed. During the initial phases of the disease, there is a positive correlation between a greater degree of education and a higher CR. This correlation is seen to have a protective effect against cognitive decline in individuals with MS. Following a period of five years of illness progression, there is a noticeable increase in the influence of T2 lesions, as shown by the association between the size of the lesions and cognitive function. Furthermore, those with a limited level of education exhibit a higher prevalence of lesions, suggesting a heightened vulnerability to brain damage caused by the disease, which in turn leads to advanced cognitive impairment in the latter phases of the illness.

The Cognitive Reserve Index Questionnaire (CRIq, Nucci et al., 2012, as cited in Nunnari et al., 2016) was used as a standardised instrument to measure CR in the research conducted by Nunnari and colleagues (2016). The CRIq is a trustworthy instrument that includes the three most commonly evaluated CR parameters: education, occupation, and leisure activities. Investigators were intrigued by the potential differential impact of these characteristics on cognitive performance. Thus, the primary objective of this study was to assess the impact of specific demographic and clinical factors on the cognitive profile of individuals with MS, under the assumption that CR plays a protective function against cognitive deterioration caused by the burden of the disease. Of the 66 MS patients in

this study, 86.4% had relapsing-remitting, 3.0% primary progressive, and 10.6% secondary progressive MS. The mean age of the participants was 39.5 years, the mean educational attainment was 13.7 years, and the mean long-term duration of the illness was 6.3 years. Further to the CRIq, the Rao Brief Repeatable Battery of Neuropsychological Tests (BRB-N, Rao, 1990, as cited in Nunnari et al., 2016) was used for neuropsychological assessment, together with MRI brain imaging, to determine the overall brain volume and cortical volume. The findings indicate that the CRIq score is a strong indicator of attention, speed of information processing, working memory, and verbal learning comprehension. Furthermore, there was no correlation between the CRIq score and the scale used to assess the severity of the disease, as well as between the CRIq and the duration of the disease. This suggests that the measurements of CR are not influenced by the severity of the disease. In relation to the examined parameters of CR, it has been demonstrated that education and occupation are subscores of CRIq that exhibit a substantial correlation with the cognitive performance of these individuals. The researchers' conclusion is that CR, as assessed by a specialised standardised questionnaire, serves as a protective element against cognitive impairments in individuals with MS. However, they did not find any substantial evidence to suggest that CR acts as a mediator between brain damage and cognitive performance.

A group of American authors was interested in whether the notion of CR was applicable to the population of people with secondary progressive MS (Sumowski et al., 2012). Particularly, the authors aimed to investigate if intellectual enrichment serves as a protective factor against cognitive impairment in individuals with secondary progressive MS. For this, 25 secondary progressive MS patients and 25 healthy controls were recruited. Participants with MS averaged 49.2 years old, 15.3 years of education, and 13.2 years of disease. Through education and vocabulary, intellectual enrichment was examined. Assessment of vocabulary was conducted using the Wechsler Abbreviated Scale of Intelligence (WASI) and the Reading subtest of the Wide Range Achievement Test (Wilkinson,

1993, as cited in Sumowski et al., 2012). An evaluation of cognitive functioning was conducted by measuring memory and cognitive efficiency (speed of information processing) using appropriate instruments. The results indicated that individuals with MS who had lower CR had inferior cognitive performance in both examined areas compared to the control group. However, this disparity was no longer evident at higher reserve levels, both in the domain of cognitive efficiency and to memory. More precisely, a greater CR value mitigated the adverse impact of the condition on memory and cognitive performance. The findings indicate that higher levels of intellectual enrichment do not impact the cognitive abilities of a mentally sound adult. However, it does play a safeguarding function in mitigating cognitive deterioration that occurs as a result of neurological disorders.

A research conducted by Portuguese scientists (Machado et al., 2021) sought to investigate the impact of cognitive and brain reserve on social cognition and to compare these effects with those on what the authors refer to as "classical cognition". This study included 60 MS patients and 60 healthy controls. In MS, 50 participants had relapsing-remitting MS and 10 had secondary progressive MS. The average age was 37.2 years and the average duration of disease was 10.6 years. The parameter of CR in both groups was established based on years of education, whereas the parameter of BR was determined by intracranial volume. A neuropsychological evaluation was conducted on the participants, including tests measuring visual and auditory information processing speed, working memory, visuospatial learning and memory, verbal episodic learning and memory, spatial perception, verbal fluency, and executive functioning. Additionally, Theory of Mind testing and MRI brain imaging were performed to record the volumes of cortical and subcortical grey matter. The results indicated that education and intracranial volume had beneficial impacts on both overall cognitive status and social cognition. The impact of subcortical grey matter atrophy on "classical" cognitive status was mitigated by a sufficient amount of education. Larger intracranial volume, on the other hand, mitigated the effect of cortical grey matter atrophy on social cognition.

Furthermore, it has been demonstrated that the major protective effect of education and cerebral volume is most pronounced during the initial phases of the disease. Therefore, the authors deduce that CR and brain reserve play distinct protective roles in MS. Brain reserve was found to have a beneficial impact on social cognition, whereas CR displayed a positive influence on “classic” cognitive domains.

Conclusion

Analysing the chosen literature revealed a beneficial effect of CR on the cognitive function of individuals with MS. A higher degree of education, as a measure of CR, has a protective function in preventing cognitive decline and the advancement of cognitive impairments in the population under study. Furthermore, cognitive performance is significantly linked to not just the number of years of education, but also the quality of education and cognitive enrichment. For those with a lower level of education, the protective function of CR can be attained by adopting more regular practices of physical exercise, reading, and engagement in demanding jobs. While the cognitive performance of individuals with secondary progressive MS is lower than that of healthy individuals, this disparity still disappears at higher reserve levels. The protective effects of education are more pronounced in the early stages of the illness. Nevertheless, when drawing broad generalisations, it is important to exercise caution primarily because of the methodological variations among the examined research, including the sample size and structure, the inclusion of a control group, disparities in the choice of measuring procedures, and so on. The literature that has been analyzed suggests that it is necessary to conduct further research in order to identify additional parameters that influence the CR and can be used in the assessment. This is because an increasing number of studies demonstrate that participating in intellectually stimulating activities outside of formal education can also serve as a safeguard against cognitive deterioration in individuals with MS. In the end, a limited number of researchers in our region are working on the topic of cognitive reserve. Therefore, it is important to analyze the

existing literature that can highlight the importance of studying cognitive reserve and its influence on the cognitive state of individuals with multiple sclerosis.

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Machine Learning Meets Language Learning: The Transformative Potential of Artificial Intelligence in English Language Instruction

Professional paper

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Abstract

This study examines the prospective utilization of artificially intelligent technologies as pedagogical tools within English language classrooms, juxtaposed against conventional instructional methodologies. The discernment of AI tutors and virtual assistants, endowed with advanced natural language processing and machine learning capabilities, evinces promise in furnishing students with personalized and adaptive learning experiences. Nevertheless, the imperative necessity for additional empirical investigations persists to ascertain the efficacious integration of these tools into the fabric of language learning, while concurrently preserving the indispensable role of human instructors. Drawing upon the existing review of literature, this study illuminates the historical underpinnings of technology integration in educational settings and meticulously dissects the merits and demerits inherent in AI vis-à-vis traditional pedagogical approaches. Despite the augmentative potential of AI tutors in fortifying classroom instruction, fostering student confidence and motivation, and mitigating the burdens on educators, their deficiency in socio-emotional intelligence and creative acumen, quintessential attributes of human pedagogies, remains palpable. Consequently, a judiciously balanced approach, harnessing the complementary strengths of both modalities, is proffered, contingent upon contextual exigencies and educational objectives. The discourse culminates by positing the exigency for further investigations into the real-world ramifications of AI implementations and their corollary effects on English language proficiency. Proposing prospective trajectories for subsequent research endeavours in this domain, the article advocates an enriched understanding of the nuanced interplay between AI technologies and conventional pedagogy.

Keywords: *Artificial Intelligence (AI), Conventional, English Language, Learning, Teaching*

The rapid breakthroughs in artificial intelligence (AI) have ushered in a new era of inquiry and integration across multiple areas, with education emerging as a particularly promising sector. As English persists as the lingua franca of global communication, its mastery has become a pivotal determinant of access to a myriad of opportunities in various spheres. As a result, the incorporation of AI technology into education, particularly for English language acquisition, has received a great deal of interest. The drive for investigating the function of AI in language teaching stems from its potential to transform established pedagogical approaches. AI tools, including natural language processing (NLP) algorithms, chatbots, and machine learning applications, provide personalised and adaptable learning experiences. With these technologies, learning may become more dynamic and effective. They can analyse individual learning patterns, customise content to match specific needs and offer instantaneous feedback. This individualised approach contrasts sharply with traditional classroom environments, where teachers may find it difficult to meet the varied learning demands of a large student cohort.

Furthermore, AI-powered language learning platforms frequently employ immersive technologies like virtual and augmented reality to build simulated settings that mimic real-world language scenarios. This immersive approach enhances language acquisition by providing learners with contextualized experiences, allowing them to practice and refine their language skills in authentic situations (Saidin et al., 2015). For instance, language learners can engage in simulated conversations with virtual characters, navigate virtual environments, and participate in interactive language exercises that closely resemble genuine communicative situations. However, despite the promising prospects, it is essential to critically assess the strengths and weaknesses of AI-driven English language learning compared to conventional classroom pedagogies. One notable advantage lies in the scalability of AI systems, enabling them to reach a broader audience and address the global demand for English language proficiency. Additionally, the flexibility of AI platforms allows learners to access educational resources at their own pace and convenience, breaking down temporal and

spatial constraints associated with traditional classrooms (Kulkarni et al., 2013).

The application of AI in English language pedagogy presents a transition in the way language learning is conceptualized and delivered. While AI technologies offer unprecedented opportunities for personalized and immersive learning experiences, the balance between technological innovation and the preservation of essential human elements in education remains a critical consideration. As the discourse on AI in education evolves, continued research and evaluation are imperative to harness the full potential of these technologies while ensuring the holistic development of language learners. Research on the use of artificial intelligence, which includes AI tutors, virtual assistants, speech recognition systems, and adaptive learning platforms, in language learning and teaching has received a lot of attention in recent years. The outcomes of these endeavours have yielded a heterogeneous panorama, with varying degrees of success. Advocates of this technological wave posit that intelligent chatbots, virtual reality environments, and automated writing evaluation tools possess the transformative potential to furnish a personalized and scalable educational experience centred around the needs of individual students. This viewpoint champions the integration of AI into language instruction, asserting that it can revolutionize conventional pedagogical paradigms.

However, a counter-narrative began to emerge among opponents who question AI's ability to replicate distinctly human attributes such as empathy and ingenuity, which they argue are necessary for effective language education. This schism in perspectives underscores a fundamental tension in the discourse surrounding the intersection of emerging AI technologies and traditional teaching methodologies, especially in English language instruction.

This study contributes to the ongoing debate by conducting an in-depth analysis of recent interdisciplinary studies that scrutinize the amalgamation of AI-driven tools and conventional teaching methods in the domain of English education. The central inquiry guiding this investigation revolves around the comparative efficacy of artificial intelligence-driven tools and techniques

vis-à-vis conventional classroom pedagogies in teaching English as a second or foreign language. The article is organized into distinct sections to facilitate a comprehensive exploration of the subject matter.

The first section of the article delves into a meticulous review of relevant literature, providing a contextual framework for the research problem and elucidating key concepts that underpin the discourse. This foundational exploration lays the groundwork for subsequent discussions on the historical trajectory and contemporary landscape of AI in education, with a particular emphasis on its applications in language instruction. Following this, the article engages in a balanced discussion that critically evaluates the opportunities and limitations associated with AI-driven language education when juxtaposed against the capabilities of human educators. This comparative analysis not only considers the technical aspects of AI tools but also delves into the nuanced realms of interpersonal dynamics, emotional intelligence, and pedagogical intuition, thereby offering a holistic perspective on the matter.

Considering the insights garnered from the comparative analysis, the subsequent section puts forth recommendations for the judicious integration of AI-driven approaches and traditional pedagogies, advocating for a symbiotic relationship that harnesses the strengths of both paradigms. This section underscores the importance of a nuanced and context-specific approach to the incorporation of AI in language education, recognizing its potential while acknowledging the irreplaceable role played by human educators. The article culminates in a set of concluding remarks that encapsulate the key findings and delineate potential avenues for future research. This article aims to contribute to the ongoing discussion by examining the evolving landscape of AI in language education, providing valuable insights for educators, policymakers as well as researchers striving to navigate the complex relationship between technological innovation and the enduring principles of effective language instruction.

Review of Literature

The incorporation of artificial intelligence (AI) into language learning brings together several domains, including human-computer interaction, natural

language processing, multimodal learning analytics, and second language acquisition research. With an emphasis on increasing student interest and engagement, this interdisciplinary approach has resulted in the development of conversational agents and intelligent adaptive learning systems. This aligns with the constructivist teaching paradigm, emphasizing the construction of knowledge based on individual needs.

One prominent feature of AI in language acquisition is the use of sentiment analysis to interpret student emotional states via facial expressions, gestures, and speech patterns. AI tutors use this information to dynamically change the complexity of course content, trying to improve the overall learning experience. However, the use of affective computing technologies raises questions about data privacy, prejudice, and ethical consequences, resulting in ongoing disputes in the academic community. Munezero et al (2013) focused on the application of sentiment analysis to monitor emotions in students' learning diaries in their study. The authors discuss the use of computational techniques to analyze the sentiment expressed in written reflections by students, aiming to gain insights into their emotional experiences during the learning process. The article likely explores the potential benefits of leveraging sentiment analysis in educational contexts for understanding and improving students' emotional engagement and well-being (Munezero et al., 2013).

Review studies indicate a weakness in present AI systems, emphasising their proclivity to detect surface-level comprehension and language faults while missing a thorough understanding of linguistic nuances. As a result, pupils risk missing out on socio-cultural nuances and meta-cognitive skills that they would normally learn from interactions with human lecturers. Despite these concerns, proponents argue that intelligent virtual patient simulations can effectively build communication skills for professionals through immersive practice (Jensen & Konradsen, 2018). To assess the impact of AI tools on language proficiency, fluency, lexical resources, and critical thinking, comparative studies become essential. The significance of matching learner profiles with appropriate AI or instructor training is emphasised, taking

into account factors like age, competence level, and subject difficulty in needs analyses. However, the lack of standards in data collection, annotation, and measurement poses significant barriers to the development of evidence-based frameworks guiding the proper integration of AI in language pedagogy.

Methodology and Knowledge Gap

This study utilizes a qualitative research approach, employing an in-depth analysis of existing literature and secondary data sources. The investigation draws insights from diverse materials, including books, articles, book chapters, blogs, and websites. By critically examining these sources, the research aims to offer a nuanced understanding of the subject matter, enriching the qualitative dimension of the study. The identified research gap underscores the necessity for increased cross-disciplinary collaboration between technical innovators and language teaching experts. Such collaboration is critical for developing comprehensive norms and guidelines that assure AI's appropriate and successful incorporation into language teaching. Educators and technologists can work together to bridge the gap between technology advances and pedagogical competence, thereby contributing to the continued progress of AI applications in language learning.

Background

The convergence of artificial intelligence (AI) and education builds upon a rich history of employing technology for language learning, dating back to the 1920s. The evolution from traditional blackboards to interactive whiteboards and textbooks to e-learning modules has been facilitated by the continual advancement of educational technology tools over the past century. Despite these strides, the integration of digital innovations for language instruction has been gradual, with response systems, digital games, and corpora analysis tools gaining popularity in the 2000s. However, the application of AI in language education remains largely experimental at present. The surge in global edutech investments, emphasizing scalable personalized learning, has led to an increased utilization of AI for standardized test preparation. Additionally, automated speech recognition contributes to reducing accents and pronunciation errors.

A more in-depth examination is warranted to assess students' receptiveness and learning outcomes compared to traditional classroom teaching.

As AI capabilities in natural language and speech processing continue to mature, developers assert their potential to revolutionize language education. Notwithstanding the prowess of large language models like GPT-3 and the conversational abilities of devices like Alexa, an overreliance on their input poses risks of inaccuracies and ethical concerns that human judgment is better suited to address. Thus, the responsible and equitable integration of AI in language classrooms necessitates a comprehensive scrutiny of both its limitations and potential.

AI teaching applications leverage computing algorithms to enable technological systems to emulate aspects of human cognition, such as perceiving patterns, reasoning to solve problems, and making recommendations (Popenici & Kerr, 2017). Language-focused AI tools can offer personalized instruction tailored to individual learners' abilities and needs, providing instant automated feedback and allowing educators more time for higher-order tasks. Nevertheless, caution is advised against over-relying on AI, as there are potential risks, including student overdependence on automation. Consequently, most experts view AI as supplementary rather than a replacement for human teachers (Zheng, 2018).

In the realm of language acquisition, interactive communication experiences are deemed crucial but often limited (Guilloteaux & Dörnyei, 2008). Traditional teaching methods, focused on grammar and vocabulary memorization through textbooks, worksheets, and exam preparations, have evolved. Modern approaches acknowledge the necessity of providing learners with opportunities for functional language application to develop authentic communicative abilities (Foss, 2011). Conversation and roleplaying exercises improve student engagement and foster cross-cultural understanding, while pair, group, and whole-class conversations provide natural settings for utilizing the target language. The effective integration of AI tools should complement these interactive, communicative teaching techniques.

AI English Education Applications

Various types of AI applications demonstrate the potential to support language learners across different aspects of language acquisition. Among these, Automated Writing Evaluation (AWE) programs, such as ETS's Criterion, play a crucial role in assessing and enhancing students' writing abilities. The ability to write may be enhanced overall by using these tools, which provide comprehensive critiques on syntax, expression, structure, and style. Intelligent Tutoring Systems (ITS) represent another significant AI application, which tailors learning content sequences to align with individual proficiency levels and areas that require improvement. ITS promotes a personalised and effective learning experience by tailoring it to learners' particular requirements.

Chatbots, as interactive conversational agents, simulate conversation partners and facilitate speaking and listening practice for language learners. The interactive nature of these AI tools provides learners with an immersive language experience, allowing them to practice communication skills in a controlled and supportive environment. Adaptive Learning Systems constitute another category of AI applications that contribute to language learning. These systems serve to promote mastery and cater to the specific learning speed of each student by dynamically adjusting the sequencing and complexity of learning materials depending on individual progress (Fryer et al., 2017). Moreover, speech recognition tools, exemplified by the Duolingo English Test, assess pronunciation and fluency, offering learners valuable insights into their spoken language skills (de Vries et al., 2015). This type of AI technology provides instant feedback on pronunciation, enabling learners to refine their speaking abilities in real-time.

Automated Writing Evaluation

To evaluate and provide comments on written assignments, Automated Writing Evaluation (AWE) programs have become popular. These systems use natural language processing (NLP) algorithms to score essays automatically, eliminating the need for direct human intervention. Criterion, an established instance of such a tool, evaluates essays and offers customised guidance to facilitate the revision process. Criterion's capabilities contribute to the realm of self-paced remote

learning, offering flexibility for students to engage with the tool at their own pace. This aspect is particularly beneficial in modern educational settings where remote learning has become increasingly prevalent. Moreover, AWE tools like Criterion have been recognized for their potential to alleviate grader workloads, a significant concern in educational institutions striving to manage the increasing demand for assessment (Dikli & Bleyle, 2014).

However, despite the apparent advantages, there are lingering concerns regarding the reliance on algorithms to evaluate the subjective quality of writing. Automated systems may struggle to capture the intricacies of creative expression, tone, or voice that human assessors can discern. Furthermore, the limitations of AWE tools extend to their ability to accurately recognize learner intent and provide meaningful content advice beyond simple error correction. AWE tools may excel at addressing mechanical aspects of writing but may fall short when it comes to understanding the deeper intentions behind a piece of writing. This limitation raises questions about the extent to which AWE tools can truly replace the nuanced insights provided by human writing instructors.

Precisely, while AWE tools like Criterion offer significant advantages in terms of efficiency, immediate feedback, and workload reduction for graders, they currently cannot fully substitute the role of human writing instructors, particularly in fostering higher-order writing skills. The ongoing challenge lies in refining these tools to overcome the limitations associated with subjective assessment and providing more nuanced guidance on content development. Maintaining a balance between utilising automation to its full potential and acknowledging the indispensable contribution of human experience to writing is crucial as the subject of AWE continues to take shape.

Intelligent Tutoring Systems

Intelligent Tutoring Systems (ITS) represent a groundbreaking application of artificial intelligence (AI) in the realm of education, specifically targeting personalized instruction tailored to individual learners' knowledge states and learning needs (Nye et al., 2014). These systems leverage advanced AI techniques, such as machine learning, to

dynamically adapt instructional content based on the learner's proficiency and performance. The efficacy of ITS in assessing mastery of concepts through interactive engagement has been recognized as a cornerstone for providing timely and relevant feedback, thereby facilitating adaptive learning activities (Alim et al., 2019).

When it comes to language acquisition, ITS has proven to be able to enhance educational outcomes by emphasizing difficult or neglected topics while accelerating through known material. The complete realisation of ITS's potential, however, is beset with numerous hurdles, even despite the encouraging improvements. One of the most significant problems is the requirement to create comprehensive subject matter and pedagogical knowledge bases that support effective personalisation. Creating AI systems that possess nuanced understandings of diverse subject areas and instructional strategies is a complex task, requiring interdisciplinary collaboration between AI researchers and domain experts in education.

Moreover, critics have raised concerns about the potential drawbacks of heavier reliance on AI tutors within educational settings. A growing reliance on ITS may jeopardise human social connections, which are seen as critical for promoting a comprehensive learning experience. Social interactions contribute to the development of interpersonal skills, communication abilities, and collaborative problem-solving—qualities that extend beyond the scope of AI-driven instruction.

Intelligent Tutoring Systems demonstrate considerable promise in assisting educators and enhancing learning outcomes, but they are unlikely to entirely replace human instructors. The challenge lies in striking a balance between harnessing the capabilities of AI for personalized and efficient instruction and preserving the irreplaceable benefits of human social interactions in the educational process. The ongoing integration of AI in education necessitates continued research, collaboration, and careful consideration of both the opportunities and challenges inherent in this transformative approach.

Chatbots

Chatbots have emerged as valuable tools for facilitating conversational interactions with computer programs,

employing both text and voice interfaces. The chatbot ELSA, as investigated by Fryer et al., (2017) demonstrated a positive impact on language learners' fluency and engagement. Despite these advances, issues such as handling lengthy dialogues and comprehending contextual meaning persist in the sphere of chatbots. This highlights a critical area where further research and development are needed to enhance the conversational capabilities of chatbots (Fryer et al., 2017).

Potential student annoyance while engaging with chatbots is another important factor to consider. Conversations may look rehearsed or fail to reply appropriately, resulting in a poor user experience. Addressing these limitations is critical for developing a sophisticated view of chatbots' function in education. While chatbots serve as beneficial practice partners for language learners, it is imperative to recognize their current limitations. Advancements in technology are necessary to address challenges such as handling expansive dialogues and understanding contextual nuances. By doing so, chatbots can evolve into more effective tools for meaningful and human-like conversational interactions in educational settings.

Adaptive Systems

Innovative approaches to education are being offered via adaptive learning systems, which provide customised courses that dynamically modify their material sequencing and difficulty levels based on how well students do. This approach is designed to cater to the unique needs of each learner, addressing both their strengths and weaknesses. The primary goal is to provide a customised learning experience that boosts engagement and enables efficient knowledge acquisition. START, a platform that adapts language training to target reading strategies, is a noteworthy example of an adaptive learning system. It tailors the text selection and feedback to each learner's unique capacity to improve reading comprehension and language competency by responding to each learner's personal demands and skill levels. (Crossley & McNamara, 2016).

Research comparing constant and adaptive difficulty conditions has indicated the potential advantages of adaptive learning approaches. Jackson and McNamara found that adaptive difficulty conditions

led to better comprehension and increased motivation compared to constant conditions. This suggests that the adaptability of learning platforms plays a crucial role in maintaining learner engagement by presenting tasks that align with the learners' current level of competence while challenging them appropriately (Jackson & McNamara, 2013).

Moreover, the efficacy of adaptive learning solutions is contingent on the availability of significant data to inform the adaptation process. These platforms require substantial data inputs to accurately gauge learner abilities and tailor content accordingly. This reliance on data underscores the importance of a well-established infrastructure for data collection and analysis.

Despite the potential benefits of adaptive learning platforms, it is essential to recognize their limitations. Standalone adaptive platforms may fall short in achieving comprehensive language mastery without the guidance of teachers on broader learning processes. While adaptive technologies excel in individualizing content delivery, the role of educators remains pivotal in providing holistic support, addressing diverse learning needs, and fostering a deeper understanding of language skills.

Precisely, adaptive learning platforms offer a viable way to improve education by delivering personalised and dynamic learning opportunities. The effectiveness of these platforms, particularly in the field of language acquisition, is dependent on the quality of the algorithms, the availability of adequate data, and the incorporation of instructor assistance to ensure a well-rounded and effective educational experience. As technology continues to advance, further research and development in adaptive learning will contribute to refining these platforms and maximizing their impact on educational outcomes.

Speech Recognition

Speech recognition systems evaluate spoken input to determine characteristics such as pronunciation, pace, and fluency. Pronunciation rating helps uncover areas for development, whereas gamification components encourage advancement. Systems like the Duolingo English Test compare metrics against native baseline samples to align with human ratings (de Vries et al., 2015). However, performance

in terms of recognising finer distinctions or determining meaning vs sounds remains imperfect. Teachers thus retain the importance of assessing higher-order speaking abilities until algorithms further advance. However such tools already assist in providing detailed feedback at scale. AI shows growing potential value in assisting language education. Yet no solution currently exists offering a wholesale replacement for human teachers' abilities to interpret needs, guide development and evaluate mastery, especially of higher-order skills. The next section suggests integration strategies to complement conventional instruction, before addressing remaining research gaps.

Discussion

Conventional Language Learning Methods

For several decades, language educators have employed various teaching methodologies to impart language skills to learners. Among the prominent approaches are grammar-translation, audio-lingual, communicative, and task-based methods, all of which have contributed significantly to the pedagogical landscape (Richards & Rodgers, 2014). These techniques include specific education and practice of critical language components such as syntax, lexicon, articulation, and the four language skills of reading, writing, listening, and speaking.

The grammar-translation technique, which has its roots in conventional language instruction, focuses on memorising grammatical rules and translating phrases between the target and native languages. The audio-lingual approach, on the other hand, emphasises frequent drills and oral exercises to reinforce linguistic patterns through habit formation. Communicative language teaching emphasizes real-life communication and situational context, encouraging students to use the language for meaningful interaction. Task-based language teaching integrates language skills into purposeful tasks, fostering practical language use in authentic situations (Richards & Rodgers, 2014).

These approaches emphasise the acquisition of practical communicative skills as well as the development of language competence (Kumaravadivelu, 2007). The effectiveness of these methods is enhanced through social interaction activities, which provide learners with opportunities to use the

language in authentic contexts. Such whole-language instruction strives to bridge the gap between theoretical knowledge and practical application, fostering well-rounded language proficiency.

However, despite the advantages of these traditional approaches, personalized remediation poses a considerable challenge in large classrooms. In such settings, individualized attention and feedback for each student become logistically complex, hindering the customization of instruction to cater to individual learning needs. The sheer number of students in a typical classroom can impede the implementation of tailored language interventions.

Moreover, conventional language teaching approaches heavily rely on the teacher's skills in designing curricula and materials. The efficiency of these methods is determined by the instructor's ability to generate compelling learning materials, design meaningful activities, and adapt teaching strategies to the learners' various requirements. As a result, the effectiveness of language instruction is inextricably linked to the teaching staff's ability to adapt.

AI-enabled Language Learning

Recent advances in AI are enhancing many aspects of language learning, from speech recognition for pronunciation evaluation to conversational agents that provide dialogue practice (Fryer et al., 2017). Machine translation facilitates composition writing and reading comprehension. AI's strengths in pattern recognition can help diagnose errors and track progress. Its interactive capacities allow learners to get instant feedback and practice anytime. Such technologies can expand access and supplement instruction (Zawacki-Richter et al., 2019). However, solely relying on AI has risks, as it currently cannot fully interpret language usage in diverse sociocultural contexts.

Comparative Analysis

When applied correctly, AI and traditional approaches have complementary strengths in language training. Explaining language rules and social nuances still necessitates human teachers' abilities. AI instructors offer more customised tutoring through continuous diagnosis and micro-level modifications. AI chatbots provide speaking practice but cannot determine appropriateness. Games and simulations

interest learners, but human interaction teaches real-world communication rules. While machine translation improves convenience, it still makes errors in conveying linguistically and culturally appropriate expressions.

When applied wisely, modern AI can enhance the teaching profession rather than take its place. Teachers offer whole-language instruction, facilitation, and evaluation. AI facilitates practice, micro-adaptations, and progress tracking. More empirical investigations are needed to create evidence-based guidelines for such integrations (Wang & Petrina, 2013).

AI teaching tools offer notable benefits in terms of effectiveness, cost, assessment capability, and inclusiveness, though also pose certain limitations regarding emotional engagement, creativity nurturing and technological barriers to access.

Opportunities by AI-Based Language Teaching

Proponents present AI technologies as powerful teaching aids which can supplement and extend conventional language instruction in significant ways as follows:

Personalized and adaptive learning

In contrast to classroom sessions that are designed to fit every student, intelligent tutors examine individual profiles and activity data to provide assessments and content that are tailored to the needs and speed of different learners. Automated feedback then scaffolds students needing additional support. Such differentiation enables self-directed learning crucial for adult learners.

Engaging multimodal content

Interactive games, virtual worlds and augmented reality simulations created by AI can provide immersive opportunities for learners to use language skills. Such experiential learning builds engagement and motivation levels, especially for digitally native students.

Efficient evaluation mechanisms

Automated speech recognition tools and essay scoring systems powered by neural networks offer quick diagnosis of grammar and pronunciation errors which teachers can then focus on resolving (Celik et al., 2022). This formative feedback guides self-correction and revision. Workload reduction through such automation creates space for teachers to mentor students.

Increased access

AI-based language programmes have expanded learning opportunities in rural locations and for economically disadvantaged people through mobile apps, hologram assistants, or voice UIs. The asynchronous and device-agnostic nature of such tools aids inclusiveness.

Limitations of AI-Based Language Teaching

However, critics argue reliance on artificial intelligence as language instructors also comes with several risks and pitfalls such as:

Absence of Emotional Intelligence

The human qualities that are necessary for teaching linguistic and communicative competence, such as humour, empathy, sarcasm, and cultural sensitivity, cannot be demonstrated even by the most sophisticated chatbots. Students miss out on vital socioemotional connections and situational analysis possible only through human interaction.

Inadequate Creative Intelligence

Machines excel at statistical analysis, pattern recognition, and generative tasks, but they lack the creativity, imagination, and abstract thinking required for activities such as story brainstorming or hypothesis formulation. Such higher-order proficiencies are better nurtured collaboratively.

Poor Interpretive Abilities

Despite breakthroughs in contextual embedding, sentiment analysis, and co-reference resolution, AI still struggles to understand deeper semantic and pragmatic concepts beyond surface-level language patterns. Appreciating subtleties like irony is restricted without common-sense reasoning capacities.

Bias Perpetuation Risks

Current NLP models include biases that are exacerbated in downstream applications because they were mostly trained on standard English data. This can negatively impact English learners from diverse linguistic and cultural backgrounds. Opaque AI systems also suffer from accuracy issues and ethical risks.

Creation of Passive Learners

Students become dependent on AI guidance instead of gaining metacognitive autonomy and critical thinking abilities in overly scaffolded environments that provide prescriptive feedback. This hinders the

realization of personalized agency vital for self-driven lifelong learning.

Findings

Promising opportunities develop for AI to augment rather than replace traditional approaches, tackling respective limitations. This reduces burdens while allowing teachers to focus expertise on higher mastery guided through interpersonal activity and discussion. However, many open questions remain regarding how to optimally integrate automation alongside existing pedagogical approaches. Further research should assess implementation strategies balancing usefulness with ethics.

Suggestions***Integrating AI With Conventional Teaching***

While still evolving, AI solutions show meaningful successes targeting specific language acquisition capabilities and pain points in the learning process. These could address challenges students face between lessons while freeing up class time for interactive activities. Teachers may assign AI writing tools to improve early drafts, to enable more advanced composition guidance instead of solely addressing errors. Instructional Technology Systems (ITS) lessons could allow self-directed vocabulary building with terms or grammatical concepts needing work to inform subsequent instruction. Chatbots create low-pressure conversational practice opportunities, potentially customized around recent lesson themes. Adaptive programs might reinforce literacy and comprehension competencies by selecting appropriate readings matched with personalized scaffolding and feedback between sessions. And speech recognition aids diagnose pronunciation issues for focused improvement.

Such AI integration should attempt to strengthen particular student shortcomings and provide a solid platform for intense human-led initiatives. These might increase involvement via pair talks, debates, or roleplays in real-world settings using target language. Lessons may include higher-order language applications for issue analysis and assessment rather than basic comprehension or accuracy. Building linguistic talents and cultural proficiency demands meaningful idea interchange, which is best fostered by human social interactions. Although AI efficiency allows for the acquisition of key skills, language mastery requires real experience.

Inevitably, only human instructors can completely give such chances.

Delimitations of the Study and Future Scope for Further Study

Delimitations

This article does not cover the technical complexities of natural language processing architectures or statistical evaluations of available models. With the focus restricted to English language teaching, exploring AI implications across other subjects could offer cross-domain insights. This study is restricted to a dichotomous comparison between artificial intelligence and human educators; nevertheless, the most promising results for student outcomes come from combining the two methods in a blended pedagogical model that is customised for individual requirements. More empirical studies testing such hybrid frameworks for language instruction across ages and proficiency levels are essential. Future scope also remains for investigating appropriate combinations of immersive simulations, intelligent tutors, educator dashboards, and collaborative tools in line with language learning objectives. Issues of transparency, accountability, and equitable access when scaling AI for education also warrant addressing through cross-sectoral efforts.

Future Research

While AI language learning tools demonstrate growing capabilities to assist students and instructors, best practices for real integration alongside conventional classroom teaching require further definition through additional research. Documenting various blended AI and human-led pedagogies can detail costs, benefits, and challenges in discovering optimal balances suitable for different educational contexts. Comparing student outcomes following systematic exposure to differing ratios of automation use versus typical instruction may reveal ideal models, though likely varying across ages and proficiency levels. Surveying teacher and learner attitudes following practical experiences with AI assistive technologies can also inform suitable adoption rates accounting for perceptions. Long-term studies tracking the effects of certain usage levels on mastery may disclose potential overreliance issues.

The legal and ethical ramifications of increasing educational AI should also

be considered. Maintaining privacy is still crucial as more student data is collected by systems for personalisation. Norms must be set to provide equitable access and prevent cultural or linguistic bias. Ongoing evaluation is also essential to ensure alignment with learning objectives as algorithms evolve behind the scenes. Ultimately judgment is still required to determine appropriate scopes of authority between AI contributions versus human direction over the learning process. Collaborative design processes may best delineate guidelines for transparency and accountability attuned to community standards (Knox et al., 2020).

By progressing such research, the potentials and limits of AI integration can become clarified to support teachers in selectively utilizing technological capabilities alongside their expertise to serve diverse student needs most effectively. However, it is imperative to retain human guidance, especially for higher-order language and cultural competencies essential to genuine communication abilities.

Conclusion

This article presents a balanced perspective on the merits and demerits of artificial intelligence technologies as supplements for conventional English language teaching based on current research in this interdisciplinary area. Integrating AI tools in language pedagogy, encompassing AWE programs, ITS, chatbots, adaptive learning systems, and speech recognition tools, demonstrates a promising avenue for enhancing language proficiency. The documented effectiveness of these tools, as evidenced by research findings, underscores their valuable contributions to various facets of language acquisition. As technology continues to advance, further exploration and refinement of these AI applications hold the potential to revolutionize language education. While usage of AI tools in English language acquisition demonstrates the potential for personalized education at scale, concerns around ethical risks, emotional voids, and creativity lag caution against outright replacement of human teachers who bring complementary strengths. Blending scaffolded AI tools aligned with specific learner profiles and contexts alongside compassionate instructor guidance is recommended for optimal student outcomes

and experience. More investigations into real-world implementations through university-industry partnerships can inform responsible integration frameworks and specialized educator training programs for the future of AI-enabled language learning. Precisely, more evidence is still needed while promising directions emerge on effectively combining automation and teacher guidance including peer learning models, wise feedback habits, and nurturing metacognition above rote mimicry.

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Challenges of Child Functional Improvement in Family-Oriented Early Intervention: Parental and Professional Perspective

Original scientific paper

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Abstract

Early intervention involves a process of supporting children at risk or with confirmed developmental disorders, as well as their families. Specific goal of this case study is examining the impact of family-oriented early intervention on the level of functionality in a case of a child with developmental language disorder. A family of two and their child aged 2 years and 8 months with a confirmed developmental language disorder, was supported by the model of Family Oriented Early Intervention. According to the obtained data on the achieved milestones, significant progress was confirmed in daily functioning, and in areas of psychomotor development of child S. N. which was covered by the early intervention approach. Early Intervention improved child and family quality of daily living in natural surroundings of the boy S.N., but also confirmed improvement of reaching its developmental milestones.

Keywords: *Family Oriented Early Intervention, Functional Goals, Primary Care Giver*

Early intervention (EI) involves a process of informing, counseling, educating, and supporting children at risk or with confirmed developmental disorders, as well as their families, as stated by National Disability Insurance Agency, (NDIS 2021). This type of intervention focuses on the child's relationship with their environment and the way the child learns, meaning that a confirmed diagnosis is not a prerequisite for

its implementation (Meier et al, 2007).

In a narrower sense, early intervention offers advantages in improving developmental outcomes and enhancing the quality of life for individuals and communities. Although EI is applied according to various models and approaches, research on the specific effects of early intervention is still limited. More detailed comparative analysis is needed to explore the

advantages of early intervention in relation to other types of supportive treatment in the first years of life.

Researchers have observed that early identification of impairment, in alignment with appropriate programs, is the best way to help children develop their full potential. According to Mahoney & Wiggers (2007), to be most effective, early intervention programs need to consider the child's age at the time of intervention, as well as the level of parental involvement, the intensity, and the structure of the program.

There are various types of programs based on different national strategies for early intervention. Those considered successful are highly structured and clearly specify actions and goals. These programs carefully monitor the behaviour of children and families and often examine the interactions of service providers, session plans, and regular activities (Brooks-Gunn et al, 2000).

The need of raising awareness and sharing research data in the field of Early intervention is more than necessary in these modern circumstances when Early Intervention is in its pioneer phase in this region.

Family-Oriented Approach

Successful early intervention programs must be tailored to the needs of families, embedded within the local community, and capable of effectively integrating multiple disciplines. These programs need to be adept at planning and coordinating support and services from various agencies. Positive developmental outcomes largely depend on the early identification of disorders and prompt referral to appropriate early intervention programs. Current best practices highlight the importance of family involvement in early intervention programs. In opinion of Dunst (2020), early intervention involves parents and primary caregivers who use their experiences and abilities to support children's development and acquisition of skills, enabling meaningful participation in daily activities within their environment.

Considering Bailey et al. (2006), several desirable outcomes for early intervention programs exist: families should be able to recognize and understand their child's strengths, abilities, and needs; families should be aware of and advocate for their rights and those of their child;

and families should have access to both formal and informal support systems, which include expert assistance in strengthening the social network for families of children with developmental challenges. Additionally, families should have access to desired services and community-based activities.

The family-centred early intervention concept includes three key elements: focusing on the child's abilities, promoting family choice and control over selected resources, and fostering collaboration between professionals and parents. Although research indicates that implementing this model is neither simple nor easy, ongoing practice demonstrates that families in this model benefit from a wide range of opportunities to work with their child, which supports both the child and the entire family. Families often experience satisfaction with this approach and readily embrace it (Espe-Sherwindt, 2008).

In early intervention, parents are partners with professionals in providing early support to the child. According to Ivshac Pavlisha, (2010), analysing the context of interdisciplinarity and transdisciplinary in the early intervention system, it is necessary to identify and encourage the active participation of all persons involved in early child development.

Benefits of Family Oriented Early Intervention Processes

Assessing the effectiveness of individual early intervention programs is challenging and often unreliable. This is partly due to the long-term nature of early intervention. Since many programs aim to act early in a child's life to prevent social problems later, evaluations should follow program users into their later years. However, conducting longitudinal studies can be complex and expensive. Graham Allen's initial report on early intervention examined 72 early intervention programs that adhered to established standards and evidence from Europe and North America to assess their effectiveness (Allen, 2011).

Early intervention has the biggest impact on health and wellbeing. A significant portion of early intervention research focuses on critical stages of neurological development from conception to the second year. During this period, the brain develops rapidly, forming more than a million new neural connections every second. Early

parent-child interactions are crucial for this development and can impact future mental and emotional health as well as overall well-being (Shonkoff et al, 2012).

The main argument for society benefits of early intervention is that social problems can be addressed more effectively if dealt with at an early stage of a child's life. Later interventions are often significantly less effective in addressing social issues such as unemployment, crime, and various forms of abuse (Powell, 2024). A central problem for all developed countries, including our own, is that interventions often occur too late, when health, social, and behavioural issues are deeply entrenched in the lives of children and youth. Delayed intervention increases the costs of addressing these problems and reduces the likelihood of achieving successful outcomes. Often, delayed intervention results in only costly palliative measures that fail to address the root issues (United Nations agency for children [UNICEF], 2006).

In addition to social reasons for intervention, policymakers and advocates of early intervention programs frequently cite economic benefits, such as reduced public spending on health and social issues and increased economic productivity. For example, Organisation for Public Health in England states that "evidence shows that prevention and early intervention represent a good investment of money." Properly selected interventions, when implemented in sufficient amounts, help maintain health, prevent disorders, control the number of public services provided, and support economic growth (Government of England [GOV.UK], 2016). Current situation of family-oriented services in the Republic of North Macedonia in terms of early interventions can be found in a report published by United Nations agency for children (United Nations agency for children [UNICEF] 2023). According to that data, Services in the field of early intervention in childhood are mostly services provided within institutions, the number of institutions that have the capacity to provide services in the natural environment is rare, and there are practically no institutions that are exclusively focused on early intervention services in the home environment.

Institutions that are engaged to provide early intervention services for

children, in the age category from 0 to 6 years old, are mostly from the health sector, and a smaller number of them are from the non-governmental sector (UNICEF, North Macedonia, 2023). Services that are aimed for the child are dominant, services related to rehabilitation, and the smallest number are types of services that fall into the category of services aimed at the family.

Services received by users within the framework of early childhood intervention needs in North Macedonia are mostly located in larger cities. According to information, there is a typical modern EI centre in Skopje, which was financed and opened by UNICEF. According to this survey, families generally do not use any EI services, except for individual rehabilitation services.

Their children attend treatment in centres, according to recommendations, with speech therapists, special rehabilitators and/or physiotherapists. Parents emphasised the lack of following services that they would like to use: support during daily activities; domestic support; family counselling; continuous treatment; replacement of parents in the care of their child. On the level of Institutional family oriented early intervention support, a survey done in 2022 in Public Health Institute for rehabilitation of Hearing, Speech and Voice in Skopje, emphasised the question of readiness of parents to take the role of active participants in the early support of their child's development. Real challenge was the parent cooperation in the context of using best available circumstances for the children, e.g. home setting. Out of 41 families who were offered family oriented early intervention support, only 14 families confirmed active cooperation with the primary care giver, and the reason of this number, is the attitude of parents (they confirmed of being available for cooperation, but in practice, usually it did not appear so). The number of parents that gave feedback of implementing instruction and organising the every day situations for stimulation purposes was (Poposka et al, 2022).

Materials and Methods

Goal of the Study

Specific goal is to examine the impact of family-oriented early intervention on the level of functionality in a case of a child with developmental language disorder. Generally,

this study aims to raise awareness of the importance for family involvement in Early Intervention implementation.

Subject of the Study

The subject is functional improvement follow up during the process of family oriented early intervention.

Study Sample

In this case study, a family of two and their child aged 2 years and 8 months with a confirmed developmental language disorder, who was involved in institutional service support at the Centre for Rehabilitation of Verbal Communication Pathology in Skopje, was supported by the model of Family Oriented Early Intervention. The selection criterion was absence of accompanying problems, or some disease with confirmed organic aetiology. At the same time, it was important that the child did not have any significant breaks from receiving services, meaning the service support was delivered continuously.

Research Techniques and Instruments

With previously obtained consent, Developmental scale for language understanding -Raynell, (1995), and Communicative Development Inventories-Koralje (2012) - were used. Documentation analysis as well as parents' interview were done. Also, assessment reports from the support team, individual family support plan and individual rehabilitation treatment plan.

Results

S. N. is a boy of 2 years and 8 months. He was brought for an initial verbal communication by his mother initiative. Parents main concern was that their child does not speak like his peers.

Anamnesis Data

The child was born from the first, twin pregnancy, 3 weeks before the due date, APGAR 7/8 and body weight 2250 grams. During the first year, according to his mother, S. N. was a crying baby, often with a changing rhythm of sleep and wakefulness, agitated, nervous and with a constant demand to be in his mother's arms to calm down. From pre-language abilities - the period up to the first year of S. N. cooing from the fourth month, and babbling (ba-baa, ma-maa, tee-tee) appeared at the seventh month, but syllables were used less frequently. According to the mother's statement, the

child grew up in social isolation.

First words appeared after he was 1.5 years old, but the vocabulary did not increase with the expected dynamics. Language comprehension was reduced to the prohibition NO, followed by gesture, while requests to show where something was ("Where's the cat?") were absent. Proto-imperative and proto-declarative gestures were absent at the time expected for the age, the boy did not point his finger either in the function of need or in the function of exchanging information. At the same time, mother-subject contact was absent, indicating the absence of triadic communication. The boy lives in a family environment, with both parents and a twin brother.

Functional Assessment

S.N. moves stably and independently on flat ground. He needs support when moving up the stairs, so it is necessary to stimulate independent climbing up the stairs by alternately using the left and right leg. His most common motivation for motor activity is imitating his brother's play, and he likes to run, jump and throw toys. When called by name, he responds selectively and often chooses to continue playing with objects rather than respond to the call. He does not come into contact with unknown people, nor does he react violently with indignation. In relation to his mother, he shows an insecure relationship, most often with stormy emotional episodes in case of fear of separation. He is independent when using a milk bottle, as well as solid food (bread, snacks). He is still not fully independent in taking a full meal, as well as using a spoon while eating a cooked meal.

In a spontaneous situation, he is interested in objects, but poorly in people. He likes to play with toys, but this activity lacks creativity and a longer flow of play. Compared to his brother, he often throws toys, and still does not know how to share and participate in joint activities. Does not engage in play with peers.

Verbal communication is not his first choice and he uses it only when there is an extreme need. He mostly communicates with one word, a noun, and even less often uses words that indicate an action. In communication, he rarely uses 2-word sentences, which are learned sentences whose purpose he knows. Understands verbal commands that are unambiguous and

situational. Although he understands orders, he often chooses not to carry out requests, and shows this by ignoring or expressing strong displeasure. His mother constantly supports him, not judging whether he can complete the activity on his own or not. Parents say they treat him with concern and overprotection and often tolerate

inappropriate behaviour.

His mother addresses him cordially and always goes out to meet him. During the initial review, as well as during the realized support, several procedures, standardized and informal, were carried out in order to assess the level of development abilities.

Table 1.

Assessment and Evaluation Procedures Schedule

CHRONOLOGICAL AGE	PROCEDURE
2;8	Language Comprehension Scale, Raynell, 1995
2;8	Developmental scale for communication, words and gestures, Koralje, 2007
2;8	Developmental test Chaturich, 1995
2;8	Psychomotor abilities assessment
2;8	Audiometry
2;8	Interview with parents
2;8	A sample of spontaneous interaction with a speech therapist
3;4	Language Comprehension Scale, Raynell, 1995
3;4	Development scale for communication, words and gestures, Koralje, 2007
3;4	A sample of spontaneous interaction with a speech therapist
3;4	Interview with parents

Table 2.

Initial Assessment Achievements

Assessment type	Developmental age
Scale for Language Comprehension, Raynell, 1995	20 months
Developmental Achievement	
Developmental scale for communication, words and gestures, Koralje, 2007	18 months
Developmental test Chaturic, 1995	21 months
Developmental age of motor skills	26 months
Cognitive abilities	24 months

Functional Goals Set up

After standardized procedures were performed during the initial assessment and discussion with parents, recommendations were made regarding further support of the child's development.

An early intervention plan was agreed with the parents in terms of support in the natural environment as well as service support within the institution. It is accepted that parents bring their child to regular speech and language therapy twice a week. The parents readily accepted that a meeting

with a speech therapist takes place once a month, in a natural environment, outside the institution. The purpose of the visits was family support during daily activities, family counselling, as well as providing guidelines for improving the child's functional abilities. During the first visit to the child's home, along with a conversation with the parents, functional goals were set, which were defined jointly with the primary care giver, according to the principle of priority set up, for the child and parents.

Table 3.*Routines and Strategies (1)*

PRIORITIES	FUNCTIONAL GOALS
I want my child to collect toys	After afternoon play, S. N. will collect small balls in the storage box by playing the game "throw the basket" with his father and brother
My son will verbally answer simple questions that we ask him	When asked by his mother, showing two products (for example: water or juice) and naming them, 'What do you want?' S.N. answers in about two words, naming the desired drink and the desired activity.
My son will be involved in group play with peers	During the time spent in the park, S. N. will participate in throwing the ball, with his brother and children from the neighborhood.
My son will eat independently	S. N. will sit at the table during family lunch and eat a slice of bread cut into pieces by himself.
To spend a weekend on our own (family priority)	Parents will leave S.N. and his brother at home with his grandparents, during the weekend, so they might have time for them, at least once every three months.

According to the previously determined functional goals, together with the parents, the determined strategies are as follows:

Table 4.*Routines and Strategies (2)*

Routines through categories and activities	Strategies
Time for a meal	- prompting during the performance of the activity – either verbal, gestural, or with the help of a model, physical or pictorial "What do we need now?" - the child and mother take a plate, and similar things from the environment that are necessary for the activity of meal preparation. The mother took, showed and offered the prepared piece of bread. The child can choose one piece from the offer, take it and put it in the mouth independently. The mother takes, shows and names the food she has chosen as S.N. requested. The child can choose from the offer, and thus use the word or action naming concept.
Social games with peers	During a game with children in the park: "Come on, show him your ball!" Can you throw it to him?", expecting him to try to throw the ball, then wait for him to get it back, before throwing it to another child in the group. A mother stimulates her son with words of encouragement!
Playing with balls (collecting them)	-measured leadership – lowering down the assistance that is given to the child, and assistance is canceled as soon as possible. During the game, the parent chooses several balls and offers one to the child. "Let's play basketball now." Throws a ball in the storage box, and asks the child to do the same. The next attempt to collect the balls by throwing, will be supported only by verbal command, and the child will perform an action.

Evaluative Assessment

During the period of eight months when the work plan was implemented, the

child had no longer interruptions in visiting therapists, while all planned home visits to the family were successfully implemented.

Table 5.*Standard Evaluative Assessment*

Assessment type	Result
Scale for Language Comprehension, Raynell, 3rd ed., 1995	24 months
Development scale for communication, words and gestures, Koralje, 2007	25 months
Developmental test Chuturic, 1995	24 months
Developmental age of motor skills	32 months

Eight months later, during the home visit, the parents were interviewed, and a functional assessment was performed. From the parents interview and follow up, while their child was included in this comprehensive program, it was observed that:

S.N. as by primary care provider advice, he has been attending kindergarten for three months. In the first month, there were "harder" days for adjustment. Afterwards, he did not resist going to the kindergarten, and he spent there 4 hours daily, during the period of social activities with his peers. In addition, parents regularly took their child to playrooms, attend birthday parties, so that the was in a group of his peers.

His spontaneous motor activities already had the initiative, both for choosing a game and for including his brother or a peer in his "movements". For the mother, this meant that the functional goal of inclusion in the game has begun to be fulfilled. When his name was called, he always responded with a look, but if busy playing, he continued to play with objects. When in contact with unknown people, he reacted by hiding behind his parents. He showed warmer contact with his mother, shorter separations were possible while he had some priority interest in the game, but he still looked for her from time to time, just to gain security.

According to his mother, the feeding has become easier since he started kindergarten. There he has breakfast with his peers and has learned the rules of how to eat at the table. He is still selective in the type of food, but if offered his favourite taste he is able to eat everything that is served to him.

In a spontaneous situation, during the play activities at home, he is interested

in objects, but still does not insist on playing with others. Compared to the behavior before, he allows his brother to be in the joint game with him, but the game is mainly about taking toys away from each other. The mother states that for her it is also a success. S.N. already has the habit of communicating primarily verbally. He answers questions mostly with one word, a noun, less often a verb. In spontaneous communication, when he wants to satisfy his needs, he regularly uses a sentence of 2 words, most often these are sentences made up of words that he learned well during work with the speech therapist. This is also counted achievement of the functional goal. S. N. understands simple verbal orders that are situational and outside of concrete circumstances. The mother complains he still decides not to fulfill her request, unlike the father, who is always obeyed to. The reason for this, according to the mother, is the father's authority, which is stricter, in contrast to her, who is sometimes more lenient.

His parents claimed they have changed a lot towards his behavior. They implemented ignoring, redirecting or rewarding the behavior. Following the accepted advice of the speech therapist, spontaneous situations at home were used purposefully. At the end of the interview, the parents emphasised that they are satisfied with the child's progress and functioning in everyday life, that their day was "easier", because the child had more words in regular use, and that they expect the results of the service support to be visible. During the follow up interview, the parents left the impression that they have gotten significantly closer to their child, that they know him better and understand his behaviour better compared to before.

Functional Assessment

During the observed interaction with speech therapist S. N. enters into communication easily, partly because he recognized her from home visits. He has structure, knows to respond to every request for activity, and always follows the same path of response. First, he would establish eye contact, he would continue with his activity for a short time, but when he would see the therapist's smile again, he would join the requested activity without any problem. Understood simple commands, correctly selected an object that performed the specified action (for example, "Which boy is carrying the ball?"), and always looked back for the reward with a smile, facing the speech therapist. He preferred responding to new situations with one word, but his vocabulary was richer. If an answer is sought regarding something he had already learned in speech therapy sessions, he would be more confident in himself, and knew how to "surprise" even with a sentence of three words. Demonstrated adequate social interaction with parents and therapist. He refused the parents' requests more often, while the therapist complies with almost every request. S.N. accepted physical contact (hug, or "high five") as a reward for a successfully completed task.

Discussion

According to the obtained data on the achieved milestones, significant progress was confirmed in all areas of psychomotor development of child S. N. which was covered by the early intervention approach. These findings are consistent with meta-analytic study by Jeong et al. (2021) that reported multiple examples of improvement in developmental segments in a family-oriented early intervention setting. Family-centred early interventions for children during the first 3 years of life are effective in improving early developmental outcomes and parenting outcomes in low-, middle-, and high-income countries, according to the mentioned research. Increased implementation of effective and high-quality parenting interventions is needed globally and specifically to support parents and enable young children to reach their full developmental potential.

According to Britto et al. (2017), in their research published in the well-

known *Journal Lancet*, it was also indicated that the overall support of family and institutional services offers significant developmental progress in every area of early childhood development, regardless of different categories of vulnerable groups they belong to. This research review concludes that for interventions to be successful and sustainable, they need to be implemented as a multisectoral whole. The recommendations emphasize the importance of implementation at developmentally appropriate times throughout the life cycle, to target multiple risks, and to build on existing service delivery platforms. Meanwhile interventions will continue to improve as science develops. Evidence now strongly suggests that parents, carers and families must be supported in providing care and protection for young children to achieve their developmental potential (Li et al, 2021).

Another meta-analysis conducted in 2019 concluded that one of the most important advantages of early intervention is the neurobehavioral aspect of development, which as a consequence directly stimulates all psychomotor aspects of development in children from 0 to 6 years old. According to the results of a total of 75 studies with 122 comparisons and reported outcomes for 72 275 children, it was concluded that improvements in neurobehavioral development and children's potential require early interventions focused on behavior, care and learning that support the development of cognitive, language, motor and social-emotional skills. That study directly points the benefits of child functioning as focus of daily treatments. The necessity of the inclusion of the child with the intention of fulfilling functional goals exists in the majority of research dealing with this topic. Early intervention warrants strategies that maximize the involvement of children and families in home and community activities (Prado et al, 2019).

The implementation of strategies is of critical importance for the success of the development systems model for early intervention that will fully incorporate the basic principle of inclusion. (Guralnick, 2001).

A comparative analysis of the attitudes, views and statements of the parents of the children before and after the eight-month treatment, shows that it is eligible to

state that parents who are actively involved in the early intervention process show a greater ability to monitor and register their child's behaviour and developmental progress. As Folkman in 2008 researched, the more parents manage to overcome stress, by getting closer to the child, the better they help the child with positive emotions and motivation for success (Folkman, 2008, as stated in Gruber, 2019).

And as stated by Globa Irwin, Siddiqi, and Hertzman in 2007, early child development is a strong acceleration of the individual, which cannot produce results without a healthy and actively involved family in that process (Globa Irwin, Siddiqi, Hertzman, 2007).

Conclusion

Based on the research conducted in the case of family oriented early intervention, specifically it may be concluded that:

Family oriented Early Intervention confirmed improvement of reaching developmental milestones in the case of the boy S.N. Also, Family oriented Early Intervention improved child and family quality of daily living in natural surroundings of the boy S.N. Functional goals set up fostered parents' involvement in achieving and measuring functional improvement of the boy S.N.

General conclusion is that Family oriented Early Intervention contributes to better overall social inclusion of children with developmental disorders. Even more, family Oriented Early Intervention creates proactive families as efficient partners in child development.

This research enriches the existing literature by providing concrete evidence on the effectiveness of family-oriented early intervention in supporting developmental milestones and enhancing the quality of life for children with developmental disorders. By focusing on the real-life case of the boy S.N., the study highlights the importance of engaging families as integral participants in their child's progress, especially through setting and achieving functional goals. This level of family involvement has been shown to foster meaningful developmental gains within the child's natural surroundings, aligning with best practices that emphasize contextually relevant support.

These findings offer valuable insights for practitioners and policymakers by demonstrating the positive outcomes of a family-centred approach, which not only promotes social inclusion but also empowers families to be proactive partners in their child's development. Experts are encouraged to use these results to inform intervention strategies, emphasizing the role of families in therapeutic settings to drive sustainable progress. This research suggests that involving families in structured, goal-oriented interventions can maximize developmental outcomes and improve overall family well-being, making it a highly recommended approach for professionals in the field.

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The Role of Pre-school Teachers (educators) in Developing Verbal Communication of Bilingual Pre-school Children

Original scientific paper

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Abstract

This study explores language development in bilingual children aged 3-6 years, focusing on both their native and secondary languages. It highlights educators' understanding of bilingualism's phases and their strategies, such as targeted questioning and interactive activities, to foster language proficiency. Parental insights, gathered through interviews, reveal concerns about language preferences, consistent use, and supporting dual language development. The research emphasizes the importance of creating supportive environments and adapting educational materials to enhance bilingual children's verbal skills. It also advocates for fostering community engagement and peer collaboration to strengthen educator competencies. The findings suggest a need for comprehensive support systems that address both educators' and parents' challenges, facilitating the integration of bilingual children into educational and social contexts.

Keywords: *Bilingual Children, Language Development, Educator Strategies, Parental Perspectives, Language Acquisition*

Managing diversity is one of the biggest challenges facing educational systems today (Sierens & Avermaet, 2010). Schools and educators have the responsibility to adapt to and reflect societal realities. Therefore, the aim of this research was to clearly identify the issues through specific objectives and provide support with recommendations and suggestions based on the conclusive results from measurement

instruments and carefully selected samples. This study is an attempt to unravel the intricate dynamics surrounding the role of preschool teachers in fostering verbal communication skills among bilingual preschool children, with a specific focus on the context of Kosovo. Recognizing the multifaceted challenges and unique opportunities that arise in a society marked by linguistic diversity, this research aims

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to provide a comprehensive understanding of the strategies employed by preschool educators. By delving into the intricacies of teacher training programs, existing language policies, cultural inclusivity practices, and collaborative efforts with parents, the study seeks to shed light on the current landscape of bilingual language development in Kosovo's preschools. Moreover, it aspires to contribute valuable insights that can inform educational policies, pedagogical practices, and ultimately optimize language development outcomes for the diverse group of preschoolers in this setting. This research is not merely an academic pursuit; rather, it serves as a practical guide towards fostering inclusive, effective, and culturally sensitive early childhood education, promoting both linguistic proficiency and cultural appreciation among Kosovo's young learners. Exploring the landscape of related studies in the context of our research in Kosovo, it becomes evident that the work of Kryeziu (2018) serves as a valuable foundation. Kryeziu (2018) unravels the intricate dynamics of effective techniques in stimulating healthy growth and development in preschool children. Building upon this insight, our study delves into the realm of teaching two foreign languages, particularly English, and its impact on the narrative skills of preschoolers. This exploration is deeply rooted in the global context, recognizing its significance for contemporary parents facing the challenges of imparting language skills in a dynamic cultural landscape. Anchored in psycholinguistics, our research underscores the interplay between genetics and intentional practices, highlighting the potential of purposeful growth techniques in shaping the overall development of preschool children.

In a related aspect, Kryeziu (2019) further contributes to the discourse on early childhood development, particularly in the context of linguistic diversity within Kosovo. Kryeziu (2019) emphasizes the substantial impact of effective communication techniques, guided by teachers, on the developmental journey of young children. With a heightened focus on the increased prominence of English language teaching in Kosovo's educational curriculum, this psycholinguistic study seeks to unravel standard Albanian language acquisition levels and the influence of English exposure on the

linguistic development of preschoolers.

The bilingual preschool environment poses unique challenges and opportunities for the verbal communication development of young children. Despite the growing importance of bilingualism, there is a gap in understanding the specific role of preschool teachers in facilitating effective verbal communication in this context. Identifying the challenges faced by teachers and the strategies they employ is crucial for optimizing language development in bilingual preschoolers. This research seeks to address the problem of knowledge gap regarding the precise contributions and challenges faced by preschool teachers in nurturing verbal communication skills in bilingual preschool children.

The primary aim of this research is to investigate and comprehend the role of preschool teachers in the development of verbal communication skills in bilingual preschool children. This study aims to explore the strategies employed by teachers, the challenges encountered, and the collaborative efforts with parents in creating an enriching linguistic environment. By understanding the dynamics of teaching bilingual preschoolers, the research aspires to provide insights that can inform educational practices and contribute to the enhancement of verbal communication abilities in this specific demographic. Ultimately, the goal is to shed light on effective approaches and interventions that can optimize language development in bilingual preschool children within a preschool setting.

Literature Review

Multilingualism is considered a valuable asset that contributes to the identity of children in an increasingly interconnected world. Additionally, societies are becoming more diverse, and this diversity in cultural, ethnic, religious, and linguistic backgrounds introduces a sense of complexity. The changes and challenges posed by these diversities become apparent in the classroom, where children with different approaches and linguistic repertoires are expected to achieve the same educational objectives within the same timeframe and to be treated similarly or in parallel with their peers (Carton & Rosenback, 2020).

There is a self-fulfilling prophecy effect when a student is led to believe that they will not succeed, and they may

unconsciously work to confirm that belief (Stukas & Snyder, 2016). Therefore, a positive and appreciative attitude from the educator towards the balance between multilingualism and the mother tongue is a powerful way to support multilingual children (Herzog-Punzenberger, Vorstman, & Siarova, 2017).

Bilingual communication is a fundamental aspect of the development of 3-6-year-old children in preschool institutions. These children are in a critical period for language and communication development. They are in a phase where they learn and develop their language skills, starting from basic vocabulary and everyday terminology to the ability to express their thoughts and use language to resolve conflicts and express their feelings. In preschool institutions, bilingual communication plays a key role in improving children's language skills. The use of two languages—the language of parents and the language of the institution—can help achieve a broader spectrum of words and concepts for children. Furthermore, bilingual communication promotes children's awareness of linguistic and cultural diversity (Yow & Li, 2023).

In cases of children speaking two languages, selective mutism may occur, and it is more common among children who speak a second language. Being bilingual does not cause selective mutism, but for children who already have an anxious temperament, the expectation to use a language with which they are less comfortable may put them at additional risk (Toppelberg et al., 2005). Bilingual children also usually begin to develop language skills more slowly. To support the multilingualism of children and their socio-emotional learning, such as self-esteem and emotional resilience to cope with language anxiety, it is crucial to work together with families. There are also practices in schools to encourage multilingual children with anxiety to use their heritage language (Cummins, 2001).

Some bilingual children remain silent and wait to speak only when their second language is spoken. For other children, their fear of speaking may generalize, so they will not speak in their native language either. Diagnosing children who use a second language should be done with care. Children should not be diagnosed with selective

mutism if their failure to speak can be explained by difficulty in understanding or using a second language. Bilingual children usually experience a silent period while gaining their new language, so psychologists must be careful not to mistake this learning phase for selective mutism (De Houwer, 2021).

The silent period, considered a phase of second language learning for children (Bligh, 2014), presents a challenge for educators in these environments or specific cases. Their approach and reflection in relation to bilingual or selectively mute children due to bilingualism should be realized through several basic strategies. Professionals responsible for a child's education, including psychologists and speech specialists, should know how to manage and guide them in professional circles, recognizing that it is not their duty to diagnose the issue but to provide the most effective and appropriate approach. Research shows that educators' attitudes and perceptions have a significant impact on children's achievements. If an educator has low expectations for a particular student and lacks confidence in their potential, that attitude can negatively affect the student (McGuire, 2015).

The role of the educator is crucial in the development of verbal communication in preschool bilingual children. Educators must have the ability to identify the individual needs of each child to provide appropriate support. In the case of bilingual children, it is important for the educator to take the time to observe, listen, and assess their language abilities. In addition, educators should create a supportive environment that encourages bilingual children to feel comfortable and motivated to communicate. This includes using positive reinforcement techniques, boosting self-confidence, and encouraging free and spontaneous language use (Adami, 2004).

Educators should employ differentiated teaching methods to meet the needs of bilingual children with speech difficulties. This may involve using visual aids, multilingual materials, interactive games, and alternative communication methods such as gestures and visual communication (Levy, 2008). Additionally, the neurocognitive aspect of educators' involvement in vocabulary communication

with bilingual children is equally important for the effective and targeted development of language and cognitive skills in children (Bialystok, 2017).

According to Tsokalidou and Skourtou (2020), communication between educators and bilingual children aged 3-6 is of great importance in the linguistic, cognitive, and emotional development of children. This is evident in various aspects, emphasizing the significance of educator-child communication for the educational and academic progress of bilingual children, with regard to certain aspects and approaches such as language and communication development, support for cultural and linguistic identity, promotion of social and emotional skills, enhancement of cognitive skills, and preparation for school and better adaptation to the demands of a new environment (Tsokalidou & Skourtou, 2020). According to Yoon and Onchwari (2006), the presence of bilingual children in a classroom of 3-6-year-olds can have considerable implications for both educators and students. A larger number of bilingual children within a group may require extra efforts from educators to understand and meet the individual needs of each child. Educators must be capable of providing personalized assistance to bilingual children when helping to develop language and express their thoughts. In addition, they should provide a stimulating language environment and create activities that encourage communication and the development of the second language. Finally, educators need to be careful in creating an encouraging culture and adopting joint educational practices that promote social interaction (Yoon & Onchwari, 2006).

In general, the role of the educator in the development of verbal communication in preschool children is to provide a stimulating and supportive environment, use differentiated methods, and collaborate with specialists and parents to ensure successful language and communication growth for children. These aspects, analyzed in research, bring forth significant results for integrating necessary fundamental changes in this aspect, both in current documents and in creating others with a specific focus on this studied subject (McQuiggan & Megra, 2017).

Method

Employing a mixed-methods design, this study integrates qualitative and quantitative methodologies to capture a nuanced understanding of the linguistic development processes. The triangulation of data through observation, interviews, and questionnaires enabled a holistic exploration, shedding light on both the qualitative intricacies and quantitative patterns inherent in bilingual language acquisition.

Five questions guided this inquiry:

1. How do preschool teachers (educators) perceive their role in facilitating the verbal communication development of bilingual preschool children?
2. What strategies do preschool teachers employ to support the language development of bilingual preschoolers in a multicultural environment?
3. What are the perceptions and attitudes of preschool teachers towards bilingualism, and how do these influence their teaching strategies?
4. How do preschool teachers differentiate their approaches to address the diverse linguistic needs of bilingual preschool children?
5. How do preschool teachers collaborate with parents to enhance the verbal communication abilities of bilingual preschool children?

Observational method provided an in-depth examination of natural language use in diverse contexts within the pre-school environment. By systematically observing the language behaviors of bilingual children during various activities, we aimed to uncover the nuances of their communication patterns. Semi-structured interviews with educators and parents offered valuable qualitative insights into their perspectives on bilingual language development. These interviews aimed to uncover nuanced details about the strategies employed by educators and the experiences and perceptions of parents regarding language exposure and proficiency. Structured questionnaires, distributed to parents, complemented the qualitative data with quantitative insights. This method allows for a systematic collection of data on language usage at home, contributing to a more comprehensive understanding of the bilingual language landscape.

In adopting this mixed-methods approach, we seek to triangulate findings, providing a richer and more nuanced perspective on the intricate dynamics of bilingual language development in the preschool context.

Participants

This investigation encompassed a diverse cohort comprising 34 educators, 20 children, and 18 parents. Inclusive of 22 preschool institutions, the study encapsulated 11 public and 11 private preschool institutions, strategically chosen from 9 municipalities in Kosovo—specifically Prishtina, Prizren, Podujevë, Fushë Kosovë, Malishevë, Rahovec, Gjakovë, and Suharekë. The research meticulously engaged a comprehensive pool of 34 educators employed in preschool institutions, specifically catering to the developmental stages of children aged 3 to 6 years. This group comprised 17 educators from private

preschool institutions and an equivalent number from public preschool institutions.

Data Analysis and Interpretations

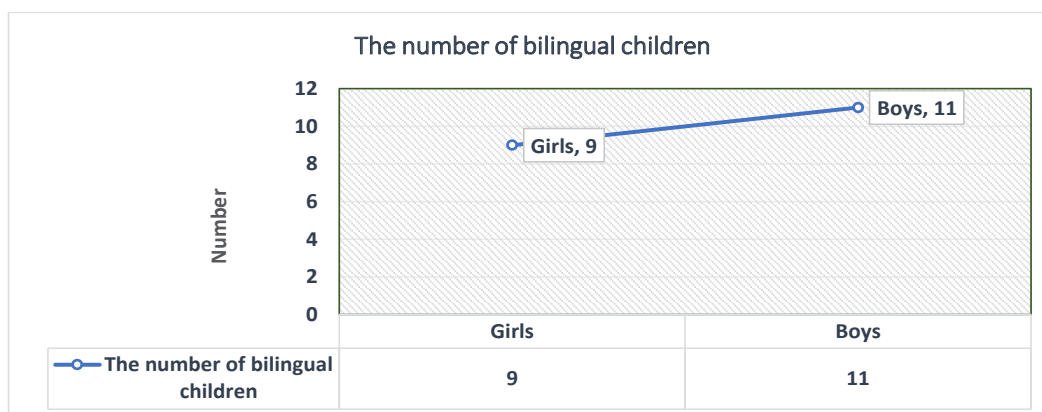
This study applied a mixed methodology approach using thematic analysis of data to obtain participants inputs and contributions. In addition to the features of the issues analyzed through qualitative data, the statistical analysis presents guiding element and key findings of the study. A number of themes were identified, and data were compared and interpreted in contrast with relevant literature.

Working with Bilingual Children

Educators play a crucial role in creating a supportive and encouraging environment for bilingual children. Educators should have in-depth knowledge of the needs and challenges of bilingual children and create personalized strategies to help them integrate into the class and fully develop their language and emotional potential.

Figure 1.

Number of Bilingual Children in Relation to Gender



In the observed groups of children with bilingualism, out of 20 observed children, the number of boys (11) is higher than the number of girls (9). This indicates a significant predominance of boys in the observed group of bilingual children. The number of boys and girls in a group of 3-6-year-old bilingual children does not indicate something important about their language abilities or their overall development. Language development and other developmental skills vary for each child and are not directly related to their gender. Differences between boys and girls in the examination of bilingualism may be useful in

understanding the individual preferences and needs of each child, but they are not a key factor in their development. For the language and cognitive development of children, it is more important to consider how educators and families provide support and stimulation for each child, regardless of their gender.

According to Byers-Heinlein and Lew-Williams (2013), identifying the language spoken to a bilingual child at home by the parent is crucial for children in the age group of 3-6 years for various reasons. Firstly, identifying the language spoken by the child at home allows the educator to establish a strong connection

and communication with the child. This aids in the development of the second language for children and helps them feel secure and confident in learning the second language. Secondly, identifying the language of bilingual children helps the educator better understand their individual needs. This makes them feel more accepted and valued in the school environment and encourages awareness of cultural diversity in the group. Each child has different experiences and levels in the second language, so the educator can tailor instruction and activities according to their levels to encourage the growth of the second language. Thirdly, in a group where there are other bilingual children, identifying the second language of a child creates an opportunity to share experiences, communicate, and interact more effectively with others. This helps in the development

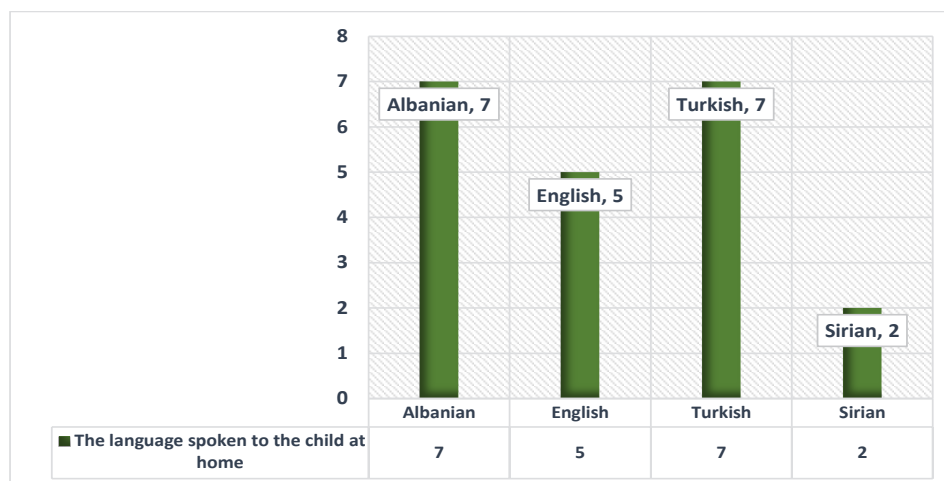
of social and emotional skills in children. Finally, the support and encouragement of the second language by the educator contributes to the increase of their self-esteem.

Dominant Language Spoken at Home

When they see that their second language is recognized and valued in the class, they feel more secure and capable of participating in various activities. For these reasons, the identification of the second language of bilingual children by the educator in the age group of 3-6 years is crucial to provide a supportive and encouraging environment for children in learning the second language, developing their identity, and social integration (Byers-Heinlein & Lew-Williams, 2013). According to this study data, the dominant languages spoken to children at home are presented on the figure below.

Figure 2.

Language Spoken to Children At Home



Based on the data for the languages spoken by bilingual children at home we found that there were 7 of them speaking Albanian, 5 speaking English, 7 speaking Turkish, and 2 speaking Syrian. As such we can consider that the presence of Albanian and Turkish in the observed community of bilingual children is dominant. 7 children who speak Albanian at home and 7 children who speak Turkish indicated that these two languages are prevalent in the observed group of bilingual children as their native language but coexist with an existing second language. It should be noted that during the observation, we noticed that the languages

spoken to the children at home may result not to be the children's first languages. Because bilingualism in this age group is on the rise, all stakeholders should take measures to assist the process.

If an educator is not familiar with the language of a bilingual child in their supervision, it is preferable to follow some steps to support the child's learning and development, such as seeking help from bilingual resources, using visual materials, seeking assistance from peers, learning basic phrases in the language spoken by the child, involving parents or caregivers of the child, and using bilingual materials.

It is necessary to provide additional support and individualized attention to bilingual children to ensure they learn effectively in this educational context. It is crucial to create an inclusive and supportive environment where bilingual children feel valued and encouraged to learn and communicate, even if the educator does not speak their language perfectly (Tabors, 1997).

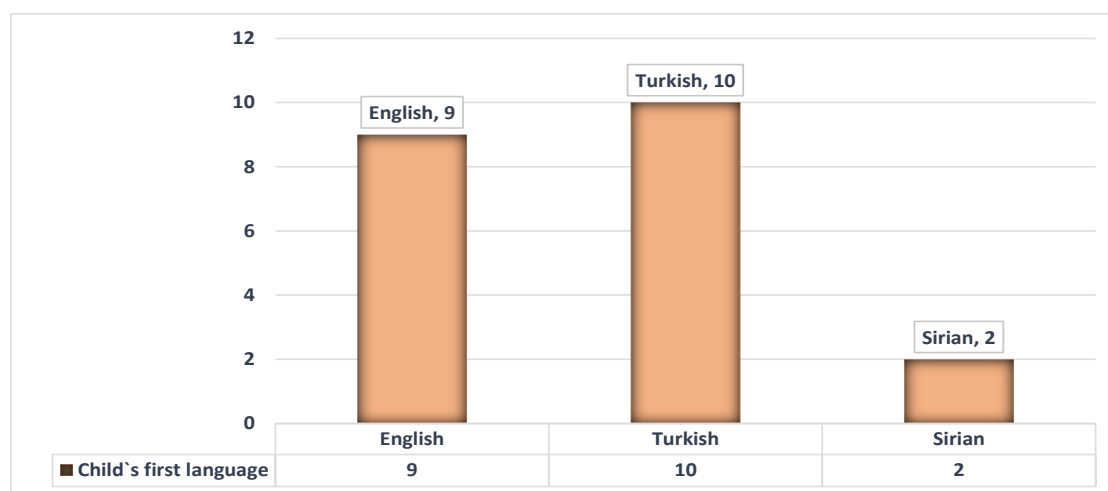
According to Genesee (1989), the identification of the first language is important for the age group of 3-6 years because it facilitates communication, aids in learning second languages, creates a

safe and inclusive environment, helps in the development of identity, and allows for personalized learning. To enhance the progress and development of children in this age group, identifying the first language and using it in teaching and communication is a key element in creating an effective and inclusive learning environment (Genesee, 1989).

In the graph presented, you can find the proportionally identified languages as the first language for bilingual children, although another language is spoken in the family – Albanian in 50% of cases:

Figure 3.

Child's First Language



Considering the circumstances and the research area, it is evident that Turkish is the dominant first language in Prizren among the observed groups of bilingual children. With 11 out of 20 children speaking Turkish, this indicates that Turkish is the most widespread and well-known language in the observed group (as a targeted group for analyzing educators' approach to bilingual children). The presence of a large number of children speaking Turkish reflects a significant influence of this language on their linguistic environment and may reflect the ethnic and cultural identity of these children in that region (Prizren).

The percentage of children speaking English is smaller (9 out of 20 as a numerical value), but it is worth noting that it had a broader usage spread with a linear extension in all kindergartens and age groups, in other municipalities such as Prishtina, Podujeva, Rahovec, Malisheva, except Prizren, where

the dominant language among bilinguals is Turkish. Therefore, we must say that, as a growing "phenomenon," it is influenced by the context and other social and environmental factors.

The presence of other languages indicates linguistic diversity in the observed group. The existence of languages such as Turkish, English, and in two cases, Syrian, shows a linguistic diversity that is existing and continuously growing (according to educators and parents) in the observed age groups. This is influenced by the ethnic, cultural, and linguistic background of children but also by other social and developmental factors.

Elements of the Second Language Observed in Bilingual Children

According to Ramírez and Kuhl (2016), bilingual children in this age group exhibit a variety of elements of the second language that are noticeable in their communication. For example,

they demonstrate an extended ability to understand and use words and expressions of the second language in different contexts. They show creativity in using words from the second language and strive to employ more complex grammatical and syntactic structures. Additionally, bilingual children show sensitivity to cultural elements of the second language, such as idiomatic expressions, customs, and specific traditions. They express a willingness to learn more

about the culture of the second language and incorporate those elements into their daily communication. These elements of the second language, observed in children of this age group, indicate significant language development and successful adaptation in the context of bilingualism. During the observations conducted regarding the elements identified by the educator in bilingual children, we have obtained the following data:

Table 1.
Elements of the "other" Language Observed in Bilingual Children

Category	Subcategory	Identification of the topic from subcategories	Topic/Initial interpretation
Elements of the other language	Elements from communication that the educator observes	<ul style="list-style-type: none"> Words and short written sentences. I think, dream, and learn in the "other" language. Dictations and dictations of different words by an educator. Simple sentences that can be repeated. A child is taught to speak Albanian. There are children who speak only English but understand when spoken to in Albanian. There are children who speak English and also understand Albanian. A child understands Albanian but does not actively speak it. 	<ul style="list-style-type: none"> Words and short written sentences: Children have knowledge of words and short written sentences in the "other" language. This includes the ability to read and understand written texts and to use words accurately and appropriately in their context. I think, dream, and learn in the "other" language: Children have the ability to think, dream, and learn in the "other" language. This indicates that they can use the language to express thoughts, imagination, and to acquire new knowledge. Dictations and dictations of different words by an educator: Children are familiar with dictations and dictations of different words in the "other" language. This shows that they have practiced writing and have learned to write sentences and words accurately and appropriately. Simple sentences that can be repeated: Children are able to formulate and use simple sentences and phrases in the "other" language. They can repeat them to clarify meaning and express their thoughts clearly. A child is taught to speak Albanian: A child has learned to speak the Albanian language and can use it to communicate and express their needs. There are children who speak only English but understand when spoken to in Albanian: There are children who have the ability to understand the Albanian language, even though they only speak English. This indicates that they can receive information and understand the spoken language in their context. There are children who speak English and also understand Albanian: There are children who have the ability to speak English and understand Albanian.

In the current situation, the group of bilingual children in the age group of 3-6 years shows various levels of knowledge regarding the elements of the second language. They have the ability to understand the "other" language and use words and sentences accurately and appropriately. Children express their thoughts, dreams, and lessons in the "other" language, demonstrating knowledge of dictations and dictations of various words, and practicing communication with simple sentences and words. They also show the ability to use the Albanian language, both speaking and understanding in their context. It is essential to note that some children (4 out of those observed) only speak English but understand when spoken to in Albanian, while others (many children within the observed groups not identified as bilingual - 11 in total across all kindergartens) speak Albanian but also understand English. These language abilities indicate positive progress in the verbal communication development of bilingual children in the 3-6 years age group.

Evaluation of the Bilingual Phase in Children

As an educator of 3-6-year-old children, it is crucial to have specific knowledge about the phases of bilingualism in children. This general knowledge can help you understand

and support the development of children's language skills in this age group. According to Caplan and Caplan (1984), some of the phases of bilingualism that can be considered include: the passive voice phase, the active voice phase, the language development phase, and the perfection phase. Educators should be familiar with these phases of bilingualism and understand that each child may progress differently. This knowledge allows them to assess the development of children's language skills in the 3-6-year-old age group and tailor their approach and activities appropriately to each child's needs. Educators need to acquire knowledge through training (or through studies if this topic is included in the study syllabuses) about the phases of language development in children and understand that each child may be in a different phase of bilingualism. This helps assess their proficiency in the second language and determine their specific needs. Educators should continuously observe children to assess how they use the second language in different activities. This helps identify individual strengths and challenges for each child regarding verbal communication. During the observations conducted regarding the evaluation of bilingual phases of children, we have obtained the following data:

Table 2.
Educator's Knowledge of the Bilingualism Phases of Observed Children

Category	Subcategory	Identification of topics from subcategories	Topic/Initial Interpretation
Is the educator aware of the phase of bilingualism the child is in?	Elements of bilingual phase observed	<ul style="list-style-type: none"> Using their first language; Not speaking (silent period); Using their first language and using memorized phrases and sentences; Producing more complex structures and vocabulary. 	<ul style="list-style-type: none"> Using their first language: The child is in a phase where they use their first language, in your case, Albanian, English, and Turkish. This is the language they have learned and naturally speak at home. Not speaking (silent period): The child goes through a phase where they feel quieter and do not speak often or express themselves in a limited way at times. This may be a period when they are exploring and further developing their language skills. Using their first language and using memorized phrases and sentences: The child is developing a more advanced ability to use their first language and may start using more complex phrases and learning different titles. This indicates that they are gaining new knowledge and building their language level. Producing more complex structures and vocabulary: The child is showing a high level of language development, where they can produce more complex language structures and have an expanded vocabulary. This indicates that they have reached an advanced stage in their language development.

In this situation, bilingual children in the age group of 3-6 years are developing their language skills in their first language (Albanian, English, and Turkish). They use their first language naturally at home and demonstrate a high level of language development. In this phase, they may show further improvement in using their first language, producing larger words and phrases, and gaining new knowledge. During this process, they may also experience silent periods, where they may be more reserved in their expression and explore their language abilities further. This phase of language development indicates that they are building more complex language structures and enriching their vocabulary, reaching an advanced level in using their first language. **Educator Strategies for the Development of Bilingual Children's Language (Ages 3-6)**

Effective teaching strategies include inclusion, modeling, interactive activities, the use of visuals, and encouraging group communication. Inclusion ensures that all learners, regardless of their backgrounds or abilities, have access to meaningful education (Ainscow, 2005; Slee, 2011). Modeling is

essential for demonstrating complex concepts and behaviors, helping students grasp new material by seeing it in action (Wood, Bruner, & Ross, 1976; Hattie & Yates, 2014). Interactive activities promote student engagement and collaborative learning, which significantly enhances comprehension and retention (Prince, 2004; Michael, 2006). The use of visuals, such as charts, diagrams, and infographics, supports visual learners and aids in simplifying abstract concepts (Mayer, 2005; Sweller, Ayres, & Kalyuga, 2011). Lastly, encouraging group communication facilitates peer learning and allows students to share ideas and perspectives, fostering deeper understanding and critical thinking (Johnson, Johnson, & Smith, 2007). These are just a few of the strategies that can be used. It is important for the educator to have knowledge and skills to choose appropriate strategies based on the individual needs of the children and to follow a flexible and adaptive approach to assist in their bilingual language development.

In the observation conducted regarding the strategies used by the educator, we have obtained the following results:

Table 3.
Strategies used by the Educator

Category	Subcategory	Identification of topics from subcategories:	Topic/Initial Interpretation:
The strategies used by the educator	Strategies	<ul style="list-style-type: none"> • Ask simple questions • Engage in activities with songs, rhymes, or known verses for the child • Use figures/flashcards as a model for communication 	<ul style="list-style-type: none"> • Ask simple questions: The educator uses simple questions to stimulate responses and engage the child in communication. This helps develop language skills and boost the child's confidence in using language. • Engage in activities with songs, rhymes, or known verses for the child: The educator conducts suitable activities for the child using songs, rhymes, or verses that are familiar to them. This creates an enjoyable and attractive environment for the child and aids in the development of communicative and language skills. • Use figures/flashcards as a model for communication: The educator utilizes figures or flashcards with images to assist in communication with the child. This visualization of words and concepts helps build vocabulary and understanding of their usage.

It is evident that the educator uses simple questions to encourage responses and engage children in communication. This helps develop language skills and increases the children's confidence in using language. She also conducts activities with songs, rhymes, or known verses for the child, creating an enjoyable and attractive environment. Another strategy employed by the educator is the use of figures or flashcards to assist in communication with the child. This aids in building vocabulary and understanding the usage of words. These strategies contribute to promoting the linguistic and communicative development of children, making them actively engage and feel confident in using their language.

Verbal Communication

In this study, the group of bilingual children in the age group of 3-6 years old demonstrates varying levels of verbal

communication skills in their first and second languages. They exhibit an advanced level of linguistic development, using their first language naturally at home and acquiring new knowledge. Children express thoughts, dreams, and lessons in the other language, demonstrating considerable abilities in reading, understanding, and writing in both languages. Meanwhile, the educator uses strategies such as simple questions, activities with songs, rhymes, or known verses, and figures/flashcards to encourage communication and linguistic development.

To influence the development of verbal communication in children who speak two languages, the educator employs several strategies. Statistically analyzed data from observations provide crucial details that guide and justify our research. The gathered data in various aspects are as follows:

Table 4.
Verbal Communication Strategies

Strategy	Findings
Simple Questions	6 out of 17 observed educators use simple questions to encourage responses and engage children in communication. This helps them express their thoughts and learn to use words accurately.
Activities with songs, rhymes, or known verses	3 out of 17 observed educators conduct activities with songs, rhymes, or known verses for the child. This creates an entertaining and appealing environment, helping the child learn and practice language appropriately.
Use of figures/flashcards	2 out of 17 observed educators use figures or flashcards with images to aid in communication with the child. This visual representation of words and concepts assists in building vocabulary and understanding their usage
Creating and encouraging a safe environment	4 out of 17 observed educators partially succeed in creating an environment where children feel encouraged and safe to communicate. This may involve choosing games and activities that encourage communication and expressing thoughts.
Use of educational materials	3 out of 17 observed educators manage to use appropriate educational materials to help develop verbal communication with bilingual children. These materials may include books, flashcards, word charts, dictations, etc., promoting the practice and advancement of children's language skills, and children's participation in these activities is part of it.
Creating communication situations	6 out of 17 educators attempt to organize communication situations where children can practice language and express their thoughts. This includes role-playing, discussion-appropriate situations, and activities that encourage collaboration and communication among children. However, not all bilingual children actively participate, as two of the observed children silently nod without taking part in activities, or three of them play alone without engaging with the group

By utilizing the mentioned strategies adequately and relying on suitable environments and educational materials, the educator can influence the development of verbal communication in children who

speak very little and those who speak two languages. Encouraging them to use language, express their thoughts, and feel secure in the communication process.

In our case study, out of the 17 observed educators, evidently, 65% of them did not exhibit sufficient preparedness and skills to implement appropriate approaches or approaches approximately acceptable for this category of children. These approaches aim to involve bilingual children in communication. Still, those included in a dilemma provided alternatives to teach them the Albanian language, with very few attempts to change the approach or seek help for communication with this category of children.

Communication Between Educators and Parents of Bilingual Children

This aspect addresses the essence of communication between parents and educators, emphasizing a specific issue such as the engagement of bilingual children. This helps us understand that the conversation focused on the challenges and opportunities related to this specific topic. Open communication between parents and educators is an essential part of collaboration in the development of children in the school environment. In our study, 7 out of 10 parents express that, although they have generally good communication with educators, they have not shared specific information regarding their child's particular issues. For example, they did not mention the level of problems their child might be experiencing, their assessment in the school context, or the impact of any pedagogical alternatives applied that influenced his development.

To make communication more effective and address the needs of parents, it is essential for educators to have a more specialized approach in discussions with parents. For example, they can encourage parents to share specific concerns, share their experiences with the development of children at home, and provide concrete examples of pedagogical interventions that have helped advance children in school. It is also important to create an environment where parents feel encouraged and supported to share their thoughts and concerns. This can be done through organizing regular parent-teacher meetings or by preparing periodic reports on the progress and overall development of children. Improving communication in this way can help create better collaboration between parents and educators, ensuring better care for the needs and overall development of children in this

early stage of education.

The analysis of responses indicated a pronounced lack of specific proposals and suggestions from educators to improve the language skills of bilingual children. Several parents highlighted that improving communication with the child by avoiding the use of the phone has been a successful practice. This conscious approach to technology use has created a more open environment for conversation and closer communication with the child. This discussion emphasizes the importance of receiving suggestions from educators and how conscious practices at home can impact the language development of bilingual children. However, this level of commitment encounters an expressed lack from educators, whom parents describe as not sufficiently interested in the child's progress.

On the other hand, one parent expresses satisfaction with the approach and treatment of the educator towards her child. This parent emphasizes that the educator has shown closeness and has helped in the child's socialization with other peers. This aspect has increased the child's self-confidence and influenced his progress in socio-emotional aspects and language skills. It was emphasized that through regular and joint coordination amongst educators and parents, significant progress can be made in addressing the needs and challenges of children with speaking difficulties. In this regard, one parent emphasizes that intensified collaboration can be successful and achievable in addressing the specific needs of the child.

On the other hand, another group, consisting of four parents, expressed specific requests for changes. These parents would like more closeness and gentleness in the educator's communication with children, without significant changes in her approach and work methods. Two parents are entirely dissatisfied and express a desire for drastic changes. They would have mentioned that everything would need to change in how the educator communicates with children, including individual approach, individual treatment, and how she collaborates with parents according to the presented needs.

This spectrum of responses shows that parents have different perceptions of the role and abilities of the educator. Based on their specific needs and preferences, they

formulate different expectations regarding how the educator's engagement should change when working with children with speaking difficulties.

Conclusions

The exploration of bilingual development in children aged 3-6 presents a dynamic intersection of linguistic abilities, educator strategies, parental involvement, and institutional leadership. This study has significantly enriched existing literature by providing a comprehensive view of the language development of bilingual children in early childhood education, offering insights into the various challenges and strategies that contribute to their development. It adds depth to our understanding of bilingualism, particularly in the context of how educators' approaches, parental perspectives, and institutional support can positively influence language acquisition.

Observations revealed diverse linguistic abilities among bilingual children, showcasing progress in both their first and second languages. The study highlighted critical phases of bilingualism—passive voice, active voice, language development, and perfection—which serve as useful markers for assessing children's language progression. Educators' roles in shaping these phases through targeted strategies, such as using songs, rhymes, visual aids, and posing simple questions, were shown to be effective. However, the findings also underscore variability in the use of these strategies, suggesting the need for more consistent professional development among educators.

Furthermore, parents' roles were found to be vital in the linguistic and cultural development of bilingual children. Their involvement, particularly in communication with educators and cultural insights, plays an essential role in fostering a conducive learning environment. However, challenges such as selective mutism concerns, difficulties with language lessons, and the influence of technology were identified, highlighting areas where better communication between parents and educators could improve child development outcomes.

Shortcomings and Future Directions

While this study offers valuable insights into bilingual child development, it acknowledges several limitations that must be addressed in future research. The sample size, while providing meaningful data, limits the generalizability of the findings. Additionally, this study primarily focused on kindergarten settings, and future research could expand to investigate bilingual development across various age groups and educational contexts to gain a more nuanced understanding of long-term language acquisition processes.

Moreover, the variability in educator strategies highlights the need for further investigation into the most effective teaching methods for bilingual children. A more diverse range of educator experiences and strategies should be considered to refine best practices. In terms of parental involvement, the study suggests that future research could explore how different cultural perspectives influence bilingualism, particularly in households with varying levels of education and resources.

The role of technology in bilingual language development is another area that requires further exploration. While this study identified potential challenges posed by technology, including excessive screen time and its impact on language development, future studies could explore how technology can be better integrated into educational settings to enhance bilingual learning experiences.

Recommendations

To build on the findings and address the challenges identified, the following recommendations are proposed:

- Ongoing professional development for educators to strengthen their ability to support bilingual children effectively.
- Establishing structured communication channels between parents and educators to foster collaboration and ensure the holistic development of children.
- Tailored teaching methods that take into account the cultural and linguistic diversity of children, based on insights from parents and educators.
- The development of guidelines for balanced technology use in both home and school environments, to ensure technology supports rather than hinders language development.

- Workshops for parents to educate them on effective strategies for stimulating language development at home.

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Enhancing the Understanding of the Concept of Function through Integrated Visual and Experiential Approaches

Original scientific paper

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Abstract

This paper aims to explore the impact of integrated visual and experiential approaches in improving the understanding of the concept of function among lower and upper secondary school students. Function, a fundamental and often abstract mathematical concept, challenges many students. The study aims to show that the integration of visual tools, such as graphs and diagrams, together with experiential activities, can facilitate deeper visualization and understanding of function, as well as improve performance in solving mathematical problems. The methodology used in this study is quasi-experimental with qualitative and quantitative data, including controlled analysis with the experimental group and the control group. The sample consists of 120 lower and upper secondary school students, randomly divided into two groups: one group that was exposed to traditional approaches and another group that used visual and experiential approaches. The data collection instruments included structured questionnaires, pre-and post-tests, and observations during the teaching process. The results showed a significant improvement in the conceptual understanding of the function among students who used visual and experiential approaches, compared to those who used traditional methods. Furthermore, students in the experimental group showed a higher level of engagement and motivation during the learning process. These findings suggest that integrated visual and experiential approaches are effective tools to facilitate understanding and improve learning outcomes in mathematics.

Keywords: *Experimental Approach, Function, Mathematics Education, Practical Experiments, Visual Approach*

Mathematics is one of the most fundamental disciplines for the development

of analytical skills and logical thinking in students. Within this discipline, the concept

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of function plays a critical role, serving as a basis for the development of further knowledge in other areas of mathematics and science. Through function, students learn to understand dependencies and relationships between variables, thus building skills for solving complex problems in fields such as applied mathematics, physics, economics, and engineering. However, although the function is an essential concept, it is often difficult for many students to master due to its abstract and complex nature (Skovsmose, 2020).

Recent studies have shown that improving understanding of abstract concepts, such as function, can be achieved through integrated visual and experiential approaches. Visual approaches, which include the use of graphs, diagrams, and other visual aids, help students create a clearer picture of the interdependencies between variables. These approaches make it easier to understand complex relationships and fulfill the need for a more tangible approach to abstract concepts (Demitriadou et al., 2020). In addition to visual approaches, experiential methods have also proven to be very effective in improving understanding. Through experimentation and practice, students can see how mathematical functions apply in the real world, thus strengthening the connection between theory and practice (Kramarenko, Pylypenko, & Kostiukevych, 2020). The integration of visual and experiential approaches, the use of augmented and virtual reality, and interactive approaches that link theory and practical applications have proven to be more beneficial for the deep acquisition of mathematical knowledge (Demitriadou et al., 2020; Abrahamson et al., 2020; Kramarenko et al., 2020).

Problem Identification

In traditional mathematics education, the function is often taught through textual and numerical methods, relying on formal and abstract solutions of equations. This method often fails to create a strong connection between the concept of function and its real-world applications. Furthermore, students often have difficulty visualizing the interdependencies of variables and interpreting graphs that describe functions. In this context, many researchers have argued that traditional methods are not sufficient to develop a deep and sustainable understanding of function (Skovsmose, 2020).

Visual and experiential approaches have been proven to be effective in increasing student motivation and engagement in the learning process. Using technologies such as augmented reality and mathematical software, these approaches provide opportunities to explore solutions to mathematical problems more interactively and dynamically (Kramarenko et al., 2020). One of the main benefits of these methods is their ability to improve not only conceptual understanding but also students' practical skills to solve complex mathematical problems (Abrahamson et al., 2020).

Purpose of the Study

The main purpose of this research is to examine the impact of integrated visual and experiential approaches in improving the understanding of the concept of function among middle and high school students. The function is an abstract concept that often creates challenges for students, and this study is intended to demonstrate that the integration of visual approaches, such as graphs and diagrams, together with experiential approaches, can improve not only the visualization of the function but also the performance in solving complex mathematical problems. The study also aims to compare these methods with traditional teaching approaches and to determine whether visual and experiential approaches improve student engagement and motivation in the learning process. Finally, the aim is to provide recommendations on the wider use of these methods in mathematics education.

Research Questions

1. How effective is the use of integrated visual and experiential approaches in improving the understanding of the concept of function among middle and high school students?
2. How does the improvement in understanding the concept of function differ between students who follow visual and experiential approaches (experimental group) and those who follow traditional teaching methods (control group)?
3. How do visual and experiential approaches affect student engagement and motivation during the mathematics learning process, compared to traditional approaches?
4. What do modern technologies, such as augmented reality and digital simulations, contribute to improving

students' understanding and performance in mathematics through visual and experiential approaches?

5. Is there any connection between the use of visual and experiential approaches and improving students' performance in solving complex mathematical problems?

Research Hypothesis

Hypothesis 1: The use of integrated visual and experiential approaches has a positive impact on improving the understanding of the concept of function among middle and high school students.

Hypothesis 2: Students who follow visual and experiential approaches (experimental group) show greater improvement in understanding the concept of function compared to students who follow traditional teaching methods (control group).

Hypothesis 3: Visual and experiential approaches will increase student engagement and motivation during the mathematics learning process more than traditional approaches.

Hypothesis 4: Modern technologies, such as augmented reality and digital simulations, contribute to improving students' understanding and performance in mathematics through visual and experiential approaches.

Hypothesis 5: There is a positive correlation between the use of visual and experiential approaches and improved student performance in solving complex mathematical problems.

Literature Review

A function is a fundamental mathematical concept that relates variables and finds widespread use in fields such as physics, economics, and engineering. Through functions, students learn to model complex relationships, but their abstract nature often presents challenges to understanding (Verschaffel et al., 2020). These challenges are especially evident when formal definitions and applications are not directly related to students' everyday experiences. The use of visual approaches, such as graphs and diagrams, helps students visualize relationships between variables and more easily understand functional interdependencies (Zulnaidi et al., 2020). Interactive simulations significantly increase the acquisition of concepts and skills for solving complex problems (Orhani & Çeko, 2021). Dynamic visualizations are

particularly useful as they allow students to explore the changes in functions in real-time (Kohen et al., 2022). On the other hand, experimental approaches connect theory with practice, making it easier for students to understand and apply functions in real situations (Struyf et al., 2019). The inclusion of real-world applications, such as economic or scientific models, helps students understand the intricacies of functions and develop problem-solving skills (Subramanian & Budhrani, 2020).

Advanced technologies, such as augmented reality (AR) and digital simulations, have revolutionized the way mathematics is learned. AR applications allow students to interact with mathematical concepts and visualize interdependencies between variables, significantly improving understanding and performance (Demitriadou et al., 2020; Amores-Valencia et al., 2023). These technologies also reduce math anxiety and increase student motivation (Chen, 2019).

Traditional methods focus on numerical and algebraic problem-solving and are effective for teaching standard procedures (Papadakis et al., 2021). However, they often fail to help students visualize complex relationships between variables (Strohmaier et al., 2020). In contrast, visual and experiential approaches offer a more interactive way to understand concepts, including graphics, simulations, and hands-on experiments (Rodríguez-Martínez et al., 2020). Visual and experiential approaches have been shown to significantly increase student motivation and engagement. When students engage in activities that involve visualizations and experiments, they are more likely to grasp concepts and develop complex problem-solving skills (Doumanis et al., 2019; Dubovi, 2022). Engaging in these activities also helps reduce math anxiety and improves self-confidence in problem-solving (De Loof et al., 2021). These findings suggest that integrating visual and experiential approaches, along with modern technologies, significantly improves the quality of teaching and learning of functions in mathematics.

Methodology

Research Design

This study uses a quasi-experimental design with a control group and an

experimental group to measure the impact of integrated visual and experiential approaches on improving understanding of the concept of function. The quasi-experimental design was chosen because it allowed for comparisons between groups of students exposed to different teaching methods. The experimental group was exposed to visual and experiential approaches, which included the use of graphs, visual simulations, and hands-on experiments. The control group, on the other hand, followed traditional teaching methods, where the function was taught primarily through lectures and numerical exercises without the aid of visual approaches. The quasi-experimental design includes pre- and post-tests to measure improvement in mathematical function understanding and problem-solving performance. By using a control and experimental group, the study can compare the differences in student performance and engagement across two different teaching methods, providing a clear insight into the effectiveness of the new approaches.

Research Participants

The sample consists of 120 students from lower and upper secondary schools, randomly divided into two groups: an experimental group with 60 students and a control group with 60 students. Participants were selected from several lower and upper secondary school students in the Municipality of Prizren from the Republic of Kosovo, taking into account a random selection to avoid any influence of external factors. Participants are students who follow the subject of mathematics from grades 6-12 as part of their curriculum, and their level of knowledge in mathematics ranges from low to high, including prior knowledge of functions. Participants were included in this study for 4 weeks. During this period, students in the experimental group were exposed to visual and experimental approaches through graphs, simulations, and practical activities, while the control group followed traditional teaching methods.

Data Collection Instruments and Analysis

The study used three main instruments for data collection: pre- and post-tests to measure initial knowledge and improvement in the concept of function, questionnaires to assess student engagement and motivation after the intervention, and classroom observations to monitor

interactivity and involvement in practical activities. These instruments provided a comprehensive analysis of the impact of visual and experiential approaches on the learning process.

The collected data were analyzed using quantitative and qualitative statistical methods. T-test analysis was used to compare the results of the experimental and control groups regarding the difference in performance and understanding of the concept of function. In addition, descriptive qualitative analysis was used to evaluate the comments and reactions of the students, as well as to examine the data collected through observations. This type of analysis provided a deeper insight into the teaching process and helped in understanding the motivation and engagement of the students when using the new teaching methods.

Research Ethics and Limitations

In this study, all ethical standards were respected, ensuring voluntary participation, full information about the purpose of the research, institutional approvals, and maintaining the anonymity and confidentiality of participants. Limitations include the relatively small number of participants, the short 4-week intervention period that limits long-term evaluation, and the influence of external factors, such as teaching style or individual student motivation, that may have affected the results.

Results

This chapter presents the results of research on the impact of visual and experiential approaches in improving understanding of the concept of function. These results were collected through pre- and post-tests, questionnaires, and student observations during the intervention. The comparison between the experimental group and the control group shows the effectiveness of the new teaching approaches to traditional methods.

Test Results

This section presents the results of the pre- and post-tests performed by the students in the experimental and control groups. The tests were designed to measure the initial level of knowledge of the concept of function and to compare the improvements after the

intervention with the visual and experimental approaches. Next, we analyze the descriptive statistics between the pre-and post-test scores:

Table 1.

Descriptive Statistics from Test Results

Test	Mean	Median	SD	Minimum	Maximum
Pre-Test	53.43	56.00	21.60	22.00	84.00
Post-Test	66.90	68.00	23.23	35.00	100.00

Based on the test results, we analyze the effect of the intervention based on visual and experimental approaches to understanding the concept of function in mathematics. The statistical results of the pre-and post-intervention tests can be interpreted in the context of this paper as follows:

After the intervention, the results show a significant improvement in students' performance in understanding the function. The mean increased from 53.43 in the pre-test to 66.90 in the post-test, an improvement of 13.47 points, while the median increased from 56.00 to 68.00, indicating that most

students experienced improvement. The increase in the minimum score from 22.00 to 35.00 and the maximum score from 84.00 to 100.00 suggests that the improvements included all levels, from those with difficulties to high-performing students. A slight increase in the standard deviation (from 21.60 to 23.23) reflects the variation in the results, indicating that the intervention affected students differently. These results support the idea that visual and experiential methods improve the understanding and application of mathematical concepts. We are further analyzing the results between the pre-and post-test scores:

Table 2.

Analysis of Test Results

Statistics	Value
Paired t-test statistic	5.17
Paired t-test p-value	0.00
Cohen's d (effect size)	0.63
Mean Percentage Improvement (%)	27.89

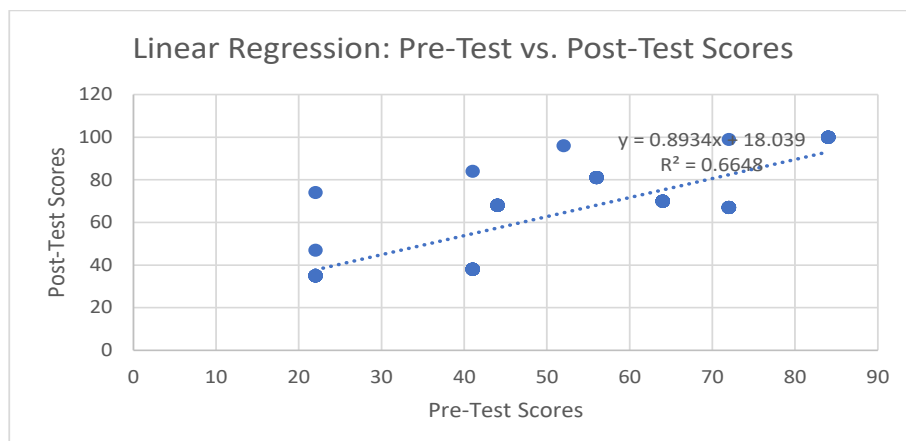
The results of the statistical analysis clearly show the effectiveness of the intervention in improving student outcomes. The paired t-test value (5.17) and the very low p-value .00 confirm that the difference between pre-and post-intervention scores is statistically significant and not random. The effect size (Cohen's $d = .63$) indicates a strong medium effect, highlighting the positive impact of the intervention.

The average improvement of 27.89% reflects a significant improvement in performance and the level of acquisition of mathematical concepts. These results indicate that the intervention has significantly affected the academic outcomes and development of students.

Next, we are analyzing the linear regression between the pre-and post-test scores:

Figure 1.

Linear Regression: Pre-Test vs. Post-Test Scores



Linear regression analysis between pre and post-test scores shows a positive relationship between these variables. The regression line (equation:) suggests that for every 1-point increase in the pre-test, an average increase of .89 points is expected in the post-test. The intercept (18.039) indicates the predicted post-test scores when the pre-test scores are zero, although a zero score is somewhat unrealistic. The value of (.6648) indicates that about 66.48% of the variation in post-test scores is explained by the pre-test scores, suggesting a moderate to

strong linear relationship. However, the not very high value indicates that factors other than pre-test scores may influence post-test scores. Overall, the analysis confirms that pre-test performance is a good indicator of post-intervention outcomes, but not the only influencing factor.

Results from the Observation

Systematic observations were conducted during the intervention to monitor students' behavior and engagement in the use of visual and experiential tools. These results are summarized in the table below:

Table 3.

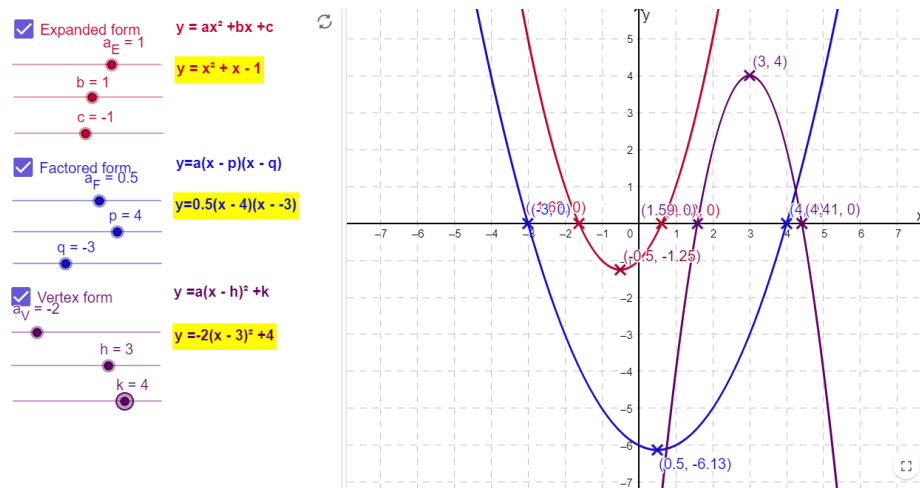
Observational Results for the Experimental Group

Criterion	Description	Assessment
Engagement in learning	The student is focused and active in the learning process, participates in discussions, and asks the teacher for clarification when necessary.	4.3
Use of visual aids	The student uses graphs, diagrams, and simulations to explain and derive concepts of functions. It can create graphics precisely.	4.2
Using experimental approaches	The student engages in practical experiments and understands the connection between practical results and mathematical theory.	3.9
Cooperation with classmates	The student works effectively with others, shares ideas, discusses solutions, and supports classmates in learning activities.	4.4
Understanding the concept of function	The student shows improvement in understanding the concept of function, can identify dependent and independent variables, and explain relationships.	3.5
Applying knowledge to problem-solving	The student correctly applies knowledge of functions to solve complex problems using visual and experimental tools.	3.7
Explanation and reflection on experiments	The student can analyze and explain the results of practical experiments, relating the results to the theory of function.	4.0
Motivation to learn	The student is motivated to acquire new knowledge and improve skills, showing persistence in facing learning challenges.	4.1

The results collected from the student observation indicate a high overall performance in the use of visual and experimental approaches. The results show that students showed high engagement during the intervention, with an average rating of 4.3 out of 5.0, reflecting active participation and focus on learning. Visual approaches were positively rated with 4.2 out of 5.0, aiding in the understanding and use of graphs, diagrams, and simulations to explain the concepts of functions. Involvement in practical experiments was rated with 3.9 out of 5.0, suggesting potential for improvements in the implementation of experimental methods. Collaboration between students was

rated highly, with 4.4 out of 5.0, indicating successful group interaction and sharing of ideas. Understanding functions (3.5 out of 5.0) and their application in problem-solving (3.7 out of 5.0) show moderate improvement, suggesting the need for more practice for deeper understanding and independent application. Students were rated 4.0 out of 5.0 for their skills in analyzing and explaining experimental results, indicating a good connection between theory and practice. Motivation to learn (4.1 out of 5.0) was high, reflecting the positive impact of visual and experiential approaches in increasing engagement and interest in learning.

Figure 2.
Simulation of Functions in GeoGebra



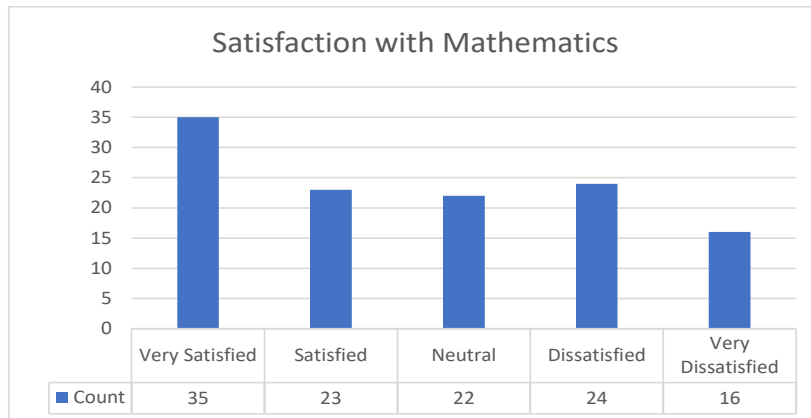
In this video, students had the opportunity to explore quadratic functions in three different forms: expanded, factored, and vertex using augmented reality (AR) through the GeoGebra software. Using this simulation, they observed how each form represents the function and how changing the parameters affects the graph. The augmented reality (AR) and visual simulation activity allowed students to manipulate the parameters of quadratic functions and observe changes in the characteristics of the graphs in real-time. Students learned how the coefficients in the expanded form affect the overall shape of the graph, how in the factored form is related to the intercepts of the axis, and how the and parameters in the vertex form affect its position. This interactive activity helped students better visualize and

understand the relationships between the parameters of the function and the shape of the graphs, transforming abstract concepts into easy-to-understand experiences. The teacher's assistance in relating each form of the function to its characteristics provided a deep and integrated understanding of various mathematical and practical applications.

Results from Questionnaires

The results of the questionnaires showed that the students in the experimental group experienced a significant improvement in their understanding of functions and motivation to learn mathematics. For a more detailed analysis of the questionnaire results, we will examine the distribution of responses for each category, analyzing the main trends and extracting statistics for each important indicator.

Figure 3.
Satisfaction with Mathematics

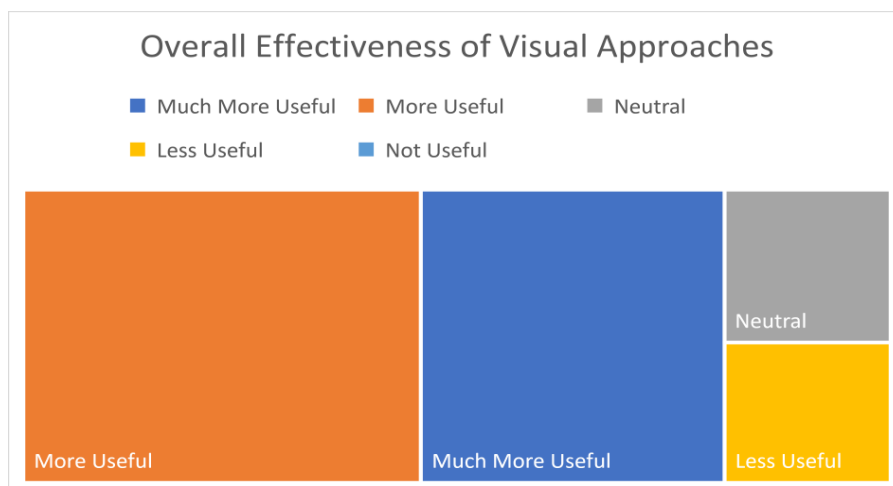


Regarding satisfaction with the mathematics subject, out of a total of 120 students, 35 students are very satisfied, 23 students are satisfied, 22 students feel neither satisfied nor dissatisfied, 24 students are dissatisfied, and 16 students are very dissatisfied. This distribution shows a diversity in the level of satisfaction with mathematics. Although there is a large number of students who are satisfied or very satisfied (48%), there is also a significant proportion who are dissatisfied (33%). This suggests that there is potential for improvement in the way mathematics is presented and taught.

The results show a positive impact of visual and experimental approaches in the teaching and learning process of mathematics. About 60% of students reported continuous or frequent use of visual aids, highlighting the successful integration

of these tools in the lessons. Graphs and diagrams were considered very helpful by 68% of students, highlighting the importance of visualization in understanding complex concepts. After the intervention, 62% of students felt more able to understand the relationships between variables, and 69% reported that practical experiments were useful or very useful. Engagement was high for 53% of students, however, 27% reported low engagement, suggesting the need for improvement in the approaches used. Motivation for mathematics increased for 52% of students, while 63% felt more confident in solving problems, indicating improvement in practical and theoretical skills. However, a portion of students reported a lack of impact in some aspects, suggesting the need for more personalized approaches to maximize benefits for all.

Figure 4.
Use of Visual Aids Approaches



The results show a positive perception of visual and experiential approaches compared to traditional teaching methods. Around 80% of students (97) reported that these approaches are more useful, supporting their greater involvement

in the learning process. Also, 62% of students (74) expressed the desire to integrate these approaches into other subjects, highlighting their potential to improve teaching and learning in different fields of study.

Table 4.
Results from Correlation

Category	Satisfaction with Math	Use of Visual Aids	Effectiveness of Diagrams	Understanding Variables	Practical Experiments	Engagement Level	Confidence in Problem Solving	Effectiveness of Visual Approaches
Satisfaction with Math	1.00	0.98	0.90	0.31	0.33	0.49	0.45	0.60
Use of Visual Aids	0.98	1.00	0.85	0.35	0.43	0.59	0.60	0.66
Effectiveness of Diagrams	0.90	0.85	1.00	0.26	0.25	0.11	0.29	0.45
Understanding Variables	0.31	0.35	0.26	1.00	0.93	0.54	0.65	0.92
Practical Experiments	0.33	0.43	0.25	0.93	1.00	0.62	0.87	0.93
Engagement Level	0.49	0.59	0.11	0.54	0.62	1.00	0.73	0.76
Confidence in Problem Solving	0.45	0.60	0.29	0.65	0.87	0.73	1.00	0.82
Effectiveness of Visual Approaches	0.60	0.66	0.45	0.92	0.93	0.76	0.82	1.00

Correlation analysis shows the strong positive impact of visual and experiential approaches on students' enjoyment, understanding, and engagement in mathematics. The very high correlation between the use of visual aids and students' enjoyment (.98) highlights the importance of graphs and diagrams in creating an engaging and motivating environment for learning abstract concepts. Similarly, a significant correlation (.93) between experiential approaches and the ability to understand variables suggests that practical applications help students connect theory to the real world, improving their understanding of functions. The positive correlation between engagement and self-confidence in problem-solving (.73) indicates that these approaches increase not only motivation but also students' confidence in their abilities. These findings suggest that the wider use of visual and experiential approaches can significantly improve teaching and learning in mathematics and other subjects.

In the open-ended question, students highly valued the use of visual

and experiential approaches in teaching, emphasizing that these methods made complex concepts more understandable, especially when graphs and diagrams were included in the explanations. Practical experiments and simulations helped students see theories in action, making the learning process more tangible and fun. These approaches also increased engagement and motivation, making learning more practical and interactive. On the other hand, some students noted some shortcomings, such as the need for more time and preparation for these approaches, the difficulty in adapting to non-traditional methods, and the potential interruptions during the use of technology that negatively affected concentration and understanding of the material.

Discussion

The results of the study show that visual and experiential approaches have a significant impact on improving the understanding of the concept of function and increasing student engagement and

motivation. Students in the experimental group, who used these approaches, showed significant improvements compared to the control group that used traditional methods. Visual approaches, such as graphs and diagrams, helped to visualize the relationships between variables, supporting the findings of Demitriadou et al., (2020). Practical experiments facilitated the connection between theory and real-world applications, a conclusion consistent with the studies of Kramarenko, Pylypenko, & Kostiukevych (2020). The use of modern technologies, such as augmented reality (AR) and digital simulations, significantly improved student engagement and motivation, supporting the results of the studies of Demitriadou et al. (2020) and Abrahamson et al. (2020). Statistical results showed significant improvements in student performance in the experimental group, supported by studies by Zulnaidi et al. (2020), which show that interactive graphs and simulations increase the acquisition of concepts such as functions in mathematics education. In addition, these approaches helped overcome the difficulties that students encounter in visualizing dependencies between variables, as also highlighted by Skovsmose (2020). The study reinforces that the integration of visual and experiential approaches can significantly increase the quality of teaching and learning in mathematics, creating a more engaging and effective experience for students. The study provided answers to the main research questions, confirming the positive impact of visual and experiential approaches on the teaching and learning process, with an average improvement from 53.43 to 66.90 (27.89%), supporting the findings of Demitriadou et al. (2020) and Kramarenko et al. (2020). Students in the experimental group showed greater improvement compared to the control group, reinforcing the effectiveness of these approaches (Abrahamson et al., 2020). The approaches significantly increased student engagement and motivation (mean rating 4.3 out of 5.0), in line with Doumanis et al. (2019). Technologies such as augmented reality and digital simulations contributed to improving the visualization of relationships between variables and performance, supporting Amores-Valencia et al. (2023). Linear regression analysis showed a positive

relationship between approaches and performance in solving complex problems, with a strong medium effect size (Cohen's $d = .63$), as confirmed by Zulnaidi et al., (2020). These results confirm the effectiveness of visual and experiential approaches in improving understanding, engagement, and performance in mathematics.

The study supports all the main hypotheses, confirming the positive impact of visual and experiential approaches in teaching. Hypothesis 1 shows that the use of visual and experiential approaches significantly improves the understanding of the concept of function, matching the findings of Demitriadou et al., (2020) and Kramarenko et al., (2020). Hypothesis 2 confirms that students in the experimental group showed greater improvement compared to the control group, supported by Kramarenko et al., (2020). Hypothesis 3 shows that these approaches increase student engagement and motivation, as suggested by Doumanis et al., (2019). Hypothesis 4 confirms that modern technologies, such as augmented reality and digital simulations, contribute to improving student understanding and performance, in line with Amores-Valencia et al., (2023). Hypothesis 5 supports a positive correlation between the use of these approaches and complex problem-solving skills, as shown by the results of Zulnaidi et al., (2020). These results confirm the effectiveness of visual and experiential approaches in improving understanding, engagement, and performance in mathematics education.

Limitations and Practical Implications

Although the results showed a positive impact of visual and experiential approaches, the main limitations include the short intervention period, which limits the assessment of long-term impacts, and the influence of external factors such as teaching style or individual student motivation. A more detailed study is recommended for future studies. Longer intervention period to analyze long-term effects; and a deeper exploration of modern technologies, such as augmented reality and simulations, to maximize benefits in mathematics education.

The study provides strong evidence that future researchers can use these results to elaborate on the effectiveness of visual and experimental approaches in improving

function understanding, showing a significant improvement in performance and increasing student engagement and motivation. The use of modern technologies, such as augmented reality and digital simulations, has proven particularly effective in visualizing complex relationships between variables while linking theory with practical applications has helped students apply knowledge to real-world situations. These results not only provide a powerful methodological model, but also suggest a basis for future researchers to explore long-term impacts, extend applications to other disciplines, and further improve technologies and approaches used in mathematics education.

This study enriches the existing literature by providing empirical evidence for the effectiveness of visual and experiential approaches in improving understanding and engagement in mathematics while suggesting the use of modern technologies such as augmented reality and digital simulations to address conceptual challenges. The results may help solve practical problems in other countries, such as lack of student engagement and difficulties in acquiring abstract concepts, by providing a model for introducing interactive approaches and innovative technologies in mathematics education.

Conclusion

This study evaluated the impact of visual and experimental approaches on improving the understanding of function in high school students. The results showed a significant improvement in the performance of the experimental group, with an increase in the mean from 53.43 to 66.90, confirming the effectiveness of these approaches in the acquisition of new knowledge. Visual approaches, through graphs and simulations, helped students visualize complex relationships between variables, while practical experiments connected theories with real-world applications, improving complex problem-solving skills.

The use of modern technologies, such as augmented reality (AR), increased students' engagement and interaction with mathematical concepts, making them more tangible and understandable. These results suggest that visual and experiential approaches are effective methods for improving understanding, engagement,

and motivation in mathematics. The study highlights the need to integrate these modern approaches and technologies into mathematics teaching to make abstract concepts more tangible and meaningful for students.

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Teachers' Views on the Readiness of the Education System for Work with Gifted Students

Original scientific paper

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Abstract

This study examines the readiness of the Kosovo education system to integrate gifted and talented students within an inclusive educational framework, aiming to identify both the barriers and the resources necessary for successfully implementing such a model. The central research question seeks to assess the system's capacity, encompassing institutional, legislative, and practical aspects that influence the inclusion of gifted students in mainstream education. The study employed a quantitative approach to explore teachers' perceptions of the readiness of the educational system in Kosovo to support talented students. Data were collected from 225 primary school teachers across 11 municipalities using the "Questionnaire on the Readiness of the Educational System for Work with Talented Students" (PPSAPNT), an adaptation of a validated instrument. The questionnaire, consisting of 68 items across five factors, was administered via an online link facilitated by school principals. Responses were measured on a 5-point Likert scale, and the instrument demonstrated excellent internal consistency (Cronbach's Alpha = 0.925). Descriptive statistics were used to analyze the data, providing insights into teachers' perceptions and the variability of their responses. The findings emphasize the importance of developing a system of continuous professional development for teachers, improving existing educational norms, and fostering greater collaboration among various stakeholders in the education system. It also highlights the need for better alignment between national policies and local needs and resources to ensure gifted students' sustainable and effective inclusion. Through an in-depth analysis of these three levels, this study contributes to a broader understanding of the challenges and opportunities in providing educational support to gifted and talented students in Kosovo.

Keywords: Co-Educational Work, Gifted and Talented Students, Identification, Inclusive Education System, Social Welfare

Interest in the education of gifted children in the Republic of Kosovo has stagnated for a long time. It does not represent a significant field of focus from a scientific perspective. A small number of scientific publications provide evidence of this. The situation has only started to change in recent years. However, the pace is insufficient to achieve the volume and quality of regional research, let alone the research conducted in Europe and the world. This demonstrates low social awareness about the importance of nurturing the most capable individuals to develop Kosovar society.

In numerous studies by prominent authors (Mayer, Müller & Pollak, 2007; McBee, 2010; McCoach & Siegle, 2007; Monks & Pflüger, 2005; Renzulli, 2009), the issue of identifying and working with gifted children is central. After addressing the initial question of identifying gifted children, the subsequent challenge is determining how to work with them effectively. Both questions must be addressed to enable the potential talent to materialize and become productive, benefiting both the gifted individual and society.

Various concepts of talent (Renzulli, 1986; Gardner, 2011; Sternberg, 2005; Gagne, 2004; Heller, 2005; Ziegler & Stoeger, 2017) offer different perspectives on defining talent. This diversity of viewpoints reflects the complexity of defining talent. According to Gagne (2000), talented children are those whose abilities have already translated into achievements and who currently perform at a level that places them within the top 10 percent of their peers. This research adopts this definition to analyze whether the education system of Kosovo is prepared to address the needs of talented students.

Conflicts between elitism and egalitarianism are present in all societies. To avoid the creation of elitist educational systems, many countries include commitments in their educational policies to provide equal opportunities for all students. For example, Americans have traditionally struggled to balance ideas of excellence and equality, often resulting in deep-rooted anti-intellectualism (Clark & Zimmerman, 2004). In this context, "elite" refers to a select group forming a community or society (Denord, Palme, & Réau, 2020). Students who constitute the elite in a classroom possess

characteristics of superiority. Elite theory questions whether elite dominance benefits society and raises the dilemma of whether elite rule is inevitable. According to elite theory (Denord, Palme, & Réau, 2020), every society is divided into two main groups: the masses and the elites, where the former is the majority, and the latter is the minority. Each class functions as a miniature society with its elite. Contemporary societies, especially those in transition, often have an ambivalent attitude towards gifted children. Sindik and Elez (2011) assert that there is an intense love-hate relationship with the exceptionally gifted. Most educational systems struggle with balancing the two legitimate goals of education: equality and excellence. Lay (2007) notes that "in social communities that have advanced towards equality, almost all efforts aimed at excellence have been weakened. Conversely, a strong emphasis on excellence can compromise the principle of equality and equal opportunities for everyone, increasing the likelihood of social dissatisfaction" (p. 235).

Most countries that adopt policies for children with special needs follow a service delivery model. However, such a model is not typically applied in gifted education (Montgomery, 2015). Gifted students may be identified and provided with a unique educational program tailored to their needs, yet they still face rote learning and uncreative environments in many countries. Even in countries that emphasize special care, gifted children may remain unidentified. The Program for International Student Assessment (PISA) indicates that education systems in Southeast Asia often produce high-achieving students, but this does not necessarily equate to superior education quality. These systems, for example, are highly didactic and focus on memorization, with students often spending up to 16 hours a day on learning, supplemented by additional instruction and homework encouraged by "tiger mothers" (Nguyen, Chang, & Loh, 2014). According to Montgomery (2015), "even these systems are under review because this is not what countries need to thrive in the new millennium. The creative talent pool needs expansion, whereas memorization methods do not foster this" (p. 11).

While the budgets of many countries are increasing, resources, special teams,

and the number of teachers often decrease. Teachers in regular classrooms are expected to offer students a broad range of support. Individual education plans are crucial for exceptional children. In some countries, there is an expectation that all students will have personalized learning plans, but this often remains aspirational. Could this be compatible with inclusion? Differentiation and inclusion, developed initially in special needs, have become central concepts in education. However, these principles do not align well with didactic systems and selective education processes, potentially leading to conflicts (Montgomery, 2015).

Defining talent remains challenging for researchers, leading to difficulties in conceptualizing support for gifted children. These challenges arise because identification procedures depend on the accepted concept and how their development is structured. Unique curricula, as part of a country's education system, are also based on the accepted concept. One of the most representative approaches to talent is Renzulli's (1986) model, which outlines the conditions for potential talent to develop into a realized gift. According to this model, a gifted individual possesses above-average ability, high motivation, and creativity, applying this combination in any field of human endeavor. The widely accepted definition of talent in the United States was proposed by Marland (1972) in the "Marland Report," which identifies gifted children as those who, due to extraordinary abilities, achieve high success when assessed by qualified professionals. Nevertheless, a universal definition of talent does not exist (Mönks & Mason, 2000). Working with these children requires special educational programs alongside regular ones to enable their full potential to be realized.

The Problem of Talented Students in Kosovo

Every society that aims to compete internationally must leverage its potential in the best interests of gifted children. These societies should treat their talented individuals as a valuable national resource. Investing in the development of gifted individuals, their talent, and creativity is an investment in the overall progress of a country. Increasingly, a country's economic strength is realized through intellectual achievements. In the past, even the most

developed countries have emerged from significant crises by harnessing the creativity and potential of gifted and talented individuals (Arnold & Javorcik, 2009). For Kosovo to become a competitive society and keep pace with social, economic, political, and cultural advancements, it is essential to establish schools where gifted children are identified at the right time, allowing them to develop their creative potential. Gifted students have the potential to become leaders as adults, driving and accelerating the progress of society in various fields. In the era of globalization, there is a need for continuous efforts to support the growth and development of gifted children and youth. This paper aims to develop a value system highlighting the importance of nurturing talented students.

A chronic issue for talented students in the Kosovar education system is the lack of challenges and attention they seek, need, and deserve. Their programs are below their capabilities, making the material easy to master. In such a system, these students cannot reach their full potential, leading to underachievement and unutilized energy, which should be channeled into positive activities to prevent adverse outcomes. Additionally, less investment is made in education in Kosovo than in developed countries. In Kosovo, there is almost no investment in the education of talented students. There are indications that gifted and talented children and youth have been largely overlooked, sidelined, or given minimal attention. These students require different activities and academic opportunities because, compared to their peers, they often have more advanced academic needs. They also need better social integration, especially regarding their social development.

Institutionally, Kosovo's commitment to supporting these students is minimal. Kosovo lacks a legal framework that specifically addresses the needs of gifted and talented individuals. There is administrative instruction for children/students with exceptional abilities, unique gifts, and talents in academic fields, creativity, and the arts. A review of the primary laws regulating education in the Republic of Kosovo (Assembly of the Republic of Kosovo, 2011; Assembly of the Republic of Kosovo, 2008) revealed no provisions governing the education and development of gifted

students. Searches of municipal websites also did not indicate the presence of support programs for talented children and youth. In 2019, the Ministry of Education, Science, and Technology approved the Administrative Instruction on Talented Children and an Instruction for its implementation (MEST, 2019). Bajrami (2017) conducted an analysis that revealed a positive orientation towards inclusive processes in EU countries, including Kosovo.

This is the only national-level document addressing the issue of talented children in Kosovo. The document acknowledges that "the legal infrastructure on the education and support of children with exceptional abilities, flair, and talent does not adequately meet the needs and potential of this target group" (MEST, 2019, p. 6). The guidance further recommends that "all educational institutions should include gifted and talented children in their annual plans" (p. 10). Teachers are expected to identify gifted students based on their needs and adapt teaching strategies to help them realize their potential. The document emphasizes that the identification of gifted children should be a continuous process, using a more inclusive approach that involves a variety of methods, "although the procedures for identifying and evaluating children with exceptional abilities are not clearly defined, as is the case in other areas of special education" (MEST, 2019, p. 12). Regarding nomination, the MEST (2019) states that nominations can be made by "parents/guardians, teachers, psychologists, other students, the student themselves, and other persons and organizations" (p. 26). The Administrative Guide (MEST, 2019) suggests that support for this category of students should come from a high governmental level, specifically from the Ministry of Education, Science, and Technology (MEST), the Municipal Directorate of Education (MDE), schools, and teachers. The guide also outlines the roles of parents and teachers in identifying, supporting, and working with talented children.

From the brief analysis of the only significant document on gifted and talented students in Kosovo, it can be concluded that it provides a descriptive analysis of the challenges faced by students with exceptional abilities but lacks clear solutions. As such, it is unlikely to be implemented soon due to the absence of a legal framework,

curriculum framework, and financial support. Additionally, there is a lack of scientific debate on this issue and a shortage of theoretical and empirical research concerning talented children in the Republic of Kosovo. Empirical research on gifted students in Kosovo is limited. Among the few available studies is the research conducted by Lullaku (2017), which aimed to examine the opinions of teachers, students, and parents on student creativity using the Torrance Test. The findings of this study indicate that talented students in the area of creativity scored 13% higher than their peers. In comparison, the creativity of Kosovar students was found to be 50% lower than American standards. Mustafa's (2019) research explored the role and influence of specific family characteristics and individual factors contributing to the development of talented children in Kosovo. Regarding the preparedness of Kosovo's education system, Mustafa emphasizes that the field of gifted and talented students in Kosovo is either neglected or non-existent. Mustafa (2019) recommends that the Ministry of Education, Science, and Technology (MEST) establish a working group of experts to develop criteria for identifying and nominating talented children, considering the country's cultural specifics.

Through the ATOM project, only the NGO Encompass has undertaken activities related to identifying children with exceptional intelligence in Kosovo. Since 2011, the ATOM project has included all primary and secondary school students (grades 8-13). Approximately 3,000 students have applied to this project, and over 5,000 intelligence tests have been conducted. Additionally, Encompass has provided services and activities to support gifted students. A total of 170 gifted students, aged 12 to 20 years, have been identified nationwide, representing both genders and nearly all municipalities and communities in Kosovo. To consistently treat this group, educational institutions must develop special programs aimed at the academic advancement of talented individuals. Without a clear strategy for institutional support of gifted and talented students, these individuals may remain unnoticed, leading to a significant loss of societal potential.

Talented children do not receive adequate support in Kosovar society.

Reviewing existing legal regulations and limited research on gifted children's challenges in Kosovo indicates that the education system is not sufficiently prepared to identify and support these students. This study aims to explore teachers' views regarding the readiness of the education system in Kosovo to work with gifted students. The research seeks to answer the following question: What is the level of preparedness of Kosovo's education system for working with these students, according to teachers? A hypothesis was formulated based on this question: According to teachers, the education system in Kosovo is not sufficiently prepared to support gifted students.

Methodology

This study utilized a quantitative approach to investigate teachers' perceptions of the education system and Kosovo's readiness to support gifted students. Additionally, content theory analysis was employed to delve deeper into teachers' attitudes and experiences regarding the education system and their work with talented students. This method thoroughly examines written materials, such as responses to open-ended questions, reports, and documents pertinent to the education system, to identify key themes, patterns, and attitudes. The combination of qualitative and quantitative methods facilitates the identification of knowledge gaps and enhances scientific and educational processes, paving the way for further research and improvement in educational

practices (Dzogovic & Bajrami, 2023, p. 165). Furthermore, the data analysis in this study incorporated descriptive statistics, calculating the mean and standard deviation for each item to assess teachers' perceptions and the variability in their responses. The study involved 225 primary school teachers from 11 municipalities in the Republic of Kosovo. School principals facilitated the questionnaire distribution by sharing a link created on Google Forms to collect responses.

The primary instrument was the "Questionnaire on the Readiness of the Educational System for Work with Talented Students" (PPSAPNT), an adaptation of the "Questionnaire on the Condition and Needs of Work with Gifted Students" (Nikcevic-Milkovic, Jerkovic, & Rukavina, 2016). The questionnaire consists of 68 items in English and measures five key factors:

- Factor 1: Special programs, forms, and methods for working with talented students.
- Factor 2: Direct work and support for gifted students.
- Factor 3: Professional development.
- Factor 4: Social care for gifted students.
- Factor 5: Identification and orientation of talented students.

Respondents answered the items using a 5-point Likert scale, where 1 = strongly disagree and 5 = strongly agree. The reliability coefficient (Cronbach's Alpha) for the PPSAPNT was excellent at 0.925, indicating strong internal consistency. The reliability coefficients for the factors of the PPSAPNT in this study were as follows:

Table 1.
Reliability of PPSAPNT Factors

Factors	Items	Cronbach alpha
F 1: Special programs, forms, and methods of work With talented students.	16	.825
F 2: Direct work and support of gifted students.	14	.797
F 3: Professional development.	8	.611
F 4: Social care for the gifted.	13	.702
F 5: Identification and orientation of students	17	.722
	68	.925

When testing the internal consistency of the PPSAPNT, seven items were removed, as they significantly reduced the internal consistency of the factors and the overall questionnaire. As a result, the final version of the questionnaire contains 68 items. This questionnaire can be used to assess the readiness of the education system to work

with talented students. Data were processed using IBM SPSS Statistics v.25. Descriptive statistics were employed to calculate the arithmetic mean, which was then used to interpret the level of preparedness of the education system based on the following interval scale:

Table 2.

Scale of Arithmetic Mean Intervals

Numerical scale	Mean score	Descriptive equivalent
1	1 – 1.79	Unprepared
2	1.80 – 2.59	Mostly unprepared
3	2.60 – 3.39	Inadequately prepared
4	3.40 – 4.19	Mostly prepared
5	4.20 – 5	Fully prepared

Results and Discussion

Factor 1 examined teachers' views on the readiness of the Kosovo education system in terms of special programs, forms, and methods for working with gifted students. The table below (Table 3) presents the descriptive data related to the questions of Factor 1. The data show that teachers did not express a "strongly agree" response for any item, resulting in an arithmetic mean score of $M > 4.19$. However, they "agree" that their schools use methods such as "stimulation of creativity, originality, critical thinking, self-regulation of learning, and higher-order thinking processes" as part of working with gifted students ($M = 3.75$, $SD = 1.166$). The teachers also "agree" ($M = 3.55$, $SD = 1.137$; $M = 3.53$, $SD = 1.176$) that projects and small groups are implemented at schools for gifted students. They desire to work with

special programs for gifted students ($M = 3.84$, $SD = 1.111$). Teachers know the models for working with gifted students ($M = 3.36$, $SD = 1.093$), with the integrated model being the most commonly applied ($M = 3.36$, $SD = 1.061$). They "disagree" that their schools group talented students into homogeneous groups ($M = 2.49$, $SD = 1.286$) and remain "neutral" regarding whether special work programs exist for these students ($M = 2.88$, $SD = 1.223$). If such programs exist, teachers primarily implement such programs ($M = 3.24$, $SD = 1.294$). The results presented in Table 3 show an overall mean score ($M = 3.16$, $SD = 0.625$), which, according to the defined criteria (see Table 2), suggests that teachers perceive Kosovo's education system as insufficiently prepared in terms of special programs, forms, and methods for working with gifted students.

Table 3.

Descriptive Parameters for Factor 1

No	Item	N (225)	
		M	SD
25	Do you know the models of working with talented students?	3.36	1.093
26	The acceleration model is applied in my school when working with talented students.	2.84	1.158
27	My school's curriculum enrichment model is applied when working with talented students.	3.33	1.188
28	The parallel model is applied in my school when working with talented students.	3.04	1.147
29	The integrated model is applied in my school when working with talented students.	3.36	1.061

Table 3 (continued).*Descriptive Parameters for Factor 1*

38	Do you use the stimulation of creativity, originality, critical thinking, self-regulation of learning, and higher thinking processes to work with talented students?	3.75	1.166
42	Does project work apply to talented students.?	3.55	1.137
43	Does small group work for talented students?	3.53	1.176
44	Does mentoring apply to talented students.?	3.09	1.308
45	Does your school group talented students into homogenous groups?	2.49	1.286
48	Are there special programs for working with talented students in your school?	2.88	1.223
49	Professional staff implement unique programs for working with talented students at my school.	2.97	1.217
50	Teachers mainly implement special programs to work with talented students in my school.	3.24	1.249
51	Are there electives in your school that talented students potentially choose?	2.73	1.250
52	I would like to work with special programs with talented students	3.84	1.111
53	I think that special programs for talented students do not make sense.	2.57	1.234
F1		3.16	.625

Factor 2 examined teachers' views on the readiness of the Kosovo education system in terms of direct work and support for gifted students. Like Factor 1, the teachers did not express "strongly agree" for any item, resulting in a mean score of $M > 4.19$. The teachers "agree" that "talented students should remain included in regular classes" ($M = 3.59$, $SD = 1.218$) and that "to encourage talented students at school, they use the adaptation procedure" ($M = 3.41$, $SD = 1.086$). However, they are uncertain about their familiarity with motivation procedures ($M = 3.39$, $SD = 1.047$) and the extent to which they use the "differentiation procedure" ($M = 3.19$, $SD = 1.037$), the "starting procedure" for motivating gifted students at school ($M = 2.96$, $SD = 1.204$), and the "procedure of placement in the classroom for gifted students" ($M = 2.83$, $SD = 1.246$). The compression of subjects is not used as a form of acceleration ($M = 3.34$, $SD = 1.095$).

The teachers expressed a "neutral" stance on whether talented students should be taught in separate classes or special schools ($M = 3.23$, $SD = 1.254$) and remain uncertain about having "an adapted curriculum for evaluating the achievements of talented students" ($M = 2.96$, $SD = 1.189$). The results indicate that practices such as skipping one or more grades ($M = 2.52$, $SD = 1.347$), completing two grades in one year ($M = 2.31$, $SD = 1.260$), attending primary and secondary school simultaneously ($M = 2.36$, $SD = 1.366$), and correspondence education (e.g., via the internet) ($M = 2.58$, $SD = 1.269$) are not used to encourage talented students at school. Additionally, schools do not provide special software for the progress, expansion, and updating of the knowledge and interests of talented students ($M = 2.56$, $SD = 1.263$). The results presented in Table 4 show an overall mean score ($M = 2.95$, $SD = 0.634$), suggesting that teachers perceive Kosovo's education system as insufficiently prepared in direct work and support for gifted students.

Table 4.
Descriptive Parameters for Factor 2

No	Item	N (225)	
		M	SD
30	Do you know the procedures for encouraging talented students?	3.39	1.047
31	We use the differentiation procedure to encourage talented students at school.	3.19	1.037
32	We use the adaptation procedure to encourage talented students at school.	3.41	1.086
33	In order to encourage talented students in school, we use the procedure of early start to school.	2.96	1.204
34	To encourage talented students at school, we use the procedure of jumping one or several classes.	2.52	1.347
35	We use the placement procedure for talented students to encourage talented students in the school.	2.83	1.246
36	To encourage talented students, we conduct two classes in one year.	2.31	1.260
37	To encourage talented students in school, we use the procedure of simultaneous attendance at primary and secondary schools.	2.36	1.366
40	Do you implement subject compression as a form of acceleration of talented students in your school?	3.34	1.095
41	Does your school implement correspondence education (e.g., via the Internet) as a form of acceleration for talented students?	2.58	1.269
54	I think that talented students should learn in separate classes or separate schools.	3.23	1.254
55	I think talented students should remain involved in regular classes.	3.59	1.218
56	Do you have an adapted curriculum for assessing the achievements of talented students?	2.96	1.189
57	In my school, special software is provided for the advancement, expansion, and updating of the knowledge and interests of talented students.	2.56	1.263
F2		2.95	.634

Factor 3 examined teachers' views on the readiness of the Kosovo education system in terms of professional development. As shown in Table 5, teachers "agree" that there is systematic cooperation between educational stakeholders in working with gifted students in schools ($M = 3.44$, $SD = 1.152$), that parents should be offered professional support ($M = 3.81$, $SD = 1.114$), and that teachers need professional development in the field of giftedness and talent ($M = 3.71$, $SD = 1.019$). They are "neutral" or unsure whether the state provides assistance and support for strengthening teachers' competencies in identifying and working with gifted students ($M = 2.67$, $SD = 1.221$), whether schools offer professional training for teachers in the area of giftedness and talent ($M = 2.73$, $SD = 1.206$), and

whether they had subjects, content, or practical work related to this field during their initial education ($M = 3.15$, $SD = 1.374$).

The teachers "disagree" that the municipality offers training programs for teachers to work with gifted students ($M = 2.57$, $SD = 1.171$) and reported that they have rarely received funding for their work with talented children ($M = 2.01$, $SD = 1.239$).

The results presented in Table 5 show an overall mean score ($M = 3.13$, $SD = 0.617$), which, according to the defined criteria (see Table 2), suggests that teachers perceive Kosovo's education system as insufficiently prepared in terms of professional development for working with gifted children.

Table 5.
Descriptive Parameters for Factor 3

No	Item	N (225)	
		M	SD
4	The school staff cooperates and supports each other in systematic work for the benefit of talented students.	3.44	1.152
19	In order to efficiently help the development of gifted children, I think parents should be offered professional support such as "school for parents," courses, lectures, and discussions.	3.81	1.114
58	I am intensely interested in and need professional training in giftedness and talent.	3.71	1.019
59	Does the state provide help and support for strengthening teachers' competencies in identifying and working with talented students?	2.67	1.221
60	Does the municipality offer programs for training teachers to work with talented students?	2.57	1.171
61	My school provides professional training for talented and talented teachers.	2.73	1.206
62	During my initial education, I had subjects, content, or practical work in the field of giftedness and talent.	3.15	1.374
63	Have you ever received funding from your school for your work with talented children?	2.01	1.239
F3		3.13	.617

Factor 4 explored teachers' views on the readiness of the Kosovo education system in social care for gifted students. In this factor, teachers "strongly agree" ($M = 4.43$, $SD = 0.909$) that "the state should primarily direct care for gifted students in Kosovo." They "agree" ($M = 3.41$, $SD = 1.303$) that "the school cooperates with parents in the identification, development, and support of gifted students." However, they believe that "the involvement of parents in identifying and working with gifted students is insufficient" ($M = 3.54$, $SD = 1.138$). Teachers think that, besides the state, care for gifted students should be primarily directed by the school ($M = 4.06$, $SD = 1.011$), followed by the municipality ($M = 3.92$, $SD = 0.946$). In general, teachers "agree" ($M = 3.58$, $SD = 1.252$) that "care for gifted students in the Republic of Kosovo is not at a satisfactory level." Teachers expressed "neutral" or uncertain opinions in response to the direct question, "Is the education system of Kosovo prepared for the process of identifying and working with talented students?"

($M = 3.04$, $SD = 1.072$). Teachers are also unsure or "neutral" regarding questions 2, 3, 16, 47, and 64 ($M = 2.76$, $SD = 1.067$; $M = 2.79$, $SD = 1.064$; $M = 2.83$, $SD = 1.243$; $M = 3.00$, $SD = 1.358$; $M = 3.29$, $SD = 1.240$; $M = 3.00$, $SD = 1.364$). These questions pertain to whether the state provides guidance, legal regulations, and adapted plans for identifying and working with talented students; whether there are policies, systematic approaches, and initiatives from governmental and non-governmental sectors on the issue of talented students; whether the school maintains a database of talented students; whether the progress of talented students is systematically tracked; and whether the school has the structural, spatial, and didactic resources needed for working with talented students.

The results presented in Table 6 show an overall mean score ($M = 3.36$, $SD = 0.543$), which, according to the defined criteria (see Table 2), suggests that teachers perceive Kosovo's education system as insufficiently prepared in the dimension of social care for the gifted.

Table 6.
Descriptive Parameters for Factor 4

No	Item	N (225)	
		M	SD
1	In your opinion, is Kosovo's education system prepared to identify and work with talented students?	3.04	1.072
2	Does the state provide guidelines, legal regulations, and adapted plans for identifying and working with talented students?	2.76	1.067
3	Are there policies, systematic approaches, and initiatives from the governmental and non-governmental sectors on the issue of talented students?	2.79	1.064
16	Parents participate in identifying the gifted child at an early age.	2.83	1.243
17	The school collaborates with parents to identify, develop, and support talented students.	3.41	1.303
18	The involvement of parents in the process of identifying and working with talented students is not enough.	3.54	1.138
46	Does your school have a database for talented students?	3.00	1.358
47	Is the progress of talented students systematically tracked in your school?	3.29	1.240
64	Does your school have the structural, spatial, and didactic material capacities for working with talented students?	3.00	1.364
65	Do you think the care for talented students in the Republic of Kosovo is unsatisfactory?	3.58	1.252
66	The school should primarily direct care for talented students in Kosovo.	4.06	1.011
67	The municipality should primarily manage the care for talented students in Kosovo.	3.92	.946
68	The state should primarily direct care for talented students in Kosovo.	4.43	.909
F4		3.36	.543

Through Factor 5, teachers' views on the Kosovo education system's readiness in identifying and orienting talented students were investigated. Teachers know how to define gifted and talented students and the attributes that characterize these students. Thus, teachers "agree" (M=4.04, SD=1.062; M=3.94, SD=1.042; M=4.05, SD=.992; M=3.80, SD=1.055) that gifted students are those students who show potential for extraordinary success in several fields of activity, whereas gifted students are those students who show potential for extraordinary success in a field of activity and who are characterized by high intelligence; high ability in fields such as mathematics, natural sciences, literature, foreign languages; creative and productive thinking; leadership; great talent for arts; high psychomotor skills; independence; introverted; and who have had or seen a gifted student in the classroom. They also "agree" (M=3.72, SD=1.034; M=3.73, SD=1.032; M=3.82, SD=.953; M=3.68, SD=1.046) that the identification of the gifted student at school is carried out when it is observed his potential gift and talent mainly

in elementary education classes. At the same time, most teachers try to identify such students and work with them by orienting them in additional school and extracurricular activities.

Teachers are "neutral" (M=3.22, SD=1.028; M=3.32, SD=1.036; M=2.70, SD=1.253; M=2.86, SD=1.262; M=3.32, SD=1.252; M=3.17, SD=1.313; M=2.96, SD=1.151; M=3.36, SD=1.102) and show uncertainty in distinguishing the notions of "gift" and "talent" and in knowing the procedures for identifying talented students. They are also not sure what procedures are used to identify these students. They are "neutral" or unsure if they participate in identifying gifted students regarding the participation of other students in this process and whether the student himself is an appreciator of his gift and talent.

The results presented in Table 7 show the mean score (M=3.41, SD=.476), which, according to the defined criteria, suggests that, in the identification and orientation of talented students, teachers see the education system of Kosovo as primarily prepared.

Table 7.
Descriptive Parameters for Factor 5

No	Item	N (225)	
		M	SD
5	I think gifted students show potential for extraordinary success in some areas of activity.	4.04	1.062
6	I think gifted students show potential for extraordinary success in a field of activity.	3.94	1.042
7	These attributes characterize the gifted and talented student: high intelligence; high ability in mathematics, natural sciences, literature, and foreign languages; creative and productive thinking; leadership; great talent for arts; high psychomotor skills; independence; introvert.	4.05	.992
8	I have had or seen talented students in the classroom as a teacher.	3.80	1.055
9	I hardly know talented students in the class.	2.23	1.183
10	I think that there is no essential difference between "gift" and "talent" or between a "gifted" student and a "talented" student	3.22	1.028
11	Do you know the procedures for identifying talented students?	3.32	1.036
12	In my school, checklists are used to identify talented students.	2.70	1.253
13	In my school, the ability scale is used to identify talented students.	2.86	1.262
14	In my school, testing is used to identify talented students.	3.32	1.252
15	As a teacher, I participate in identifying talented students.	3.17	1.313
20	Students participate in the identification of talented students.	2.96	1.151
21	The gifted student himself evaluates his talent by self-identifying.	3.36	1.102
22	Identifying the talented students in the school is carried out when their gifts and potential talents are observed.	3.72	1.034
23	Talented students are identified in elementary education classes.	3.73	1.032
24	Although my school does not work with gifted students, I try to identify them and work with them.	3.82	.953
39	Do you orient talented students to extracurricular and extracurricular activities?	3.68	1.046
F5		3.41	.476

Conclusion

Potentially gifted children have the right to be educated according to their abilities. However, the journey from potential talent to manifested talent is long, and without societal support, these individuals may give up or shift towards a field unrelated to their talent. Among the most critical factors for the systematic care of gifted children is the teacher. The education of a gifted child at school largely depends on the teacher's readiness to work with such students. The research results indicate that teachers require professional training in giftedness and talent, yet the state, municipalities, and schools do not provide adequate training programs or financial support for teachers. Overall, teachers perceive the education system of Kosovo as insufficiently prepared to work with gifted students, except in the dimension of identifying talented students, where they view the system as primarily prepared. The theoretical analysis of the legal framework

revealed that no law specifically addresses the issue of working with gifted students; this area is regulated only through an Administrative Guide. Therefore, Kosovo must establish an organized care system for gifted children immediately. This requires amendments to the five existing education laws. MEST must develop a strategy for gifted and talented students, focusing on the five dimensions of the education system's readiness: identification, implementation of special programs, encouragement, professional development of teachers, and social care. The strategy should clearly define the theoretical approach to be adopted (as Australia has done), specify the definition of giftedness and talent, and establish the terminology that will be used.

Limitations

As one of the first studies to examine the readiness of the Kosovo education system to work with gifted students, this research may not have covered all aspects

of readiness. Although some items weaken the instrument's internal consistency, they may be removed in a future revision of the PPSAPNT. Conducting the research online may limit respondents' opportunities to receive clarifications regarding specific questions.

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National Curriculum and Parental Involvement: Bridging Home and School Education

Original scientific paper

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Abstract

This study investigates parents' understanding of school-implemented curricula and their involvement in enhancing the quality of learning. In Indonesia, the Ministry of Education and Culture updated the basic education curriculum policy on March 26, 2024, as part of the evolution of the Merdeka Curriculum. This research uses an exploratory approach to examine parents' perceptions of their roles as school partners. Data were collected through an online survey involving 230 respondents selected via non-probability sampling and analyzed using an exploratory quantitative method. The findings reveal that while parents are generally aware of and willing to engage in school activities, they require resources and structured programs to guide their involvement effectively. Similarly, schools strive to involve parents but lack programs designed to strengthen learning outcomes. Additionally, the concept of parents' literacy regarding the learning environment at home and school remains an ongoing challenge. These results highlight the need for schools to develop effective programs that bridge parental involvement and curriculum success, ultimately fostering better learning experiences for students.

Keywords: Parental Involvement, Curriculum Understanding, Learning Quality, School Partnerships

The 2024 national curriculum for elementary education in Indonesia emphasizes essential materials tailored to students' learning needs and interests, aiming to strengthen their character. The key to the success of the implementation of the national

curriculum needs to be supported by parents as school partners (Ishimaru, 2019; Passmore & Zarate, 2020). This strong partnership can improve academic outcomes (Epstein, 2018) and student character development (Okeke, 2014; Paul et al., 2022).

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Many studies have revealed that parent's involvement in education plays a significant influence on the success of parents, children, teachers, and schools in terms of (1) supporting academic achievement and increasing attendance, awareness of healthy living (Nash et al., 2020) and positive behavior (Alias et al., 2023; Hoskins, 2014; Povey et al., 2016); (2) improving parents' perspective of schools, increasing teacher satisfaction, and strengthening relationships with children (Cano et al., 2019; Custodio et al., 2022; Dami et al., 2020); and (3) improving the climate, quality, and school discipline (Coplan et al., 2002; Goering & Mrug, 2021; Purnomo et al., 2022). Parental involvement in education to build an educational ecosystem aligns with the vision of the Ministry of Education and Culture of the Republic of Indonesia: The development of individuals and an education and cultural ecosystem with character, grounded in mutual cooperation (Ministry of Education and Culture, 2020). Therefore, family involvement in providing education is expected to be appropriate and meaningful (Bornstein et al., 2022; Hart et al., 2019). On the other hand, in practice, schools have difficulty formulating effective programs to support curriculum implementation. A previous study revealed (Gross et al., 2020), that parents have the desire to be involved but they face some obstacles such as lack of time, lack of understanding of the curriculum, and form of involvement which can affect learning achievement (Yamamoto et al., 2022). Many studies have emphasized the differences between school and parent expectations regarding children's educational goals (Jeziarski & Wall, 2019; Li & Xie, 2020; Pinquart & Ebeling, 2020). However, only some investigate how the national curriculum can serve as a bridge to align these expectations. Most studies on parental involvement focus on their contribution to informal education at home (Cosso et al., 2022; Epstein et al., 2021; Williams-Johnson & Gonzalez-DeHass, 2022), but rarely explore how parents can directly support the national curriculum implemented in schools. Studies on parental support for the implementation of the national curriculum at schools are limited. Parental access to involvement in school curriculum planning is still not a policy

priority, although this issue has emerged since a decade ago (Russell, 1991). Previous studies focused more on the form or model of parental involvement in schools such as the Dual Navigation Approach (Jeynes, 2018), and the Hoover-Dempsey model (Gonzalez et al., 2013; Nash et al., 2020), in health literacy practices but the stages carried out did not begin with parental perceptions of the ongoing curriculum. In addition, parental involvement is quite effective in the form of joint assignments between parents and children (Johansson, 2009; Moore & Ronau, 2024), but long-term impact data have not been available.

The needs of parents across all grades in primary school and their need to support the school curriculum have not been examined. Research on effective strategies to bridge the gap between parental and school expectations is limited which indicates a critical area for further research to create synergy between the home and school educational environments. This creates a gap regarding parental roles in supporting the goals of the national curriculum and policy formulation to encourage such involvement.

Methods

Research Design

This study employed a survey method with an exploratory quantitative approach to investigate parents' understanding of the school-implemented curriculum and their involvement in enhancing the quality of learning. The research focused on parents of primary school children who met specific characteristics.

Research Subject

This study involved 230 parents of elementary school students who had experienced the "Merdeka Curriculum," the latest national curriculum in Indonesia. They provided valuable insights of their perspective on the new curriculum and their involvement in children's learning process within this educational framework which is important to understand the effectiveness of parental involvement in the implementation of this curriculum. This study also identified challenges and opportunities in bridging parental support with the goals of the "Merdeka Curriculum." Table 1 shows the respondents' characteristics.

Table 1.
Respondents' Characteristics

No	Aspect	Number	Percentage
1	Status		
	Employed	174	75.6%
	Unemployed	56	24.4%
Total		230	100%
2	Latest Education		
	Elementary School, Junior High School, and Senior High School	163	70.87%
	Diploma	3	1.30%
	University (S1, S2, dan S3)	64	27.83%
Total		230	100%
3	Children's Grade		
	Grade 1	48	20.86%
	Grade 2	26	11.30%
	Grade 3	10	4.34%
	Grade 4	55	23.95%
	Grade 5	58	25.21%
	Grade 6	33	14.34%
Total		230	100%

The respondents of this study were 230 parents of elementary school students. In terms of employment, 75.6% of them are employed and the rest (24.4%) are unemployed. Based on educational level, most parents (70.87%) completed Elementary School, Junior High School, and Senior High School levels. Only 1.30% had a Diploma level (D1, D2, and D3) and 27.83% had a university level (Bachelor, Master, or Doctoral). In terms of grade, the students consisted of grade 1 (20.86%), grade 2 (11.30%), grade 3 4.34%, grade 4 (23.95%), grade 5 (25.21%), and grade 6 (14.34%). These characteristics provide a

comprehensive picture of the respondent.

Instrument and Data

Data was collected by distributing an online questionnaire to teachers and principals, who were then asked to share it with the parents of their students. After receiving completed questionnaires from the parents, individuals with unique characteristics based on their survey responses were identified. These parents were subsequently invited to participate in follow-up interviews conducted via Zoom, particularly for those living in remote areas. Table 2 provides details about the research instruments used.

Table 2.
Interview Guidelines

No	Indicator	Number of Item	Example
1	Understanding of National Curriculum	4	Attending the socialization of the independent learning curriculum
2	Supporting Technological Devices	2	Facilitating smartphones to support children's learning
3	Learning Changes	3	Impact of the national curriculum on changes in student learning
4	Parental Involvement and Forms of Involvement	7	Parents' willingness to be involved and parents' expectations of schools.

Data Analysis

Data were analyzed using both descriptive and analytical techniques to understand the dynamics of parental involvement in the 'Merdeka Belajar' reform era. Data collected from 230 respondents were summarized using descriptive statistics, presented in percentages and frequency distributions to illustrate respondents' understanding, support, and involvement. Additionally, the findings were visualized through graphs to provide a clearer picture of the respondents' responses. The relationship between demographic variables, such as education level, employment status, and parental involvement in children's learning, was examined through cross-tabulations. Parental involvement trends were analyzed using descriptive measures like central tendency and variance. Responses to open-ended questions were analyzed qualitatively using

thematic analysis, revealing deeper insights into parents' challenges and needs. This combination of quantitative and qualitative data offered a comprehensive understanding of parents' roles and perspectives on the Merdeka curriculum.

Results and Discussion

Understanding of Merdeka Curriculum

Parents' position as school partners must have good connectivity (Amunga et al., 2020; Goodall & Montgomery, 2013). Parents are required to understand the latest developments in the world of education (Fitriani et al., 2023), including understanding the Merdeka curriculum which has been implemented for 5 years in order to align the vision and mission between schools and families. Data on respondent's participation in the Merdeka Curriculum socialization are presented in Table 3.

Table 3.

Participation in the Merdeka Curriculum Socialization

No	Description	Number	Percentage
1	Have received socialization	133	58%
2	Have never received socialization	97	42%

It is quite interesting that 58% of respondents admitted to having received socialization and 42% had never received socialization of the Merdeka Curriculum. It can be said that respondents understand the Merdeka curriculum from socialization but do not fully understand its implementation. The socialization of the Merdeka curriculum is conducted to all school residents to help all stakeholders, including teachers, parents, and students, understand the basic principles and objectives of the Merdeka Curriculum to help all elements of the education ecosystem properly implement it. Curriculum socialization aims to help parents understand their involvement in their children's learning at home (Dye, 1989; Gonzalez et al., 2013). The technological development era has

provided space for parents to access the national curriculum (Russell, 1991), but most of them do not use this opportunity. A comfortable and warm discussion of the curriculum with parents requires good principal skills (Demirbilek, 2024; Jeynes, 2018), to help parents and schools understand the curriculum as a joint work that requires collaboration (Pinquart & Ebeling, 2020). Establishing effective communication with parents and teachers and formulating a simple program can be further researched regarding effective and long-term impactful involvement models for all school residents. The results of the Merdeka Curriculum socialization are quite interesting as presented in Table 4.

Table 4.*Results of Socialization*

No	Description	Number	Percentage
1	Not understand	20	8.6%
2	Less understand	120	52.2%
3	Quiet understand	67	29.2%
4	Understand	23	10%

Concerning parental participation in curriculum socialization, some parents already have a good understanding, while others need time to understand the concept in depth. The curriculum is a manual book that is easy for teachers to use, but difficult for parents to understand (Pladevall-Ballester, 2015), as they may come from various backgrounds. Many studies have investigated the parental perceptions of the curriculum (Jeziński & Wall, 2019; Li & Xie, 2020; Pinquart & Ebeling, 2020). The key characteristic of the Merdeka curriculum is involving parents as partners in educational success and providing a parent guidebook to assist their children's learning at home (Ansori et al., 2022). However, it is not easy for parents to understand it and start their task at home. Parental awareness and understanding can develop especially when they perceive the positive benefits of this curriculum in children's learning in everyday life. Various involvement models provide essential information that the form of involvement must be conceptualized, structured, and (Nash et al., 2020; Passmore & Zarate, 2020). The initiated programs must be sustainable (Okeke, 2014), to strengthen the connection between schools and parents in understanding the curriculum (Dye, 1992; Jeznik & Gregorčič Mrvar, 2022). Parents and schools need to work together to plan the

curriculum according to the cultural context (Pinquart & Ebeling, 2020), and needs to support learning achievement. Parents believe that their involvement in learning will make a positive difference (Surikova & González, 2022). Based on a previous study (Yamamoto et al., 2022), the sociocultural model is recommended to support school and parent involvement. Thus, it is important to research curriculum manuals that are adjusted to the diverse abilities of parents and limited experience in pedagogical science.

The active role of families (parents) in schools must be prioritized (Jeziński & Wall, 2019), as it supports educational success (Erlendsdóttir et al., 2022). The diversity of parents' experiences and backgrounds affects the way students learn (Hemmerechts et al., 2017), and gives rise to various learning methods are needed (Darling-Hammond et al., 2020). As the child's first teacher, parents understand the effective learning methods for their children, but parents also need to respect the educational methods applied at schools. This study tries to explore information related to the learning methods expected to be applied at schools to help students understand learning materials. The parents' response regarding the expected learning methods applied at schools is presented in Table 5.

Table 5.*Expected Learning Methods in the Implementation of Merdeka Curriculum*

No.	Description	Number	Percentage
1	In-class learning	30	13%
2	Learning outside the class	4	1.8%
3	Learning inside and outside the class	196	85.2%

Based on Table 5, 85.2% of parents agree that the learning method should not be monotonous, instead it must be varied. Parents expect an inclusive approach to learning methods in schools (Paseka & Schwab, 2020). The Merdeka curriculum

changes the learning method from inside the classroom to outside the classroom (Indarta et al., 2022). The concept of learning outside the classroom can provide an opportunity for students to be able to discuss flexibly with teachers. Students are given the freedom

to elaborate their skills. Thus, teachers and students can collaborate to create active and productive learning (Manalu et al., 2022). The principle of learning in the Merdeka Curriculum emphasizes students' development of creativity, skills, and character. This curriculum is a positive step forward as it teaches children to think critically and independently as well as to take initiative. Critical thinking skills and mastery of concepts are important for everyone to solve a problem (Amanda et al., 2022). Parents need to consider creativity, collaboration, and problem-solving as skills relevant to everyday life, not just focusing on cognitive abilities. However, this perception is not fully understood by parents (Minke et al., 2014), which becomes a challenge to parental involvement in curriculum design. This indicates the importance of conducting further research related to parents' desires and

expectations of schools, especially in non-academic aspects that can be used as a basis for creating parental involvement models in curriculum enrichment which can be adopted and adjusted according to the characteristics of the Indonesian region (Meier & Lemmer, 2015).

Supporting Merdeka Belajar

The new era of society 5.0 requires society to solve problems or social dynamics by utilizing technologies such as the Internet of Things (IoT), Artificial Intelligence (AI), robot technology, and even big data. In this era, humans can develop their skills and abilities by utilizing various technologies such as smartphones (Naslund & Aschbrenner, 2021). The use of smartphones in education faces some challenges. Parental perspectives on the use of smartphones in learning are presented in Table 6.

Table 6.

Parental Perspective on the use of Smartphones in Learning

No	Description	Number	Percentage
1	Agree using smartphones	180	78.2%
2	Disagree using smartphones	50	21.7%

As a form of validation, data were obtained from open-ended questions regarding the reasons for accepting the use of smartphones in learning. Around 78.2% of parents expressed their agreement with the use of smartphones for learning as smartphones facilitate learning. Parents realize that using smartphones provides easier and wider access to educational resources, such as applications, learning videos, and e-learning platforms. Besides, the use of smartphones facilitates communication among teachers, students, and parents. Parents can interact with teachers, receive updates, and get involved in the development of their children's learning easily. A study showed that the use of smartphones to improve learning depends on several factors such as learning design, the type of technology used, and the level of student expertise (Almaiah & Alismaiel, 2019). Therefore, designing educational technology policies according to students' characteristics in primary education and higher education is important (Chauhan, 2017; Iqbal & Bhatti,

2020). Table 6 also shows that 21.7% of parents expressed disagreement with the use of smartphones for learning. In open-ended questions, the reasons for their disagreement are worry that children would be too lazy to study, lack of concentration, and not all students had internet access. This is in line with a previous study (Han, 2022), that the age of first using a smartphone and the duration of use affect smartphone addiction, learning independence, and other learning achievements. Therefore, the use of smartphones at school needs clear and wise regulation to minimize distractions and ensure that smartphones function as effective learning aids (Anshari et al., 2017), and families need to have an active and preventive role by teaching values (Ramírez-Ramírez & Castro, 2023). At the primary education level, family involvement is highly needed to ensure the dynamics of technology use have the right impact on educational success. Parent's perceptions of their involvement at schools are presented in Table 7.

Table 7.
Parental Involvement in Schools

No	Description	Number	Percentage
1	Agree to hold routine activities involving parents	183	75.6%
2	Disagree to hold routine activities involving parents	47	20.4%

Table 7 shows that parents agree that schools hold routine activities involving parents. Parental involvement in children's activities can form strong family bonds and support children's overall development (Kardefelt-Winther, 2014; Posey-Maddox & Haley-Lock, 2020; Povey et al., 2016). Parents involve themselves in their children's homework because they believe they should be involved (Surikova & González, 2022). They believe that their involvement will make a positive difference (Okubo et al., 2022), and their children or their children's teachers want their involvement. Hornby, G. & Lafaele (2011), argue that parents' interest in being involved in children's stimulation is a positive predictor of children's learning processes and achievements (Maulyda et al., 2024). Thus, parental perceptions and beliefs about involvement practices affect

educational success (Almeida & Pacheco, 2023). Their disagreement has been validated with open-ended questions related to work and busyness. Therefore, future studies need to examine how schools facilitate busy parents to have the awareness to maintain school-parent connectivity. Schools should respect parents' knowledge and build their awareness by establishing prior agreements regarding the engagement program (Fenton et al., 2017).

In addition to participating in school activities, parental involvement can be in the form of home learning assistance, for example when children do their homework. Homework become an eternal debate in the world of education as attitudes and perspectives on it change (Gill & Schlossman, 2000). Table 8 presents the respondents' perceptions of homework.

Table 8.
Parents' Perception of Homework

No	Description	Number	Percentage
1	Agree to Homework	190	82.6%
2	Disagree to Homework	40	17.3%

Around 82.6% of parents agree if children are given homework. Parents' companionship and motivation to complete homework (PR) can result in a prominent level of achievement and self-acceptance (Chophel & Choeda, 2021). Besides accessing school programs to participate in their children's education (Williams-Johnson & Gonzalez-DeHass, 2022), and experiences helps the quality of school and parent connectivity (Roksa & Kinsley, 2019). Some studies have revealed that in addition to teaching methods applied by the teacher and student's understanding of lessons, homework is a key factor that improves achievement. However, some argue that homework can also cause stress on parents and children

(Gill & Schlossman, 2000; Landis & Voorhis, 2011; Moore & Ronau, 2024). Thus, parents want to strengthen collaboration to ensure the quality of education and life of their children (Alickovic, 2019; Mujic, 2023).

Problems and Needs

The learning environment at home influences children's understanding and application of knowledge gained at school (Djurisic & Bunijevac, 2017), because it positively influences the level of children's independence (Castro et al., 2015). However, parents face the following challenges in their involvement in home learning, as described in Table 9.

Table 9.
Challenges in Home Learning Involvement

No	Description	Number	Percentage
1	Difficulty in understanding literacy and numeracy questions	50	21.7%
2	Difficulty in providing motivation for children to learn	110	47.8%
3	Difficulty accompanying children in studying or doing homework	70	30.5%

Parents find it difficult to motivate and accompany their children in learning and doing homework. Therefore, they need to develop and maintain communication about school activities as well as create reading habits to maintain their motivation (Baranauskaitė et al., 2023). Children feel tired after attending school and need extra encouragement to stay focused and enthusiastic about learning. Parental involvement in helping children solve mathematics has an impact on parents' ability to find ways to help children with learning difficulties

(Jay et al., 2018; Purnomo et al., 2022). Learning at home requires cooperation among parents, teachers, and children a positive, open, and supportive approach can help children develop strong intrinsic motivation to learn (Ramírez-Ramírez & Castro, 2023).

Parental support in the Merdeka curriculum is also driven by parents' expectation that children will have various abilities after graduating from primary school. Parental expectations of children's abilities after completing primary education are presented in Table 10.

Table 10.
Expected Student Achievements in the Merdeka Curriculum

No	Description	Number
1	Literacy and numeracy skills	73
2	Creativity	67
3	Good character	115
4	Social emotional skills	53
5	Technology usage skills	30
6	Learning independence	61

Table 10 shows that some parents expect their children to have good character, literacy and numeracy skills, creativity, social-emotional skills, technological skills, and learning independence. Having a good character requires parental effort in building positive relationships with their children (Hosokawa & Katsura, 2019; Ibabe & Bentler, 2016). Students' literacy motivation is a function of two motivational beliefs, namely self-concept ability and subjective values in literacy, which are formed by various social influences including parental expectations (Baranauskaitė et al., 2023), particularly effective parent-school partnerships to implement character education in schools (Surikova & González, 2022). Schools

need to know these parental expectations. Building excellent communication and partnerships influences the agreement of effective strategies to improve educational success (Bednarska, 2014; Stanley & Kuo, 2022). Other research shows the success of home-based character learning programs, supporting further research to find effective strategies to strengthen the parent-school connection in supporting the curriculum are important findings for further research (Paul et al., 2022). As initial data, this study tries to provide parents' perspectives on real needs in the form of products that can bridge positive relationships to support learning achievement. The parents' concrete needs are presented in Table 11.

Table 11.*Parents' Concrete Needs*

No	Description	Number	Percentage
1	Routine and Scheduled Parenting Activities	45	19,5%
2	Activity Books/Worksheets for Children and Parents	115	50%
3	Intensive Guidance to Overcome Gadget Addiction	50	21,7%
4	Competitions to Strengthen School and Parent Relationships	20	8,8%

Parents' needs are activity books or worksheets in the form of homework for children and guidance to overcome gadget addiction. A previous study reveals the advantages and disadvantages of giving homework to children (Landis & Voorhis, 2011; Pressman et al., 2015). One of the advantages is building a strong relationship between parents and children and motivation to learn (Doctoroff & Arnold, 2017). However, homework can also have a stressful impact on both parents and children (Chophel & Choeda, 2021). Future studies need to examine specific homework that has an impact on learning motivation for both children and parents. Concerning parents' awareness of gadget addiction problems, schools need to mitigate the children's mental health (Naslund & Aschbrenner, 2021). The problem of gadget addiction can be a scheduled parenting topic so that parents feel they have a partner to address this problem. This topic is a hot issue for parents (Terras & Ramsay, 2016), so they can learn to address it at home (Genc, 2014), and schools also need to regulate the use of smartphones in learning wisely (Anshari et al., 2017).

Conclusion

Based on the analysis and discussion, it can be concluded that while parents are aware of the current national curriculum, they do not fully understand their roles or how to effectively contribute to its

successful implementation. Similarly, schools understand the curriculum implementation policy but have yet to translate it into practical and effective programs to enhance learning quality. Both parents and schools recognize the importance of involvement in curriculum implementation, but current participation is mostly limited to parent meetings, coordination, and joint committees. The integration of technology in the Merdeka Curriculum is understood by parents as a necessary step to facilitate educational activities. Parents express willingness to be involved but require practical and effective avenues for participation to make significant progress in their children's learning. However, many parents struggle to motivate and assist their children at home, highlighting the need for tools such as structured homework that can serve as a bridge to align home and school learning activities. Schools must consider parents' challenges and expectations when planning and implementing the curriculum. Establishing effective communication and designing structured programs can foster meaningful parental involvement. This study highlights that educational success requires not only involving parents in school activities but also ensuring a shared understanding of the curriculum. Schools should prioritize structured programs, active communication, and practical tools to bridge parental involvement and support curriculum success.

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Implementation of Information and Communication Technologies in Teaching: Differences in Teachers' Perspectives

Original scientific paper

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Abstract

In addition to the advantages of using ICT in teaching, such as greater student engagement, easier access to educational resources, the possibility of self-regulated learning and better monitoring of student progress, there are certain obstacles that can discourage and make it difficult for teachers to implement ICT in teaching. This research aimed to identify how teachers of different ages perceive, use and accept information and communication technologies in teaching, and what are the key reasons and challenges for implementing these technologies in teaching. The data was collected using an online questionnaire on a sample of 104 teachers of the subject class. The results of the research indicate that teachers show interest in applying ICT in teaching, but that they encounter certain obstacles in this process, such as insufficient technical support in schools, poor internet access, and insufficient training.

Keywords: *Information and Communication Technologies (Ict), Teaching, Challenges in the Implementation of Ict in Teaching*

Computerization and informatization of society inevitably lead to the implementation of information and communication technologies (ICT) in teaching. According to Bruck and Pirija (2016), this implementation will become increasingly important as technology develops and the educational system adapts to the new demands and opportunities offered by the digital environment. However, it is difficult to accurately measure the extent to which the educational system enables the

application of ICT in teaching and what real problems teachers and educational institutions face in this process. The implementation of ICT in teaching has great potential to increase student motivation, connect students to different sources of information, support collaborative learning, and allow teachers more time for facilitation in classrooms (Wang and Woo, 2007, as cited in Tayaban, 2022). The advantages of using information and communication technologies in teaching, as stated by Fu (2013), include:

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helping students to effectively access digital information, facilitating the process of acquiring knowledge and solving problems, supporting student-centered learning and independent learning from various resources, creating a creative environment for learning by providing innovative specially designed applications, encouraging collaborative learning, providing more opportunities for the development of critical thinking, improving the quality of teaching and learning by encouraging student autonomy and creativity, changing the traditional teacher-centered approach to a more creative and flexible approach. Factors influencing the implementation of ICT in teaching can be divided into external factors, such as the availability of ICT equipment, the time needed for lesson planning, curriculum, technical and administrative support, and internal factors, such as attitudes towards the implementation of ICT in teaching, including perception, intention or motivation for using ICT. Rogosic et al. (2021) investigated the attitudes of teachers and students of secondary vocational schools in Zagreb and Zagreb County on the use of ICT in general education subjects and its role in supporting modern educational practice. Through qualitative methods, such as individual interviews with teachers and focus groups with students, the researchers found that despite recognizing the benefits, teachers face challenges such as lack of training, technical problems and limited resources that make it difficult to implement ICT in teaching. Muslem et al. (2018) on a sample of 26 English language teachers from 16 public secondary schools in Banda Aceh found that teachers have three main challenges in using ICT. Limited ICT tools and weak internet connection in schools are dominant challenges. Teachers have to share tools with other teachers and waiting for their turn to use ICT wastes time. Ghavifekr et al. (2016) conducted a study to determine teachers' perceptions of the challenges they face when using ICT in teaching. Data were collected from 100 teachers working in secondary schools in Malaysia (Melaka). The key problems and challenges identified in the use of information and communication technologies by teachers are: limited availability and network connectivity, limited technical support, lack of effective education, limited time and

lack of teacher expertise. Internal obstacles, including negative opinions, attitudes and lack of self-confidence of teachers towards technology, are identified by Ardiç (2021) as key challenges in the implementation of information and communication technologies in teaching. In this regard, internal obstacles are more challenging to overcome compared to external obstacles and have a significant impact on the very process of technology implementation in teaching activities. Istifanus (2023), states that the successful implementation of information and communication technologies in teaching largely depends on the beliefs of teachers, where there is a lower probability that teachers who perceive information and communication technologies as not meeting their needs or the needs of their students will implement ICT technology into their teaching and learning. Research conducted by Sang et al. (2009) on a sample of 873 primary school teachers from 11 Chinese provinces and municipalities shows that teachers' positive attitudes, awareness of the successful and effective implementation of ICT in teaching and their positive perceptions of the benefits of using ICT are determinants that contribute to the implementation of ICT in teaching. The Schiller 2003 study (as cited in Buabeng-Andoh, 2012) states that personal characteristics such as level of education, age, gender and work experience can also influence the implementation of ICT in teaching. Research by Krumsvik et al. (2016) on the use of ICT in secondary schools in Norway found differences in regard to the age of teachers. It has been shown that older teachers (50 years and older) have less digital competences in contrast to their younger colleagues. Moreover, a survey of teachers in 16 primary schools in Ankara conducted by Usluel et al. (2007) found that younger teachers use ICT more often and have better competencies in contrast to their older colleagues. However, research (Mahdi and Al-Dera, 2013, Semerci and Aydın, 2018, Kerzic et al., 2021) showed that demographic variables are not a predictor of ICT implementation in teaching. Mahdi and Al-Dera (2013) investigated the influence of teachers' age, experience and gender on the implementation of ICT in language teaching. The results showed that there is no significant difference in the use of ICT between the two groups of teachers according to their age

and experience, but that there is a gender difference where female teachers use less ICT in teaching than male teachers. Research by Kerzic et al. (2021) on the use of ICT by teachers at the University of Ljubljana in Slovenia did not reveal any significant differences between teachers in terms of age. Likewise, in a survey of secondary school teachers in Ankara, Semerci and Aydın (2018) found no differences between teachers' readiness to implement ICT in teaching according to age. Therefore, the aim of this research was to determine how different teachers perceive, use and accept information and communication technologies in teaching, as well as what are the key challenges and factors that influence the implementation of this technology in teaching.

Method

In order to answer the research goal, the following research questions were asked:

- Are there differences in the frequency of inclusion of information and communication technologies in teaching among teachers of different ages?
- How do teachers of different ages perceive the benefits of information and communication technologies in teaching?
- What challenges do teachers face when implementing information and communication technologies in teaching, and how do these challenges vary depending on the age of teachers?
- How do teachers of different ages assess the importance of preparation and training in the implementation of information and communication technologies in teaching?

The research was conducted in 7 elementary schools in Tuzla. 104 respondents of both sexes participated in the research, 24% of male respondents and 76% of female respondents. The smallest percentage of respondents, more precisely 15.4%, belongs to the younger age group (under 35 years of age).

On the other hand, a significant number of respondents, 48.1%, are in the age range of 35 to 50 years, making that age group the most numerous. Respondents older than 50 years of age make up 36.5% of the total sample, which represents a significant part of the population. For the purposes of this research, a questionnaire consisting of four parts was constructed. The first part referred to claims related to the frequency of using communication channels in the service of teaching and information and communication technologies in the preparation of teaching content. The second part refers to the statements related to the attitude of teachers towards the use of ICT. The third part refers to the assessment of challenges in the implementation of ICT. The last part refers to the assessment of the preparation and training of teachers for the use of ICT. Questions were formulated using the Likert Scale to assess frequency, rounding the degrees ranging from 1 (always) to 5 (never).

Results

The processing of the obtained data was carried out in the SPSS program (Statistical Program for Social Scientists 20). In addition to descriptive analysis, the Kruskal-Wallis test was used to determine the significance of differences by age. Table 1 shows the results of descriptive statistics for the assessment of differences in teachers' perspectives on the implementation of information and communication technologies in teaching. The obtained results of the Cronbach alpha coefficient above 0.70, shown in Table 1, confirmed the reliability of the measurement scales used to measure the differences in teachers' perspectives. An irregular distribution is noticeable for most of the analyzed variables ($p < 0.05$), and the non-parametric Kruskal-Wallis test was applied to determine the differences between the age-defined groups of teachers (under 35 years of age, 35 to 50, over 50 years).

Table 1.*Descriptive Statistics*

	N	M	SD	K ²	p	Cronbach's Alpha
The frequency of using communication channels in the service of teaching and preparation of teaching content	104	28.39	7.11	0.078	0.133	0.859
The attitude of teachers towards the use of ICT	104	44.38	13.07	0.116	0.002	0.957
Challenges in ICT implementation	104	28.47	9.44	0.087	0.048	0.939
Preparedness and training for the use of ICT	104	45.47	11.06	0.093	0.028	0.940

Legend: N – number of respondents, M – arithmetic mean, SD – standard deviation, KS – Kolmogorov-Smirnov test

When it comes to the frequency of using different ICT channels for communication in teaching and preparation of teaching content, the results show that the most frequently used channels of communication are online communication through applications such as Viber, WhatsApp, Messenger (M=2.10, SD=.971) and e-mail (M=2.27, SD=.978), while forums and blogs are used the least (M=3.62, SD=1.24). In the preparation of teaching content, the preparation of pictures, illustrations, graphs, maps etc. is mostly used (M=2.25, SD=.773), while interactive learning through applications is less frequently used (M=3.13, SD=1.08). An analysis was carried out using the Kruskal-Wallis test (Table 2) in order to investigate potential differences among age-defined groups of teachers (under 35 years of age, 35 to 50, over 50 years) in terms of the frequency of using communication channels in the service of teaching and the

preparation of teaching content. The results of the Kruskal-Wallis test presented in Table 3 show that the significance of the test is less than 5%, i.e. $p < 0.05$, with a confidence level of 95%, which indicates that there is a statistically significant difference in the frequency of using communication channels among teachers of different ages. Those younger than 35 years of age have the lowest arithmetic mean of ranks (33.06) which indicates that this group uses communication channels in teaching and preparing materials less often compared to older groups. Teachers aged 35 to 50 have a higher arithmetic mean of ranks (56.60) which indicates that they use communication channels more often than their younger colleagues. Teachers older than 50 years of age also have a high arithmetic mean of ranks (55.29) indicating a similar frequency of using communication channels as the group aged 35-50.

Table 2.

Frequency of Using Communication Channels in the Service of Teaching and Preparation of Teaching Content Among Teachers of Different Ages

Age group	N	The arithmetic mean of ranks	Chi-Square	df	Asymp. Sig.
Under 35 years old	16	33.06	7.911	2	0.019
35 to 50	50	56.60			
Older than 50 years	38	55.29			
In total	104				

Most teachers express a proactive approach to improving their skills in using ICT in teaching. Most teachers often look for new ways to improve their ICT skills (M=2.33, SD=1.22) and use ICT to support the educational process (M=2.35, SD=1.01). However, relatively fewer teachers involve students in creating digital content (M=2.69, SD=.976) or actively seek feedback on the effectiveness of ICT (M=2.78, SD=1.12). They see the greatest benefits of using ICT in facilitating cooperation among students (M=2.06, SD=.890), easier memorization of material (M=2.08, SD=.772), and

improving the atmosphere in the classroom (M=2.11, SD=.799). Moreover, the use of ICT enables adaptation to different learning styles (M=2.13, SD=.832) and encourages the development of students' digital skills (M=2.11, SD=.799). The results of the Kruskal-Wallis test (Table 3) show that there are no statistically significant differences in the perception of ICT benefits among teachers of different ages ($p > 0.05$). The obtained p-value of 0.141 is higher than the conventional statistical significance threshold of 0.05.

Table 3.

Attitude and Perceived Benefits of Teachers of Different Ages Towards the use of Information and Communication Technologies in Teaching

Age group	N	The arithmetic mean of ranks	Chi-Square	df	Asymp. Sig.
Under 35 years of age	16	39.13	3.919	2	0.141
35 to 50	50	56.15			
Older than 50 years	38	53.33			
In total	104				

Based on these results, we cannot conclude that younger teachers are more or less inclined to use ICT compared to their older colleagues. Therefore, we cannot claim that the age of teachers affects their attitude towards the use of information and communication technologies in teaching. The most pronounced challenges that teachers face when implementing ICT in teaching are of technical nature, such as the lack of a sufficient number of interactive whiteboards (M=1.55, SD=.605), faulty or outdated computers (M=1.51, SD=.638), and slow internet access (M=1.71, SD=.746). Other significant problems include lack of technical (M=1.83, SD=.781) and

pedagogical support (M=2.07, SD=.968) as well as lack of adequate digital content (M=1.92, SD=.962). Social and cultural challenges, such as hostile attitudes of other teachers (M=2.49, SD=1.03) and fear of losing traditional methods (M=2.63, SD=1.12), are also present but less pronounced.

It is interesting to note that the research did not reveal statistically significant differences among teachers of different ages in the perception of these challenges (Table 4). The obtained p-value of 0.657 indicates that the challenges of implementing information and communication technology that teachers perceive do not differ depending on their age.

Table 4.

Differences in the Perceived Challenges of Implementing Information and Communication Technology in Teaching According to the age of Teachers

Age group	N	The arithmetic mean of ranks	Chi-Square	df	Asymp. Sig.
Under 35 years of age	16	53.47	0.441	2	0.802
35 to 50	50	54.14			
Older than 50 years	38	49.93			
In total	104				

The most frequently used resources to support learning and improve skills in the use of ICT are online courses and materials ($M=2.68$, $SD=.988$) and interactive learning platforms ($M=2.73$, $SD=1.04$) while educational workshops ($M=2.87$, $SD=.976$) and video materials ($M=2.86$, $SD=1.04$) are used somewhat less often. The largest percentage of teachers assess that the school rarely organizes trainings and workshops ($M=3.29$, $SD=1.05$) and that there is a lack of technical support ($M=3.27$, $SD=.927$). Stable Internet access and technical

equipment are also insufficiently supported ($M=3.29$, $SD=.942$; $M=3.13$, $SD=.825$). Table 5 shows the differences in the preparedness and training of teachers for the effective use of information and communication technologies in teaching with regard to age. The results of the Kruskal-Wallis test show that there are no statistically significant differences between the ages of teachers in their perceptions of the importance of various aspects of preparedness and training for working with ICT (Table 5).

Table 5.

Analysis of the Preparedness and Training of Teachers for the Effective use of Information and Communication Technologies in Teaching: Differences with Regard to the age of Teachers

Age group	N	The arithmetic mean of ranks	Chi-Square	df	Asymp. Sig.
Under 35 years of age	16	53.47	0.441	2	0.802
35 to 50	50	54.14			
Older than 50 years	38	49.93			
In total	104				

The significance of 0.802, which is higher than the conventional threshold of statistical significance of 0.05, shows the absence of statistically significant differences. This may indicate that, despite different age groups, teachers generally share similar views on the importance of preparedness and training for the implementation of ICT in teaching.

Discussion

This research showed that teachers positively perceive the application of ICT and recognize the potential of ICT in improving teaching, however, this does not necessarily mean that they implement ICT in teaching. Lack of technical support in schools and poor access to the Internet prevent teachers from using ICT in teaching. Lack of training in how to use ICT is another obstacle that prevents teachers from implementing ICT in teaching. In order for ICT to be implemented in teaching, schools must provide appropriate and sufficient support to teachers. On the other hand, teachers must be aware of what is happening in the classroom and the changes that are taking place and work on their own improvement in that area. From the obtained results, it can be concluded that teachers most often use simple and fast forms of communication,

such as Viber, WhatsApp and e-mail for the purpose of teaching. Less use of forums and blogs may be due to their complexity or lack of time for in-depth discussion on these platforms. In the preparation of teaching contents, visual materials such as pictures and graphs are the most common, which reflects the need to visualize the contents, while less use of interactive applications may indicate insufficient technical training or resources for their application in teaching. Such results partially coincide with the results of research conducted by Rogosic et al. (2021). The results of that research show that applications such as WhatsApp are common in communication between teachers and students, as they enable faster daily interaction and coordination. Online learning platforms (e.g. Google Drive, Google classroom...) and video conferences (e.g. Zoom, Microsoft Teams, Skype) have a growing but smaller presence compared to applications that enable free calls and sending free text messages. Moreover, the results show that social networks, forums and blogs show the lowest rate of use among teachers, leaving room for some future research that could point to the reasons for obtaining such results. The results of the research, based on the answers of the respondents, indicate that the teachers of subject classes

when preparing teaching content most often use PowerPoint presentations and visual elements such as pictures, illustrations and graphics. In addition to that, the results of the research indicate that YouTube is an important source of audiovisual materials, while applications for interactive learning, although present, are still in the development phase, which is in line with previous research by Rogosic, et al. (2021). The results of this research showed that teachers most often use computer programs for creating presentations when preparing content for classes, and that a smaller number of teachers use specialized programs. The results show that there is a difference in the frequency of using communication channels among different age groups of teachers. Although teachers (aged 35 to 50 and older than 50) use communication channels more often than their younger colleagues, the difference between these two groups is smaller. In this way, we can reject the assumption that older teachers use ICT communication channels less often and with less confidence compared to their younger colleagues. The obtained results do not agree with the findings of earlier research, according to which there are differences in the use of ICT in teaching with regard to age but these differences are manifested in the way that older teachers have fewer digital competencies and use ICT less often, unlike their younger colleagues. The last result, however, should be taken with reservations due to the small number of teachers who belonged to the group under 35 years of age. Such results do not exclude the possibility of the existence of other factors that could influence the frequency of using communication channels among different age groups of teachers, which requires further research. The obtained results of the research indicate that teachers recognize the positive impact of ICT on students, and as the reason for this they cited greater student engagement, understanding of material, encouragement of critical thinking and logical reasoning in students. These results correlate with relevant research on the benefits of ICT for students (Valverde-Berrocoso et al., 2022, Timotheou et al., 2023) such as better academic performance, individualized learning, increased attention and student motivation. According to the results of this research, no statistically significant difference was found in the

perception of the use of ICT in teaching among teachers of different ages, which suggests that age does not play a key role in their attitude towards ICT. Moreover, the results show that age does not affect the perception of challenges faced by teachers when implementing ICT in teaching. Based on these results, it is clear that, although on the one hand teachers clearly recognize the positive effects of ICT on various aspects of learning and teaching, they associate the impossibility of its implementation with the lack of adequate equipment, problems with the Internet, lack of technical and pedagogical support, inadequate digital skills. These results are consistent with previous research that identified similar challenges in the use of ICT in teaching (Rogosic et al., 2021, Muslem et al., 2018, Ghavifekr et al., 2016, Yildirim, 2007). Research findings by Ghavifekr et al. (2016) suggest that the key challenges teachers face are limited availability and network connectivity, technical support, lack of training, limited time and lack of teachers' skills. These results suggest that, although there is a recognition of the importance of ICT by teachers, they often face practical challenges that limit its full implementation in the teaching process, which on the other hand indicates insufficient familiarity with the many possibilities of using ICT in teaching. Parallel to this, Muslem et al. (2018) research on a sample of English language teachers in Banda Aceh draws similar conclusions. Positive perceptions of teachers about the application of ICT in teaching are accompanied by technical challenges such as limited tools and poor Internet access, which indicates a uniform perception of teachers about the challenges that arise when implementing ICT in teaching, regardless of age. Also, from the results of the research, it is concluded that teachers use different resources to support learning and improve skills in the use of ICT, with online courses and educational materials being the most represented while educational workshops and group discussions are less present. Despite significant insights, the research revealed certain limitations that indicate the need for further research in order to obtain a more comprehensive picture of the differences in teachers' perspectives in the implementation of information and communication technologies in teaching. One of the main limitations relates to the

representativeness of the sample and its specificity and thus the impossibility of general conclusions based on the results obtained. Future research should include a larger number of teachers in order to obtain a relevant and representative picture of their experiences and challenges related to the implementation of ICT in teaching.

Conclusion

This research showed that, although teachers recognize the importance of implementing information and communication technology in teaching and strive to improve their knowledge and skills, in the process they face a number of technical, pedagogical and infrastructural challenges. Considering the obtained data, the assumption of this research - that older teachers will use communication channels and information and communication technologies less often and with less confidence in teaching compared to younger colleagues - can only be accepted in the part that refers to the frequency of using communication channels while differences in perceived benefits, challenges, preparedness and training in the use of ICT were not statistically confirmed. The research showed that, although younger teachers use information and communication technologies less in teaching, age has no effect on attitudes towards ICT, difficulties with implementation or the perception of the need for additional training. Given that no statistically significant differences were shown in the context of teachers' age regarding difficulties with implementation or perception of the need for additional training in the use of ICT, it would be important to take into account teachers' beliefs about the effectiveness of ICT, because their experiences can provide significant insights into how the use of ICT in teaching affects student knowledge acquisition. Given the findings, it is concluded that incorporating ICT into teaching requires time, a change in the work program at the school level, and a greater degree of education and support in the adoption of the necessary teacher competencies for their application. It seems particularly useful to educate about the specific potential of each of the ICT tools in relation to the goals and objectives of each subject, and the benefits that they can bring

if applied correctly. Through this approach, a common goal would be developed about the importance of using ICT, that is, it would become an integral part of the everyday learning experience. This shows that for the implementation of information and communication technology in teaching, it is necessary to ensure universal support by focusing on the specific needs of each group, regardless of the age of teachers. Therefore, this research provides useful insights into the common challenges and needs of teachers in relation to the implementation of ICT in teaching and it can serve as a starting point for further research of specific aspects that affect the success of the implementation of ICT in teaching. The combination of different predictors is likely to influence differences in the use of information and communication technologies among teachers, and these differences should be explored in future research.

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The Role of the Teacher in Documenting Summative Assessment in Primary Education

Original scientific paper

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Abstract

The purpose of this research was to obtain teachers' attitudes about the role of teachers in documenting summative assessment in primary education, focusing on the use and design of assessment instruments, planning summative assessment and informing students. The research has a qualitative approach and was carried out through semi-structured interviews with 20 primary education teachers. The results from this research show that teachers play an important role in documenting summative assessment, using different assessment instruments and adapting them to curriculum requirements. Also, the research emphasizes the importance of informing students and parents about the summative assessment process to ensure transparency and support in student development. Knowing how important and necessary assessment is in the learning process, we carried out this research, which brings innovation with its findings and serves teachers, parents, researchers from the fields of education and all actors who participate in the student assessment process.

Keywords: *Summative Assessment, Teachers, Students, School, Instruments*

Student assessment is of great importance in the learning process. Each teacher must find contemporary methods to collect information about student achievement in the learning process and to measure student progress and achievement. Assessment also provides students with feedback on their learning and can also be an incentive to improve their performance.

Assessment can serve educational purposes and the form you choose will depend on its purpose.

One of the main goals of assessment, clearly expressed in the Kosovo Curriculum Framework, is the motivation of students and the planning of activities to improve results in the future. (Hariza & Kadriu, 2015) Assessment is a process of gathering and

discussing information from multiple sources to develop a deeper understanding of what students know, understand and can create from their knowledge as a result of their educational experiences. (MASHT, 2020). Summative assessment is done at the end of teaching. Its purpose is to enable the teacher and students to know the level of knowledge gained (Ahmedi, 2019). The summative evaluation determines the achievements at the end of the semester, the school year and serves to judge the effectiveness of the lesson. (MASHT, 2020) The teacher's role as an evaluator does not begin and end with the evaluation of the student, this is insufficient. The student is the last (but the main) in the pyramid of evaluations that the teacher has to make because the student's level is the clearest and most synthetic indicator of the entire joint teacher-student activity (Earle, 2014).

The role of the teacher in documenting the summative assessment is very important, as an important role is also planning, designing the assessment as a continuous part of the learning and teaching process, including all students in the assessment and providing help to implement all knowledge, habits, skills and attitude (Brookhart, 2016).

Literature Review

The Curriculum Framework is the basic document that regulates pre-university education in Kosovo. The curriculum is competency-based with the aim of providing a sound educational foundation for lifelong learning, as well as enhancing the quality of education and building a knowledge society (MASHT, 2020).

The summative assessment aims to evaluate the students' achievements at the end of the semester, the school year or after the completion of several teaching chapters. This type of assessment is based on learning objectives and is used to assess the effectiveness of teaching and the curriculum. It takes place after the learning process has been completed and provides information that reflects the results of teaching and learning. At this stage, formal learning has ended, and any remaining activities are more informal in nature, such as completing projects or assignments. (Ahmedi, 2019). The summative assessment is used to show the achievements of the students, their success, to fulfill the learning outcomes, for a certain period of time, by means of the summative

assessment, the grade that the student receives or the level of results that the student achieves in acquiring the planned results for the relevant period or class (Straub et al., 2017).

Documentation simply means keeping a record of what is observed while students are engaged in a learning experience through play and exploration. Data may include teacher observations that focus on specific skills, concepts, or characteristics described in the curriculum. (Harrison et al., 2017).

Competency-based assessment is an ongoing activity that occurs simultaneously with the learning process, the evidence-gathering process, and the process of deciding whether competencies have been achieved. (MASHT, 2020). Assessment is necessary in education and plays an important role (Avdiu-Kryeziu & Avdyli, 2024). Assessment is an objective, activity that can measure an object (Ho et al., 2017). In education, assessment occupies an essential position as a reference for the success or failure of the learning process (Didit et al., 2020).

The teacher during the process of summative assessment (following the learning outcomes) determines the achievements of the students at the end of a certain task, topic, chapter, period of the lesson to give grades and certify students for further learning, it is also used to determine the effectiveness of learning or the prescribed curriculum (Kali & Srirangaraj, 2016). The role of teachers in the assessment of students is defined in the administrative instructions that regulate the assessment process, which are included in the Curriculum Framework, Core Curricula of Kosovo, in all teaching programs for subjects and classes. These guidelines for student assessment are general and indicative, providing guidance for teachers and other responsible persons involved in the assessment process. (MASHT, 2020).

Classroom assessments should be varied and tailored to the individual needs of students and their learning styles. (Black & Wiliam, 2018). Assessment is a process in which data is collected and a judgment is made on the value of student achievement, based on levels of achievement. The main purpose of assessment is to improve the learning results of the student, as well as the

learning process itself. (MASR/IZHA, 2018).

Teachers in primary education plan the assessment of students (Avdiu-Kryeziu & Kryeziu, 2024), during the assessment planning, the methods, assessment instruments, techniques used to assess the students' achievements and to guide the support of the students' learning should be shown. For example assessment with a checklist for evidence of engagement in class, assessment with essays, assessment with tests or summary tasks, assessment with files (portfolio), assessment with individual or group projects, assessment with photos or albums - depending on the specifics of the learning outcomes of the subject (Ambreen, 2021). Summative assessment attempts to capture the culmination of student achievement within a given time frame; Summative assessment is the assessment of learning (Capraro et al., 2011). Student evaluation is based on the Curricular Framework of Pre-University Education of the Republic of Kosovo, which also defines the evaluation principles: validity, transparency, reliability and impartiality (Mehmeti et al., 2019).

According to the administrative instruction for the assessment of students in Kosovo, the summative assessment is about:

- It is part of teaching and learning and is carried out by the teacher throughout the school year, based on the learning results and is done with a numerical grade (Article 7) or with a descriptive assessment according to the paragraph for the curricular level I;
- It is realized in two semesters;
- For one semester, two (2) grades are placed in the class book, where the planning time for their placement is divided proportionally with the duration of the semester;
- The grades of a half-year are summary evaluations that reflect the levels of achievement of learning results based on measurements with different instruments designed by teachers and evaluation criteria based on the evaluation principles determined by the curriculum documents;
- The type of instruments for the summative evaluation is determined by the Professional Asset (Department) (which consists of the teachers of the school where this professional asset works and operates), their number

should not be less than three evaluation instruments (e.g. evidence of engagement in class, homework, quizzes, debates, oral presentations, essays, tests, portfolio, project, practical work or any other instrument deemed appropriate by the Professional Activity);

- The results of the summative assessment are recorded in the teacher's personal diary with comments and grades for the level of achievement of the learning outcomes.; (MASHT, 2022).

Evaluation should be an integral part of annual plans, monthly and daily plans teachers. Teachers should plan summative assessment (assessment of learning) in accordance with school policy and the expected outcomes set out in the curriculum. Summative assessment is carried out at the end of the learning process and provides feedback on teaching and learning. (Hariza & Kadriu, 2015) . During the assessment, the teacher is independent in choosing the types, methods and instruments of assessment, always keeping in mind the principles and criteria of assessment.

Documentation of evaluation according to the Core Curriculum of Kosovo, with the Curriculum Framework defines the goals, principles and types of evaluation that ensure the interconnection and sustainability of the evaluation system. The assessment system defines what is assessed, when it is assessed, as well as by whom the different types of student assessment are carried out (MASHT, 2016). Student assessment is based on the learning outcomes for competencies, curriculum area and teaching subjects defined by the curriculum documents as follows:

The teacher's role in documenting summative assessment in primary education, when assessing students, teachers should take into account the principles of assessment outlined in curriculum documents, such as validity, transparency, reliability and impartiality.

Also, teachers should take into account some important assessment requirements, such as:

- Assessment should be a means of support for students;
- Assessment should help students to assess themselves;
- The assessment must be based on multiple evidences;
- The assessment must be appropriate to the learning outcomes and the content developed with students;

- The evaluation should include all levels of knowledge (recognition, understanding, application, analysis, evaluation, synthesis), as well as the affective field (including interests, attitudes, values, etc.) (Black et al., 2010).

Evaluation should be an integral part of school work planning, annual, monthly, daily plans of every teacher. Teachers should start from the fact that they should plan summative assessment for student assessment, in harmony with the expected results for students defined by the curriculum. In order to ensure relevant indicators for learning and student achievements in the given period, the assessment should be part of the planning of different levels within the school, which planning is done by the teachers in cooperation with the professional activities of the classes (Fletcher, 2023).

The formation of the grade for the level of the student's achievements in a certain subject and for a certain period should be derived through procedures that enable the grade to be a real expression of the achievements and in accordance with the program goals of the evaluation period. Forming a grade means summarizing the results from one or more assessments, as well as forming and expressing an evaluative judgment about the level of achievement. (Hess, 2024). Information on assessment knowledge must be presented in a timely manner, be clear, accurate and usable for those who need it. Information about the achievements and other knowledge that have been gained from the assessment are intended to provide relevant information to all interested subjects and institutions that bring different decisions related to learning, teaching, assessment and education progress in general (Mogboh & Okoye, 2019).

Instruments used in summative assessment in order to assess students' competences, it is important that teachers choose assessment techniques and instruments that enable students to demonstrate and demonstrate their knowledge, skills and abilities, and not just factual knowledge. In this way, teachers provide information about the quality of teaching and learning, the progress of students and the development of competencies (Peterson & Siadat, 2009). It is very important that teachers use different assessment instruments in the learning process to ensure that students are

progressing and achieving positive results. These assessment instruments should be different depending on the types of learning to be assessed, and should be completed on an ongoing and periodic basis. Assessment methods and instruments must be related to the goals and tasks of the curriculum. The educator must choose methods and select/design instruments in accordance with the purpose of the assessment (Syarifah, 2023). Some kinds of summative assesment:

- Exams (main exams);
- Final exam (a truly summative assessment);
- Assignments with a deadline (assignments submitted during the semester will be formative assessment);
- Projects (project phases delivered at different completion periods can be evaluated formatively);
- Portfolio (can also be assessed during its development as a formative assessment);
- Performances;
- Students' assessment of the subject (teaching effectiveness).
- Teacher's self-esteem (Erduran & Wooding, 2021).

Summative assessment tasks:

- Summary tests,
- Written exam,
- Oral assessments,
- File,
- Learning projects,
- Classroom observations,
- Activities,
- Work in groups,
- Practical tasks, etc. (Alt, 2018).

The summative assessment is carried out at the end of a period, the learning process, the summative assessment provides feedback on the results achieved during learning expressed in the grade. Through summative assessment we evaluate the final product resulting from the learning outcomes (Sharofova & Aminova, 2024).

The aim of the Study

The aim of the research is to get teachers' attitudes about the teacher's role in documenting summative assessment in primary education, about summative assessment instruments and their design, planning summative assessment, notifying students for summative assessment.

Research Questions

The research questions are of fundamental importance for the research, they have a double function: it expresses the purpose of

the research, but also gives us direction in its process. (Matthews & Ross, 2010)

The research questions are:

1. What is the role of the teacher in documenting the summative assessment in primary education?
2. What is the influence of the teacher on the summative assessment?
3. What instruments are used for summative assessment?

Methodology

The research was carried out with the qualitative methodology, which is a method through which the study of the life experiences of people in their natural location is aimed. The main criterion for the application of this method is the provision of qualitative information, as understood by the word itself (quality-quality; qualitative-qualitative) (Devetak et al., 2010). Qualitative research, on the other hand, focuses on exploring and understanding the complexity of human experiences, behaviors and social phenomena through non-numerical data. This method aims to reveal the meanings, motivations and cultural contexts of a given subject. (Dehalwar & Sharma, 2023).

For the realization of the study, we used the semi-structured interview with primary education teachers, to get their attitudes regarding the documentation of the summative assessment. To carry out this study, we were assisted in collecting data for the semi-structured interview by teacher Mirlinda Nexhipi, who was a master's student at the Faculty of Education, "Kadri Zeka" Public University.

Participants

This research was carried out in several primary schools in the Republic of Kosovo, participants in the interview were 20 primary school teachers, who have proven experience in teaching, are trained teachers and who work with contemporary teaching methodologies. In this research, we selected the purposeful sample, which refers to the selection of individuals or groups who have experience, evidence or have important knowledge about the phenomenon being studied, this choice is made to achieve a deeper understanding of the topic. (Tongco, 2007). Table 1. Gives us more details about the data of the participants in this research such as: work experience, gender, qualification and code of the teacher participating in the research.

Table 1.

The Structure of the Interviewees

No.	Gender	Work experience	Degree	Code
1	F	20	Ba	T1
2	F	18	Ba	T2
3	F	33	Ba	T3
4	M	13	Ma	T4
5	F	22	Ba	T5
6	F	17	Ma	T6
7	F	22	Ma	T7
8	M	17	Ba	T8
9	F	28	Ma	T9
10	F	25	Ba	T10
11	F	8	Ba	T11
12	M	9	Ba	T12
13	F	5	Ma	T13
14	F	7	Ba	T14
15	F	25	Ma	T15
16	F	24	Ba	T16
17	F	29	Ba	T17
18	F	24	Ba	T18
19	F	10	Ba	T19
20	F	25	Ma	T20
Total	20			

Instruments

In order to reach the answers to the research questions, a semi-structured interview was used as an instrument, which was carried out with primary education teachers. The semi-structured interview provides a certain degree of standardization of the interview questions and a certain degree of openness of the answer on the part of the interviewer (Wengraf, 2001). Semi-structured interviews are used to collect data in a wide range of research types. They are usually related to the collection of qualitative social data and how and why they experience and understand the social world in this way. (Belina, 2023). To analyze the data, processed from the semi-structured interviews, we did the thematic analysis. From the research questions, sample selection, and the data collection process itself, we gained ideas on preliminary terms that piqued our interest. We recorded the interviews, transcribed them, listening and re-listening them in order to put them into the research. (Parfenova, 2024). Before the research, we communicated with the participants in writing, informing them of the interview procedures, participating of their own volition, voluntarily without any compensation. The interview consists of a total of 10 questions, the data from this interview are confidential and coded as shown in Table 1. (T1, T2....T20) The following are the semi-structured interview questions:

1. What is the role of the teacher in documenting the summative assessment in primary education?
2. What is the influence of the teacher on the summative assessment?
3. What instruments are used for summative assessment?
4. How do you design summative assessment instruments?
5. How much do you think these assessment instruments sufficiently measure students' knowledge?
7. How much do you use Bloom's Taxonomy when designing questions?
8. When do you do the summative assessment?
6. What do you include in the summative assessment?
9. Tell us how you plan the summative assessment?
10. Are students and parents notified of the

summative assessment?

Validity and Reliability

To ensure the validity and reliability of the research, we relied on the study based on the suitability of the research instruments, the research methodology, the research questions, the sample and the analysis of the data from the research is suitable with the final results of the research, i.e. the correlation of findings from the research brings validity and reliability (Leung, 2015).

In order to ensure the validity and reliability of the research, we reviewed various literature related to this issue, we designed the research instruments by consulting with experts in this field, academic level professors who have dealt with this issue in the past and we came to conclusion that semi-structured interview can be used for this qualitative research (Özkan, 2023).

Ethics

Ethics approval was given by the Municipal Directorates of Education, and was approved by the principals of the schools where the research was conducted. Participants were informed about the research and declared their consent to participate in the research. The participants were informed in time that participation in this research is voluntary and they are not obliged to participate in the study, they can withdraw at any time during the research. The participants voluntarily agreed to participate and confidentiality was guaranteed by the researchers, giving consent for participation and complete confidentiality, that the data will be coded and also the participants were informed about all research procedures (Sadeghi & Smith, 2024).

Data analysis

We carried out the qualitative research with primary education teachers, in this study we took about the role of the teacher in the documentation of the summative assessment, the instruments of the summative assessment, the data collected in this qualitative research by means of a semi-structured interview were analyzed, compared with reviewed literature and the data were coded, grouped according to the theme of the answers and with the permission of the participants in the interview we wrote them down, read and re-read them carefully specifically, grouping the research data according to the themes that emerged

from this interview (Khoa et al., 2023). From the qualitative research we derived four subthemes, which are presented in this research.

Procedure

The research was conducted in three phases:

- The first phase: includes obtaining research permission, selecting participants, getting ready for qualitative research.
- The second phase - involves conducting semi-structured interviews with selected teachers in the respective schools, in order to collect data regarding the role of teachers in documenting the summative assessment.
- The third phase - structuring and analyzing the data, collected from the first and second phase. 20 primary education teachers participated in this research, which was carried out in the time period October-December 2024.

Results

During the realization of this research, we took the attitudes of the teachers about the role of the teacher in the documentation of the summative assessment in primary education, about the instruments of the summative assessment and their design, the planning of the summative assessment, the notification of the students for the summative assessment. From these results we understood that teachers play an important role in documenting summative assessment. For the realization of this research, we used the qualitative method with the research instrument semi-structured interview, the data are presented below with the themes and sub-themes from the research in Table 2.

Current Findings

Teachers' Attitudes About the Teacher's Role in Documenting Summative Assessment in Primary Education

Considering the role of teachers in documenting summative assessment, they emphasize the importance of using various instruments to assess student progress and achievement, including tests and other methods appropriate to the curriculum, they have the responsibility to collect, record and analyzed assessment data, ensuring transparency and providing valuable information to parents and educational authorities, we analyzed this data focusing on the teacher's role in documenting summative

assessment, the attitudes of teachers are presented as follows what is the summative assessment:

"It is to assess the progress and achievements of students using tests and other methods to determine and acquire the knowledge and skills required during a certain learning period" (T1, T3)

"The teacher prepares the evaluation instruments, the questions that must be drafted based on the curriculum he had" (T5)
"The teacher plays the key role in summative assessment, since he uses all possible instruments" (T7)

"The teacher has the responsibility to collect, record and analyze the data collected from the summative assessment, which aims to assess the level of knowledge and skills of the students after a teaching period" (T8)

"The role of the teacher is very important and must be correct, impartial" (T9, T11)

"The evaluation process is very important which affects the improvement of students' progress and the role of each teacher is to have in his documents the summary evaluation, the continuous evaluation and we are free to have the notes in the personal notebook"(T12)

"Teachers are responsible for compiling evaluation reports for each student" (T13)

"This documentation enables the teacher to identify the strengths and weaknesses of the students, as well as to plan strategies for improvement" (T14)

"The teacher must regularly monitor and evaluate the program and personal development of each student during the school year" (T15,T16)

"...it's quite big because student evaluation is very important for the learning process, so every teacher must find ways to summarize information"(T17)

"Documentation is an important tool to ensure transparency and provide valuable information to parents and educational authorities"

"The teacher ensures the use of all types of assessment, which are defined as necessary to evaluate achievements and individual development to highlight the strengths of students" (T19, T20)

Summative Assessment Instruments

From the teachers, during the semi-structured interview, they declared that they use multiple instruments for summative assessment such as: projects, presentations,

homework, classroom activities, students' portfolios, essays, dictations and control exercises. The teachers emphasize that the use of these instruments depends on the subject and the level of the students, and they are planned in cooperation with the professional asset of the classes, we have listed the most concrete answers below:

"Tests, final exams, final projects, assessments with written tests, student portfolios, activities that take place in the classroom" (T1)

"All possible instruments, it depends on the subject and the age of the child, we design the written tests, the oral tests in cooperation with the asset, the oral answers, the individual work, the completed projects, the portfolio" (T3)

"Homework, activity, tests, dictation, files, activities based on the curriculum, the material learned during the school year" (T5)

"Written test, oral answers, presentation of projects, dictation, portfolio, homework, essays, class activity" (M7, M8)

"Tests, control tasks and summative tasks are divided by percentage of assessment (eg assignments 20%, tests 30%, etc.). They demonstrate consistency of results, self-evaluation, evaluation of each other, include topics that have been developed in advance, focus on summarizing achievements"(T10)

"For the summative assessment we use: homework, student files, assessment tests, activities during the year, oral expressions, essays, and the design of tests is done by adapting to the level of the students, adhering to Bloom's Taxonomy" (T11)

"Tests, control exercises, engagement in class, portfolio, homework, various quizzes, debates, communication and expression skills, analysis skills, results of feedback tasks, etc. we plan all these for the realization of the summary assessment"(T13)

"We try to use all instruments, but some of them are: oral responses in class, essay writing and speaking skills, assessment tests, engagement in class, collaboration, homework, obtaining and researching information cloud and many other instruments..."(T14)

"Tests, student portfolios, observations, projects and presentations, self-assessment, test results, etc" (T15)

"We plan the instruments that will be used with the professional asset of the classes, such as: homework, tests, quizzes, extracurricular activities, group behavior,

tests that are designed according to Bloom's Taxonomy" (T16)

"The various tests, the file, the task checklist, the student engagement list, we use many instruments, one of them is the test where in its design the use of Bloom's Taxonomy is of particular importance as a hierarchical structure of the abilities of thinking and network to measure the cognitive depth of students' learning" (T17)

"Different instruments are used for summative assessment, i.e. oral and written questions, various tests, students' portfolios, the summative assessment includes the knowledge, skills, attitudes and values of the students, more than three instruments are always planned" (T18)

"Various tests, files, task checklist, student engagement list, group work, engagement, homework, writing, dictation, reading-comprehension, listening-comprehension"(T19)

"The administrative instruction clearly foresees how to carry out the summative assessment, where the professional asset determines the instruments that we use for the summative assessment, making them part of the planning by teachers such as: homework, evidence from class engagement, essays, tests, projects, practical work, portfolio, etc."

Summative Assessment – Documentation – Planning

The purpose of the assessment is to collect information to support the student in mastering the learning outcomes, determining the level of performance. Summative assessment attempts to capture the culmination of student achievement within a given time frame, which is at the end of a teaching period, to see when they take the summative assessment (Kibble, 2017) and how we plan it, we will see below the answers given by the teachers:

"We must do it at the end of a learning period, such as the half-year or the end of the school year, to evaluate the knowledge and achievements of students, this planning must include the definition of learning objectives, the choice of appropriate assessment instruments and the examination of results"(T1)

"At the end of the chapter, the semester, the school year, also preparing the tests from all the knowledge they have acquired"(T3)

"After a period, after a chapter, at the end of

the first semester and at the end of the second semester, planning is done by choosing the questions from the easiest to the most difficult" (T6)

"At the end of every two months and the end of the half year, planning is done when planning is done for the school year, but it is revised after each period of time" (T9)

"Summative assessments are done in periods, which provides greater achievement to students, especially helps those students who have learning difficulties, which is now widely implemented in the curriculum, summative assessment planning is initially done on a global, monthly plan" (T10)

"Summary tests, after the tests at the end of each chapter and the bimonthly test, ensuring a valid, objective, reliable and consistent assessment for all students throughout the school year" (T12)

"At the end of each chapter, I first identify the purpose of the assessment, then define the assessment methods and instruments, consultation with the plan and learning outcomes, conducting the assessment, analysis of the assessment and data, reporting and feedback" (T13) "At the end of a chapter or at the end of a certain period after we move from one chapter to another, any time after passing 6 or 8 units we decide to summarize them in an assessment test and after a period we put them back in another summative test" (T14)

"It is usually done at the end of a certain period, at the end of the school year, etc., and we set the success criteria, identify the goals and objectives of the lesson as well as the choice of assessment instruments, which we plan in time" (T15)

"Summary assessment is done every two months, which means students are graded twice in a semester, planning is done by keeping regular notes in the teacher's personal diary for each subject and each student" (T19)

Involvement in Summative Assessment

According to teachers' opinions from the semi-structured interview, summative assessment includes summative tasks, tests, and checking files to measure student achievement in a given period, teachers have the autonomy to select assessment methods, planning them collaboratively with the professional asset of the classes. Below we see the answers of the teachers:

"In the last part of the period for the

summative assessment, we include summative tasks, tests, checking files, to measure the level of student achievement in that period as planned" (T2, T3)

"Teachers are free to select or what to include for summative assessments, this is in the autonomy of the teacher who plans these together with the professional asset of the classes" (T5, T7)

"When a certain period of time ends, the teacher tests the students according to the plan, or checks the summary tasks" (T9)

"Under the monitoring of school management and professional activity, the summative assessment time is planned, which is regulated and with administrative instructions" (T10, T11)

"In the planning for the implementation of the summative assessment, we also foresee informing the parents" (T13)

"At the time when we do the summative assessment, after setting the grade, we then put the grades in the diary" (T14, T15)

"Recording in the personal diary and class diary also makes summative assessment easier, including more assessment instruments helps us in this process." (T17, T19)

Summative Assessment Information

Informing students and parents about the summative assessment

During the semi-structured interview, the teachers said that informing students and parents about the summative assessment is carried out at the beginning of the school year, when students are informed about the instruments that will be used for assessment, and the methods of information are adapted according to the age of the students, parents are also informed in certain periods, through individual or joint meetings, where students' achievements and needs for improvement are discussed.

"At the beginning of the school year, students are informed about the instruments that will be used for the summative assessment, it depends on the age of the students we choose and how we inform them" (T1, T2)

"Usually, we hold meetings with parents at the beginning of the school year, in the first meeting with them the class teacher also informs the parents about the methods of assessment of their children, also telling you about the course of the summative assessment" (T4, T5)

"Parents are informed from the first meeting held with parents, telling them about

the planning of the evaluation, and the evaluation instruments." (T7)

"We inform parents about the summary assessment during certain periods of time, in individual meetings with parents, but also in meetings when we have them in common, of course the results are always individual" (T8, T9)

"After completing a certain period of summative assessment, or before the end of the assessment, parents are informed about their children's strengths and weaknesses" (T10, T12)

"Students are constantly informed about their results, because through this information they also receive recommendations for improvements" (T13)

"Based on the personal diary, in certain periods of time the teacher informs parents

and students about the results achieved, also providing information for improvement according to needs" (T14, T15)

"At the end of a lesson, the teacher informs the parents about the grades achieved by the student, about his achievements in general, according to the requests of the parents, also for specific subjects" (T16, T17, T18)

"After the end of the evaluation period, when the teachers give a report on the achievements and needs of the students, including recommendations for possible improvements" (T19)

"We also have planned meetings with parents, here we also inform them about their children's achievements, sometimes according to needs outside of the plans" (T20)

Table 2.

Findings from Qualitative Research

Research topic	Researched topic	Main descriptions
Current findings	Teachers' attitudes towards the role of the teacher in documenting summative assessment in primary education	✓ to assess progress
		✓ the teacher prepares the instruments
		✓ the teacher plays a key role in summative assessment
		✓ correct
		✓ impartial
		✓ the assessment process
		✓ very important
		✓ have responsibility
		✓ monitor
		✓ assess regularly
		✓ should be based on competencies
		✓ results
		✓ the teacher
		✓ find ways
		✓ should be as realistic as possible
		✓ principles of assessment
		✓ transparent
Summative assessment instruments	Summative assessment instruments	✓ real assessment
		✓ assess
		✓ Identify
		✓ Manage
		✓ students' progress
		✓ tests
		✓ final exams
		✓ projects
		✓ written
		✓ student portfolios
		✓ activities that take place in the classroom
✓ homework		
✓ learned material		
✓ control tasks		
✓ summary tasks		
✓ control exercises		
✓ class engagement		
✓ portfolio		
✓ homework		
✓ various quizzes		
✓ dictation		
✓ reading		

Table 2 (continued).*Findings from Qualitative Research*

<i>Research topic</i>	<i>Researched topic</i>	<i>Main descriptions</i>
Summative assessment- documentation - planning	Summative assessment- documentation	✓ at the end of a teaching period
		✓ at the end of a chapter
		✓ half-year
		✓ school year
		✓ after a period
		✓ at the end of every two months
		✓ planning is done for the school year
		✓ reviewed after each period of time
	Involvement in summative assessment	✓ summative assessments
		✓ determine methods
		✓ assessment instruments
		✓ consultation with the plan
		✓ learning outcomes
		✓ personal diary
		✓ teachers
		✓ for each subject
Summative assessment and assessment planning	✓ each student	
	✓ students are informed	
	✓ expectations	
	✓ parents	
Information about the summary assessment	✓ usually	
	✓ meetings	
	✓ beginning of the school year	
	✓ parents	
	✓ first meeting	
	✓ class teacher	
	✓ summative assessment	
	✓ assessment planning	
	✓ Instruments	
	✓ periods	
	✓ students	
	✓ strengths	
	✓ weaknesses	
	✓ constantly informed	
✓ improvements		
✓ personal diary		
✓ results achieved		
✓ grades		
✓ specific subjects		

Discussion

The results of the research have shown us how important the role of the teacher is in documenting the summative assessment and how much influence the teacher has in this assessment using different assessment instruments. Summative assessment is a key element in primary education, helping to measure students' progress and develop their skills. According to the research done, the teacher has an important role in documenting the summative assessment and ensuring a fair, reliable

and comprehensive assessment process, where the documentation of the summative assessment is an integral part of this process, as it provides objective data and clear about the students' progress.

Based on the literature reviewed and the results from the semi-structured interview regarding teachers' attitudes about the teacher's role in summative assessment documentation, the teacher has the responsibility to collect and analyze the information that comes from the summative assessment, to create an overview of clearly for the development of students during

a certain learning period. This process includes the use of various instruments for student assessment, such as tests, projects, presentations and various activities that are related to learning objectives. Participating in this process is also the teacher's reflection on the methods and practices he uses, to ensure that they are effective and suitable for the needs of the students and the results achieved by the students. (Daka et al., 2021).

During their work, teachers also plan the process of student evaluation, as well as the summative evaluation, this was also said during the interview, teachers plan evaluation instruments, evaluation documentation, they do this together with the professional assets of the classes, the documentation must be in accordance with curricular requirements and administrative instructions and laws in force, once support students in further development by supporting them according to their needs.

In the research process, while taking the positions, the teachers showed how they inform the students and parents about the summative assessment, calling this a very important step in the learning process, the students and parents are notified at the beginning of the school year about the assessment steps, about the instruments which are used, and this ensures transparency and understanding of the evaluation method and criteria. The teacher has the responsibility to clearly communicate the assessment objectives, methodology and how the results will be used to support student development. This information creates opportunities for close collaboration between the school and parents, ensuring that students understand expectations and have ongoing support to improve their performance. (Brownlie et al., 2024).

The findings of this research in general have great importance for teachers, parents, students of the fields of education, university professors, but it also helps the educational policies of the Ministry of Education, Science and Innovation. This research provides a clear insight into the role of the teacher in documenting summative assessment in primary education, enabling various researchers to use the best practices of this process and teachers the best models of assessment and documentation, with a word, this paper has a special importance for the sciences of education in general and

assessment in education in particular.

Conclusions

By means of this qualitative research, we have obtained teachers' attitudes about the teacher's role in documenting summative assessment in primary education, emphasizing its influence on the use of different assessment instruments, documenting summative assessment, planning, informing students and parents and in creating a fair and reliable evaluation process. Teachers have a major responsibility in collecting and analyzing assessment data, which helps in shaping a clear picture of student development and in the ongoing planning of teaching methods. (Hall & Kieron, 2018). Also, from the findings of this research, we have highlighted the importance of informing students and parents about the summative evaluation process, it creates opportunities for close cooperation and continuous improvement of students' performance. Trained and prepared teachers are able to plan and document in accordance with curricular and legislative requirements, providing individualized support for students according to their needs and the obligations they are given (Orongan et al., 2023).

Teachers' attitudes about their role in documenting summative assessment where teachers stated that they have a key role in this process, using different assessment instruments, documenting student progress, ensuring transparency in the assessment of their students according to requirements curricular and legislative in general.

This research provides a deep understanding of the role of teachers in documenting summative assessment in primary education, emphasizing the importance of using appropriate instruments for student assessment, informing students and parents to ensure transparency in assessment. Future researchers can use these results to identify best practices for documenting summative assessment and to improve assessment strategies in primary education. This research can enrich the existing literature by contributing new information on the ways of documenting and using summative assessment in primary education, which are important for the development of curricula and educational policies. Also, the results can help solve

some practical problems faced by education experts in different countries, by improving communication and support in the student assessment process. The research was conducted with qualitative methodology, the data are reliable and comprehensive in the research process, which gave us results that can be used by researchers in the fields of education.

From the findings in general, we can say that this research has great importance for educational sciences and assessment practices in education, providing a deep understanding of the summative assessment documentation process and contributing to the development of educational policies and the improvement of teachers' practices. This paper is a valuable resource for teachers, students of education fields, and researchers seeking to delve further into the field of assessment and assessment documentation in general, summative assessment in particular for primary education.

Study Limits

Teachers' attitudes about their role in documenting summative assessment where teachers stated that they have a key role in this process, using different assessment instruments, documenting student progress, ensuring transparency in the assessment of their students according to requirements curricular and legislative in general. During this research we used the qualitative method with the semi-structured interview instrument, if we were to use a methodology other than the qualitative one, we could choose a quantitative approach, which would include the collection of numerical data and the use of statistics to analyze the results. This method would allow measuring the impact of summative assessment on a wider sample of teachers, providing the opportunity to compare and generalize findings to a larger population. In this case, we could get other results from this research.

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The Effect of Professional Burnout on the Performance of Academic Staff in Higher Education in Kosova

Original scientific paper

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Abstract

This research is focused on the level of burnout among academic staff workers in higher education and aims to examine the effects that this phenomenon causes, as well as whether these people show signs of wear and tear from the many loads they have in their efforts to achieve high performance. The primary data were obtained through a survey with the academic staff using the MBI (Maslach Burnout Inventory) assessment. We reveal that the academic staff show symptoms of burnout at a medium level; most of them are not satisfied with their personal achievement, indicating the effects that burnout has on their performance. We also show that there were no differences or any significant relationship between demographics and burnout levels, except for age. The results of this study reveal that the less experienced staff have more energy in the beginning, then go through struggles until they adapt and are able to reach stability in the years close to retirement. There was also a discrepancy in the means between the factors leading to burnout, but this comes due to mental health at the workplace stigma.

Keywords: *Burnout, Performance, Academic Staff, Higher Education*

In light of the manifold challenges facing higher education and the pressing need for constant innovation, the phenomenon of work-related burnout has become an all-too-common occurrence. The increasingly diverse nature of work in today's society often demands that individuals juggle overloaded tasks, navigate complex interpersonal dynamics, and contend with

poor working conditions and a host of other challenges. As a result, many individuals are experiencing heightened levels of stress and emotional exhaustion, leading them to become increasingly detached and disengaged from their work. This state of psychological and emotional depletion, commonly known as burnout, represents a significant public health concern in modern society.

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According to Freudenberger (1974), who initially tried to explain burnout, this phenomenon arises because of high levels of stress and the accompanying sense of responsibility that is inherent in professions that involve providing assistance to others. Although it was said to exist only in humanitarian fields, burnout was later divided into other elements that have carried the term until today. Authors Maslach and Jackson (1981) have divided burnout into 3 points: emotional exhaustion, depersonalization and personal achievement. In a similar study, Alwaely and Jarrah (2020) found that the level of burnout among Al Ain professors turned out to be moderate and the higher the level of burnout, the lower their learning performance. Performance in the workplace is a crucial aspect that requires careful consideration of the various factors that can lead to burnout. It is imperative to ensure that one is not merely discharging their duties out of obligation but rather with a sense of passion and purpose. The creation of a positive work environment, bolstered by the support of colleagues and staff, working in favorable conditions, and achieving significant milestones are critical in mitigating fatigue and enhancing job satisfaction. These factors create a sense of belonging and value, fostering a positive outlook on one's work.

The present study aims to examine the impact of burnout on academic staff members and investigate whether demographic variables influence the experience of burnout. Along with an extensive literature review, this research also includes empirical findings and analyses. The variables used in this study are gender, age, experience, as well as emotional exhaustion, depersonalization, and personal achievement, as they are integral components of the inventory. The ultimate goal of this study is to provide a comprehensive understanding of burnout among academic staff members and identify potential strategies for mitigating its negative effects.

Literature Review

Individuals who work in busy environments, whether or not they experience pressure, may be susceptible to work-related stressors and intense emotions, including stress, anger, fatigue, fear, and despair. These emotions can often be triggered by social or crowded settings, leading to a state of

exhaustion or burnout. Taris (2006) says that this exhaustion can relate the stressors of this exhaustion to performance as our energies are also consumed which we use to perform work, implying that when the levels of exhaustion increase, the energy of people to perform work also falls. In the US, about 20% of the academic staff had experienced high levels of burnout before the pandemic, while this had doubled after the pandemic (Yesantharao, et al., 2023). Another study Peter et al. (2019) conducted in Australia found that although employees experienced high levels of burnout and engagement, they still reported high levels of job satisfaction and that job resources (e.g., social support and autonomy) played a role in this relationship.

Based on research from various scholarly articles analyzing burnout, performance, and demographic variables (Alwaely & Jarrah, 2020; Khan & Anwar, 2019), the data gathered suggests that females tend to exhibit a higher degree of burnout than males. Some of the influencers were multiple overloads, administrative work, work from home, low salary, poor organizational climate, fatigue, pressure, work environment, etc. Other studies (Lou, et al., 2022; Mota, Lopes, & Oliveira, 2021; Demerouti, Bakker, & Leiter, 2014; MANTILLA & DÍAZ, 2017; Brouwers & Tomic, 2000) found levels of burnout, but most interestingly, found that workers used different techniques to prevent burnout and recommended that the staff needs to be included in different programs or trainings about managing these kinds of problems at the workplace. Additional studies (Wulantika, Ayusari, & Wittine, 2023; Peasley, Hochstein, Britton, Srivastava, & Stewart, 2020; Turtulla, 2017) found that management and government entities have a crucial role to play in this regard; their support can enhance the performance and welfare of these professionals.

What Causes Burnout? - According to Maslach and Leiren (1997), burnout has many influencing factors, but among the most important are "work overload, lack of control, insufficient reward, community breakdown, lack of justice and conflicting values".

Consider a scenario where one is employed and strives to enhance the company's productivity by accomplishing tasks within

a shorter time frame. Despite working overtime, the workload persists, and without realizing it, one begins to carry work home. While the vigor and vitality to accomplish everything may be present in younger years, as time elapses and additional responsibilities outside work are included, one's energy gradually wanes. The observed surge in workload is of concern, as it appears to be primarily driven by a focus on quantity rather than quality of work. As such, it is imperative that time and work plans be managed more effectively to mitigate this issue. Failure to do so may result in a loss of control over work-life balance, which could lead to personal difficulties and potentially cause us to lose sight of our overarching mission. Starting a work project with a lot of energy and maintaining that momentum for a long time can only work if the worker is fairly paid. Unfortunately, some companies try to pay as little as possible while expecting a lot of work, which can lead to low motivation and other problems. Workers not only need rewards, but also a team to function better. While working alone can be effective in some cases, having colleagues for support and division of labor can be very helpful. It is important for companies to be transparent and fair with their workers. When workers are aware of what is happening around them and receive mutual respect, they tend to be more loyal to the company. On the other hand, if workers feel mistreated or undervalued, they may lose faith in the company. This can lead to internal conflict and affect both personal and professional life. Small issues can quickly escalate into bigger problems, leading to negative consequences. Therefore, it is crucial for companies to treat their workers with respect and fairness to maintain a positive work environment.

How to Prevent Burnout - It is crucial to maintain a positive work environment that benefits both individuals and teams in terms of personal and professional growth. To achieve this, teamwork, effective communication, management support, and promoting mental health are essential. It is also essential to ensure that work-related concerns do not affect the personal lives of employees. According to a study by Gabriel and Aguinis (2022) considering the management part and the human resources department in this aspect, they developed five aspects that can help different organizations

prevent or fight this consumption by offering workers interventions for stress management, to allow them to be active creators, to encourage and support them in the social part, to engage workers in the decision-making process, and to implement higher quality performance management. Undoubtedly, all these factors can help to reduce or prevent health issues, but the most important role is played by the individual. It is essential to take care of one's health and not hesitate to seek help when needed. Mental health is often considered a taboo topic in our culture, but by starting to talk and share with others, we can break the stigma for those who may be going through the same struggles as us.

Performance - Authors Banfield and Kay (2018) interpret performance as a relationship between a person's practical skills and what that person achieves, that is, related to one's work. It is widely believed that happy workers tend to work better, and this is because there is a direct correlation between the performance of employees, the performance of the company, and the well-being of the workers. A company that is committed to promoting well-being and providing a healthy work environment is more likely to have a productive workforce. On the other hand, if employees are not well taken care of, they are likely to become demotivated, leading to poor work performance and eventually, burnout. Therefore, it is essential for both companies and workers to prioritize their well-being in order to foster a healthy work culture and ensure a productive workforce. Professors in different fields engage in a variety of teaching and research activities. However, when they experience this syndrome, their mental health tends to deteriorate. This can lead to negative thoughts and affect their performance. (Padillaa, Boniventob, & Suarez, 2017).

Methodology

The data were collected through an online questionnaire distributed via email to academic staff in public and private universities in Kosovo. The data for this research was collected from 100 participants who work in the academic field. Of the total participants, 44% were female and 56% were male. The age groups were divided as follows: 34% were between the ages

of 24 and 34, 36% were between 35 and 44, 22% were between 45 and 54, and 8% were between 55 and 64. The experience levels were categorized as follows: 17% had 0-5 years of experience, 36% had 6-11 years of experience, 32% had 12-20 years of experience, and 15% had more than 20 years of experience. Participants voluntarily took part in the research by completing an inventory from a distributed link, and only age, gender, and experience data were collected due to privacy concerns. The Instrument used for this research was MBI - Maslach Burnout inventory (Maslach, Jackson, & E, 1981) which has 22 questions that are divided into three scales: emotional exhaustion, depersonalization and personal achievement.

MBI is a well-established instrument for measuring burnout, considering many studies have used this instrument, such as Prentice and Thaichon (2019) connecting burnout with job performance, as well as different systematic reviews and meta-analyses like Parandeh et al (2022). This assessment consists of questions that are answered on a Likert scale with 7 degrees ranging from 0 (never) to 6 (always). The scale is divided into three dimensions: emotional exhaustion, depersonalization, and personal achievements. A score of over 27 on emotional exhaustion indicates a high level, 17-26 indicates a medium level, and 0-16 indicates a low level. A score of over 13 on depersonalization indicates a high level, 7-12 indicates a medium level, and 0-6

indicates a low level. Similarly, for personal achievement, a score of above 39 indicates a high level, 32-38 indicates a medium level, and 0-31 indicates a low level.

Initially, to prove the accuracy and reliability of the instrument (MBI), Cronbach's Alpha test was used, which reached a high level of 0.871. Additionally, since MBI is divided into three factors, the validity of the three was made individually, where it reached these results: Emotional Exhaustion (EE) Cronbach's Alpha is 0.83 high, Depersonalization (Dp) Cronbach's Alpha is 0.78 and Personal Achievement (PA) Cronbach' Alpha is 0.83, thus indicating a high degree of acceptability (>0.70.)

The hypotheses for this research are:

H1. The academic staff experience burnout
H2. Burnout affects the performance of the academic staff

H3. The academic staff are satisfied with their work achievements

H4.1 There is a significant difference between burnout and gender

H4.2 There is a significant difference between the levels of burnout and years of experience

H4.3 There is a negative correlation between burnout and age

Results

Before conducting hypothesis testing, we perform a correlation analysis to determine if there is a relationship between the given data sets.

Table 1.

Correlations of the 3 Factors

Correlations

		Level of EE	Level of Dp	Level of PA
Level of EE	Pearson Correlation	1	.477**	-.185
	Sig. (2-tailed)		.000	.065
	N	100	100	100
Level of Dp	Pearson Correlation	.477**	1	-.507**
	Sig. (2-tailed)	.000		.000
	N	100	100	100
Level of PA	Pearson Correlation	-.185	-.507**	1
	Sig. (2-tailed)	.065	.000	
	N	100	100	100

** . Correlation is significant at the 0.01 level (2-tailed).

Upon analyzing the provided table, it becomes apparent that the values of 0.477 suggest a positive correlation between emotional exhaustion and depersonalization with a significance value of $0.00 < 0.05$, while with - 0.185 between EE and PA with a sig $0.065 > 0.05$, and PA with DP with - 0.507 suggest a negative correlation, and a significance $0.00 < 0.05$. In other words, as one variable increases, the other variable decreases. This phenomenon is similar to the way MBI operates, where higher levels of DP and EE lead to a decrease in PA levels. After examining the table, it is evident that emotional exhaustion and depersonalization have a positive correlation with a value of 0.477, which is statistically significant

with a significance value of $0.00 < 0.05$. However, there appears to be a weak negative correlation between emotional exhaustion and personal achievement with a value of -0.185 and a significance value of $0.065 > 0.05$. Additionally, a strong negative correlation between personal achievement and depersonalization with a value of -0.507 and a significance value of $0.00 < 0.05$ has been observed. This implies that as one variable increases, the other variable decreases. This pattern is consistent with MBI's operation, where higher levels of depersonalization and emotional exhaustion result in lower levels of personal achievement.

H1. The academic staff experience burnout

Table 2.

Statistics Table

Statistics

		Level of EE	Level of Dp	Level of PA
N	Valid	100	100	100
	Missing	0	0	0
Mean		1.34	2.29	1.61
Median		1.00	3.00	1.00
Mode		1	3	1
Std. Deviation		.572	.856	.737
Percentiles	25	1.00	1.00	1.00
	50	1.00	3.00	1.00
	75	2.00	3.00	2.00

According to Table 2, the data was divided into three groups - group 1 (low), group 2 (medium) and group 3 (high). From the results, we can see that for Emotional Exhaustion, the mean is 1.34 and the standard deviation is 0.572. For Depersonalization, the mean is 2.29 and the standard deviation is 0.856. Lastly, for Personal Achievement, the mean is 1.61 and the standard deviation is

0.737. Each of these means was on the path towards higher levels. After summing up the factors, the results for the level of burnout were obtained. It is important to note that 55% of the respondents showed high levels of disconnection and feelings of numbness in the Depersonalization factor, even though there were only a few in the first factor of Emotional Exhaustion.

Table 3.*Level of Burnout***Level of burnout**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	low	31	31.0	31.0	31.0
	medium	39	39.0	39.0	70.0
	high	30	30.0	30.0	100.0
	Total	100	100.0	100.0	

After analyzing each factor, we identified three levels of burnout. Although some of the results did not correspond with each other, this could be due to the stigma and culture that still exist in Kosovar society, not only in responding to questionnaires, but also in answering questions about mental health. Table 3 shows that 31% of individuals experience rare symptoms or

have a low level of burnout, while 39% display symptoms or have a medium level of burnout, and 30% have a high level of burnout. Therefore, academic staff members currently experience burnout at a medium level, which may increase or decrease in the future.

H2. Burnout affects the performance of the academic staff

Table 4.*KMO and Barlett's Test***KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.849
Bartlett's Test of Sphericity	Approx. Chi-Square	1286.232
	df	231
	Sig.	.000

The MBI questionnaire with 22 questions underwent factorial and reliability analysis. In a study by Forne and Yugero (2022), KMO resulted also high and only the first factors that extracted with the values above 1 were collected. From Table 4 we can

see that KMO for the questionnaire is 0.849 which indicates a high level of trust from the data, also the Chi-square shows a correlation between the variables with a sig $0,000 < 0.05$ which shows that the data is suitable for the model.

Table 5.
Total Variance Explained

Total Variance Explained

Component	Initial Eigenvalues		Extraction Sums of Squared Loadings		Rotation Sums of Squared Loadings	
	% of Total Variance	Cumulative %	Total % of Variance	Cumulative %	Total Variance	Cumulative %
1	8.334	37.882	8.334	37.882	7.435	33.793
2	3.096	51.955	3.096	51.955	3.699	50.605
3	1.378	58.217	1.378	58.217	1.448	57.186
4	1.140	63.401	1.140	63.401	1.367	63.401
5	.977	67.840				
6	.885	71.861				
7	.839	75.674				
8	.755	79.105				
9	.600	81.831				
10	.539	84.280				
11	.495	86.531				
12	.446	88.559				
13	.408	90.414				
14	.372	92.107				
15	.332	93.618				
16	.319	95.065				
17	.255	96.223				
18	.217	97.211				
19	.192	98.082				
20	.170	98.853				
21	.148	99.525				
22	.105	100.000				

Extraction Method: Principal Component Analysis.

Based on the Eigen values in Table 5, we can observe that the data has yielded four factors. Factor 1 accounts for the highest percentage of total variance with 33.793%,

followed by Factor 2 with 16.812%, Factor 3 with 6.581%, and Factor 4 with 6.215%. Together, these four factors represent 63.401% of the total variance.

Table 6.
Cronbach's Alpha

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	
	Items	N of Items
.923	.925	13

Based on the data collected from the Eigen values in Table 5, we see that the reliability value according to Cronbach's

Alpha for the independent variables of the first factor reached a very high level of reliability 0.923 (Table 6).

Table 7.*Anova Table***ANOVA**

		Sum of Squares	df	Mean Square	F	Sig.
Between People		1706.231	99	17.235		
Within People	Between Items	249.708	12	20.809	15.633	.000
	Residual	1581.369	1188	1.331		
	Total	1831.077	1200	1.526		
Total		3537.308	1299	2.723		

Grand Mean = 1.82

It is clear from the Anova analysis (Table 7) that Burnout's variables significantly impact academic staff performance in higher education, as proven

by a significance value of less than 0.05. H3. The academic staff are satisfied with their work achievements

Table 8.*Level of PA***Level of PA**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	low	54	54.0	54.0	54.0
	medium	31	31.0	31.0	85.0
	high	15	15.0	15.0	100.0
	Total	100	100.0	100.0	

According to the survey results on personal achievement (Table 8), 54% of the respondents reported having a low level of

satisfaction at work, 31% reported a medium level, and only 15% reported being happy with their personal achievements.

Table 9.*Independent Sample T'-test***Independent Samples Test**

		Levene's Test for Equality of Variances t-test for Equality of Means					95% Confidence Interval of the Difference		
		F	Sig. t	df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Level of PA	Equal variances assumed	.001	.981	86398	.391	.128	.149	-.167	.423
	Equal variances not assumed		.862	292.284	.391	.128	.149	-.167	.424

It appears that both men and women in the workplace are not satisfied with their jobs. The data in Table 9 shows that there were no significant differences in gender and personal achievement in job satisfaction. Out of 54 respondents who reported low levels of job satisfaction, 33 were men and 21 were women. For those who reported medium levels of satisfaction, there were 16 women and 15 men, while for those who reported high levels of satisfaction, there were 7 women and 8 men.

When it comes to age, those between the ages of 24-34, 22 reported low levels of satisfaction, 8 medium, and 4 high; those between 35-44, 23 reported low levels, 8 medium, and 5 high; those between 45-54, 6 reported low levels, 12 medium, and 4 high; those between 55-64, 3 reported low levels, 3 medium, and 2 high.

Regarding work experience, those with 0-5

years of experience, 12 reported low levels of satisfaction, 3 medium, and 2 high; those with 6-11 years of experience, 18 reported low levels, 12 medium, and 6 high; those with 12-20 years of experience, 20 reported low levels, 6 medium, and 6 high; those with 20+ years of experience, 4 reported low levels, 10 medium, and 1 high.

In conclusion, there were no significant differences between gender and job satisfaction. However, when it comes to age, there was a higher level of dissatisfaction among younger workers, which improved as they gained more experience in the field. There were no significant differences in work experience, but job satisfaction tended to start low due to the new workplace environment and improve over time.

H4.1 There is a significant difference between burnout and gender

Table 10.

Independent Sample T-test

Independent Samples Test

		Levene's Test for Equality of Variances							95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Level of burnout	Equal variances assumed	3.276	.073	-1.173	98	.244	-.185	.158	-.498	.128
	Equal variances not assumed			-1.154	85.894	.252	-.185	.160	-.504	.134

Based on the data presented in Table 10, the significance value is greater than 0.05, which leads us to conclude that there is no noticeable difference in burnout levels between men and women; hence, we are not

able to reject the null hypothesis. Both genders are equally at risk of experiencing high levels of burnout.

H4.2 There is a significant difference between the levels of burnout and years of experience

Table 11.

Anova Table

ANOVA

Working experience

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.470	2	1.735	1.973	.145
Within Groups	85.280	97	.879		
Total	88.750	99			

Looking at Table 11, we can observe that the significance is 0.145, which is greater than 0.05 and means that there are no differences between the groups. From the working experience 0 – 5, there were 4 with low levels, 4 with medium and 9 with high levels of burnout. From 6 – 11 years of experience, there were 11 with low levels, 16 with medium and 9 with high levels.

From 12 – 20 years of experience, 11 were with low levels, 11 with medium and 10 with high levels of burnout. From 20 + years of experience, there were 5 with low levels, 8 with medium and 2 with high levels of burnout.

H4.3 There is a negative correlation between burnout and age

Table 12.

Correlations Table

Correlations

		Level of burnout	Age
Level of burnout	Pearson Correlation	1	-.273**
	Sig. (2-tailed)		.006
	N	100	100
2.Mosha	Pearson Correlation	-.273**	1
	Sig. (2-tailed)	.006	
	N	100	100

** . Correlation is significant at the 0.01 level (2-tailed).

From Table 12 we can see that there is a negative correlation (-0.273) which is also significant with a value 0.006, which is greater than 0.05. So, we can reject the null hypothesis and accept our hypothesis that age is correlated negatively with burnout levels, which indicates that lower ages tend to experience more burnout which then lowers with more experience. In a meta-analysis, Gomez et al. (2017) also noticed age as a factor especially in higher levels of depersonalization and emotional exhaustion but not in personal achievement.

Discussion

After having analyzed the collected data, we observe that the academic staff did not experience high levels of burnout. However, there is still a significant amount of dissatisfaction in the workplace that needs to be addressed. This feeling of exhaustion can affect their performance and cause them to lose empathy for themselves, their coworkers, and their students. Burnout is a concerning phenomenon with negative impacts on both our performance and well-being. “Burnout has a direct negative impact on job performance. The higher the burnout, the lower the job performance, while the

reverse is the opposite” (Pan, 2017). It is crucial to acknowledge and actively work towards improving both dissatisfaction and burnout in the workplace. It's worth noting that the individuals who completed the questionnaire were unaware of whether or not they were experiencing burnout. Additionally, it was observed that there was no difference in burnout levels between genders, but there was a correlation with age. Respondents tended to experience higher levels of dissatisfaction and burnout at the beginning of their careers, which then decreased, and later increased again.

Conclusion and Recommendations

The purpose of this study was to investigate the impact of burnout on the academic staff in higher education in Kosovo. Burnout is a serious issue that can significantly affect our lives. However, with effort and a strong desire to improve our performance and well-being, it is possible to overcome it. This was a new topic for the academic community in Kosovo as there was no other data available on burnout in this field. The questionnaire was designed to avoid questions related to the same factor (dp/ee/pa) being too similar to each other,

but despite this, some discrepancies were found in the responses. This may be due to a cultural reluctance to express emotional problems that could affect our well-being. In Kosovo, there is still a stigma attached to admitting work-related exhaustion, and people may fear being judged. The results also showed that age is a factor, revealing that younger staff are not treated equally in the labour market, especially in the academic field.

Recommendations

It is important to view burnout not as a psychological illness to be feared, but rather as a period during which we need to work on ourselves and prioritize our own needs. Academic staff should not be overloaded due to their energy levels or age, nor should their motivation be taken advantage of. Those who give the most are often the most vulnerable to burnout. Managers should implement various stress management techniques, time management strategies, and other forms of training that have a positive impact on employees' performance.

It is also recommended that each academic staff member have access to an external supervisor whom they can speak with at least twice a month if they have any concerns which they feel uncomfortable sharing with a fellow staff member due to privacy concerns. Setting boundaries at work, taking written or rest breaks when necessary, and avoiding self-harming behaviors like isolating oneself from others or ignoring signs of fatigue are all important steps to prevent burnout. Achieving a work-life balance is key, and above all else, everyone should prioritize their mental health in the workplace.

Future studies could examine burnout levels from the perspective of private and public higher education institutions to observe any difference there may be amongst these distinct types of institutions. Moreover, burnout antecedents could be explored, with a main focus on how cultural aspects in Kosovo affect the levels of burnout, but also the awareness of the academic staff that they are experiencing burnout.

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Self-Esteem and Working Capacity of Women after Mastectomy

Original scientific paper

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Abstract

The study aimed to examine the impact of mastectomy on women's self-esteem and labour adaptation. The research was conducted using data collected in 2022 and 2023 from 11 women aged 18 and older who had undergone mastectomy. The methodology involved questionnaires and in-depth individual interviews, focusing on the physical, psychological, social, and professional aspects of patients' lives to assess their needs and develop rehabilitation programmes. The findings indicate that mastectomy significantly affects women's mental and physical well-being, leading to a decreased quality of life and reduced work capacity, thereby necessitating specialised rehabilitation programmes to address physical limitations and enhance psychological resilience. Women who undergo breast reconstruction and receive adequate social support exhibit better psychosocial well-being and labour adaptation. Participation in the rehabilitation programme has led to an increase in the percentage of women who have positively assessed their self-esteem.

Keywords: *Rehabilitation, Psychological Impact, Mental Health, Work Efficiency, Social Support*

Mastectomy has a significant psychological impact on women, specifically on self-esteem, causing depression and anxiety. The study of these aspects helps to develop effective psychological interventions to improve the quality of life of patients. In addition, after mastectomy, physical limitations may arise that affect the ability to perform certain types of

work, which makes it difficult to adapt to work. Investigating these limitations allows creating rehabilitation programmes and recommendations for improving performance. Social support and adaptation in the work environment are essential factors for a successful return to work after surgery. Researching these aspects helps to identify effective support strategies from employers

and colleagues. The relevance of the study is underscored by the growing number of breast cancer cases and related surgeries, which makes the problem important for society as a whole.

Over the past five years, scientific research has substantially expanded the understanding of the impact of mastectomy and other surgical interventions on patients' self-esteem and quality of life. Wojtyna et al. (2023) studied changes in the overall quality of life and self-esteem of patients after breast cancer surgery. Their results showed a considerable decline in quality of life and self-esteem in all participants, with patients with high preoperative self-esteem suffering the greatest losses. Another study by Tarkowska et al. (2020) also confirmed these findings, establishing substantial problems with sexual functioning and self-esteem in women after mastectomy compared to healthy women. Women who underwent mastectomy had significantly worse outcomes in all aspects of sexual functioning, including desire, arousal, ability to reach orgasm, and overall sexual satisfaction.

Socha and Sobiech (2021) focused on the factors that affect the quality of life of women after mastectomy. They found that depression, chronic illness, and abdominal obesity considerably worsen quality of life indicators. Women who suffered from depression or had chronic illnesses reported lower quality of life scores in all areas. Abdominal obesity has also been found to be a significant negative factor affecting physical and psychological health. However, regular physical activity, living with a partner, prominent level of education and living in a city contributed to an improved quality of life. Women who exercised had better physical health and overall quality of life, while living with a partner provided emotional support, which contributed to higher rates of psychological health. Ośmiałowska et al. (2021) showed that constructive coping strategies, such as active struggle and positive thinking, improve quality of life, while destructive strategies, on the contrary, reduce it. Severe pain also significantly reduced the quality of life of patients in all functional areas, negatively affecting physical activity, emotional state, and social interactions.

In studies covering other types of cancer, Budna et al. (2020) found a positive

correlation between disease acceptance and quality of life after cancer surgery. Patients who had high acceptance of the disease reported a higher quality of life in physical, psychological, and social dimensions. The acceptance of the disease did not depend on the age of the patients, the type of treatment or repeated surgery. Patients who lived alone had significantly lower quality of life and acceptance of illness, while patients who underwent surgery for the first time perceived their quality of life in the environmental domain to be significantly lower. Tarkowska et al. (2022) confirmed the significant impact of the type of surgery on the quality of life of patients after colorectal cancer treatment. Patients who underwent minimally invasive interventions had better quality of life scores, returned to their social roles faster, and felt better about their bodies. Jurys et al. (2022) found a significant deterioration in the quality of life of patients with prostate cancer after radical prostatectomy. The most significant changes were observed in emotional, social, and role functions. Patients reported decreased emotional stability, increased anxiety, depression, and general emotional discomfort. Social functions also deteriorated, with patients reporting difficulties in maintaining social relationships and activities they had performed before surgery. Finally, Błaszowski et al. (2021) investigated the factors affecting the quality of life of patients after radical surgical treatment of rectal malignancies. They found that the greatest deterioration in quality of life was due to anorectal dysfunction. Patients who underwent low rectal resection and radiation most often suffered from gas and faecal incontinence, urgency of defecation and difficulty in defecation, which substantially affected their daily life. Thus, previous research highlights the significance of a comprehensive approach to treatment and support for patients, considering not only medical but also psychological and socio-demographic factors. However, most studies lack an analysis of the impact of mastectomy on women's labour adaptation. Therefore, the purpose of this study was to investigate the impact of mastectomy on women's self-perception and labour adaptation, and to develop recommendations for effective rehabilitation programmes and support strategies based on this.

Material and Methods

The main theoretical and methodological approach to investigating the impact of mastectomy on women's self-esteem and labour adaptation is based on a systemic holistic approach (holism), which covers physical, psychological, social, and spiritual aspects of patients' lives. This approach allows considering the problem in a comprehensive and integrated manner, considering all the significant components of health and well-being. The data presented here was collected during a survey conducted among the seminar participants in 2022 and 2023. The needs of the recipients were identified based on the analysis of the topic and direct consultations with NGOs, as well as conversations with people who work with women after mastectomy on a daily basis. Based on these findings, it was decided that the innovative model was aimed at women aged 18 and over after unilateral or bilateral mastectomy, who declared their readiness to better adapt to the labour market, return to the labour market, or start a business. The study was conducted with the participation of 11 women, more than half of whom were aged 40-49 (54.5%). The youngest women (under 40) accounted for 27.3%, while the oldest (over 50) – for 18.2%. The age structure of the participants confirms the general statistics of morbidity, as there is currently a constant upward trend, especially in the group of perimenopausal women (about 45-50 years old). Most of them had a university degree, lived in cities with a population of 100,000 or more, and had a partner and children. Nine participants of the workshop underwent radical mastectomy (removal of the entire breast, including the nipple, areola, and skin; all axillary lymph nodes; pectoralis major and minor muscles), and seven of them underwent breast reconstruction surgery. Nine participants were out of the labour market, including four who were receiving pension benefits and three who were unemployed.

The method of the Rosenberg Self-Esteem Scale (Rosenberg, 2006) was used to assess the level of self-esteem of the participants at three stages: before taking part in the workshop, immediately after the workshop, and three months after the workshop. This approach made it possible to

assess short- and long-term changes in the self-esteem of women who had undergone mastectomy under the influence of the proposed rehabilitation measures. The use of the Rosenberg Self-Esteem Scale in this study helped to comprehensively assess the impact of mastectomy and rehabilitation measures on women's self-esteem. The three-time measurement of self-esteem made it possible to identify both immediate and sustainable changes that occurred under the influence of the workshops. The statistical indicators of the participants before the workshop, immediately after the workshop, and three months after the workshop were analysed in detail.

Descriptive statistics were conducted and Shapiro-Wilk tests and univariate analysis of variance in the within-group design were applied. The classical significance threshold of $\alpha=0.05$ was used as the basis for determining the statistical significance of the results. At the first stage, the basic descriptive statistics for quantitative variables were calculated. Shapiro-Wilk tests showed that all variables have distributions close to normal. In this regard, a one-way analysis of variance was conducted. A survey of participants' expectations was also an important part of the study. It included an assessment of their expectations before the workshop, their satisfaction after the workshop, and the impact of the workshop on their professional situation. A total of 4 individual in-depth interviews were conducted with the recipients to understand their experiences and outcomes of the workshops in greater detail.

Results

Psychological Impact of Mastectomy on Women and Factors of Improvement

Mastectomy, the surgery to remove the breast, is a complex surgical procedure that often has a considerable impact on women's mental health. Breast loss can cause a series of psychological problems, including low self-esteem, depression, and anxiety. First of all, mastectomy can cause serious changes in the appearance of women, which affects their perception of themselves and their attractiveness. Many women experience a loss of femininity and sexual attractiveness after surgery. These experiences are often accompanied by a range of psychological and

social challenges, which can be exacerbated by cultural and societal norms that emphasise female attractiveness and the role of the breast in sexuality and identity.

Breast loss can cause feelings of inferiority and discomfort with one's body (Efremov, 2024). Women may feel less attractive and less feminine due to the physical changes that accompany mastectomy. In cultures where the meaning of femininity and sexuality is linked to the presence of breasts, women who have undergone mastectomy may face social stigma and feelings of isolation. They may feel pressure from society's expectations and their personal ideas of what a woman should look like (Mofrad et al., 2021). Changes in appearance after mastectomy can affect sexual self-esteem and desire. Women may feel ashamed or afraid of sexual intercourse, worried that their partners will see them as less attractive or even refuse them (de Souza et al., 2020). A mastectomy can leave scars and asymmetry, which often causes negative emotions about one's body. These physical changes can affect how women see themselves in the mirror and how they feel about their bodies in everyday life.

The physical discomfort and pain that can accompany the healing process also affects one's overall self-image. This can include a feeling of loss of sensation in the breast area and discomfort when wearing certain clothes (Anim-Sampong et al., 2020). Breast loss can cause strong emotional reactions, including depression and anxiety. Women can experience deep sadness, loss of motivation, and interest in life (Datskovsky et al., 2018). Constant anxiety can be caused by changes in appearance and possible reactions from others. Berhili et al. (2019) showed that women who have undergone mastectomy often experience psychological distress, including symptoms of depression and anxiety. Radical mastectomy is an independent factor that increases the level of psychological distress in young women, especially if they do not receive sufficient social support (Shaituro et al., 2025).

Breast reconstruction after mastectomy can have a significant impact on the psychological state, quality of life, self-esteem, and other aspects of women's psychosocial functioning. Recent studies have highlighted the significance of breast reconstruction in improving emotional and physical well-being. According to

Fortunato et al. (2021), younger breast cancer patients report worse emotional and social functioning after mastectomy, which improves after breast reconstruction. Breast reconstruction during mastectomy has a considerable impact on body image and sexual functioning (Spytska, 2023a). Consultation with a plastic surgeon before surgery improves the rates of immediate reconstruction, while delayed reconstruction is rarely used. About 20% of patients regret their decision to undergo breast reconstruction in general, breast reconstruction helps women regain satisfaction with their bodies and improve their self-esteem after mastectomy. Women with breast reconstruction have better indicators of psychosocial well-being compared to women who have not undergone reconstruction (Rabinowitz, 2013). According to Retrouvey et al. (2019) women who underwent breast reconstruction had higher rates of breast satisfaction and psychosocial well-being 12 months after surgery compared to women who chose mastectomy without reconstruction. Thus, breast reconstruction after mastectomy has a significant positive impact on the psychological and physical well-being of women, increasing their self-esteem, life satisfaction, and reducing depression and anxiety.

It is also important to consider the impact of social support on the psychological state of women after mastectomy. Biswas (2021) examined in detail how support from family and friends affects the psychological state of women who have undergone mastectomy. The main results of the study showed that support from family and friends is a key factor in reducing anxiety and improving self-esteem. Women who received regular support from family and friends had considerably lower levels of anxiety compared to those who did not. Support was expressed in the form of emotional support, assistance in everyday activities, and spending time together. Social support helped women to feel less isolated and reduced their fears and anxieties related to physical changes after mastectomy. Furthermore, support from loved ones helped to improve women's self-esteem.

Women who felt supported by family and friends had a more positive attitude towards their bodies and the changes that

occurred after surgery. This made it easier for them to accept their new bodies and maintain their self-esteem. Notably, the lack of social support had a negative impact on women's psychological state. Women who did not receive support from family and friends were more likely to experience isolation, depression, and anxiety. They had low self-esteem and felt less confident in their abilities. Thus, social support plays a crucial role in the psychological rehabilitation of women after mastectomy. Providing emotional support and assistance from family and friends can considerably improve women's psychological well-being, reduce anxiety, and increase their self-esteem, which contributes to their overall well-being (Spytska, 2023b; Efremov, 2025).

Psychological interventions are also a factor in improving the condition of women after mastectomy. Thus, Saki et al. (2022) showed considerable results on the impact of anger management training on improving self-esteem in women after mastectomy. The study involved 30 women with breast cancer after mastectomy who were randomly divided into experimental and control groups, 15 women in each group. The experimental group received anger management training using a cognitive behavioural approach, while the control group received no intervention. Participants answered the Rosenberg Self-Esteem Scale before and after the training. The results of the study showed that training in anger control skills had a significant positive impact on the self-esteem of women in the experimental group. A post-hoc analysis of covariance showed that there was a significant difference in self-esteem between the experimental and control groups.

The level of self-esteem in the experimental group increased significantly after the anger control training, while in the control group no changes in self-esteem were observed. The effectiveness of the training was measured using the Rosenberg Self-Esteem Scale, and the results showed that 64% of the change in self-esteem after the intervention was due to the impact of anger management training. This indicates the high effectiveness of the cognitive-behavioural approach in the context of psychological rehabilitation of women after mastectomy. Thus, the study confirmed that anger management training

can be an effective tool for improving self-esteem in women after mastectomy, which contributes to their overall mental health and well-being. Thus, mastectomy has a considerable impact on the mental state of women, often causing a decrease in self-esteem, depression, and anxiety. Physical changes after surgery can lead to a loss of femininity and sexual attractiveness, which is reinforced by cultural and societal norms. Breast absence is often accompanied by feelings of inferiority, shame, and isolation. Social support from family and friends plays a significant role in improving psychological well-being, reducing anxiety, and boosting self-esteem. Breast reconstruction helps to restore satisfaction with one's body, reducing depression and anxiety. Consultation with a plastic surgeon before surgery can improve the results of immediate reconstruction. Psychological interventions, such as anger management training, are also effective in improving self-esteem. Women who undergo breast reconstruction have better indicators of psychosocial well-being. Lack of social support has a negative impact on psychological well-being, increasing the risk of isolation and depression. Overall, psychological and social support are key factors in the rehabilitation of women after mastectomy.

Labour Adaptation and Working Capacity of Women after Mastectomy

The labour adaptation and working capacity of women after mastectomy are critical for their return to normal life and work. Recent studies highlight the main problems and ways to overcome them. The quality of life of women after mastectomy can be significantly reduced due to physical symptoms and psychological problems, which affects their overall performance and efficiency at work. After surgery, many women experience physical problems such as pain, limited arm mobility and general weakness. These physical limitations complicate the performance of everyday and professional duties, which leads to a decrease in performance. Apart from physical problems, women often experience psychological difficulties, such as depression, anxiety, and low self-esteem. The loss of a body part can negatively affect their perception of their attractiveness and femininity, which increases emotional stress. This psychological state can lead to

a decrease in motivation and productivity at work, as well as problems in social interaction. Social support and rehabilitation programmes can play a significant role in improving the quality of life of women after mastectomy. However, lack of proper support can worsen their condition and reduce their ability to adapt to new living and working conditions. All this together significantly affects the overall quality of life of women after mastectomy, reducing their ability to work and efficiency at work (Rowland et al., 2000).

Women who have undergone mastectomy often face considerable physical difficulties (Griban et al., 2020; Del Carpio-Delgado et al., 2023). The main problems include decreased mobility of the arm on the side of the operation and general physical weakness, which makes it difficult to perform professional duties, especially in jobs that require physical activity. Almost half of the women did not receive instructions on exercise after surgery. This indicates the need to improve rehabilitation programmes for patients after mastectomy. Employers are generally willing and able to adapt the workplace for employees returning to work after mastectomy when they are provided with specific information about their physical and functional limitations (Hinman, 2001). Women who have undergone mastectomy often perceive a decrease in their ability to work after returning to work (Bocheliuk et al., 2020). This problem is particularly acute for women who work in physically demanding conditions or have low levels of education and income. After mastectomy, many women find it difficult to perform their professional duties due to physical limitations, such as reduced mobility of the arm on the side of the operation and general physical weakness (Akhmetov & Zhamuldinov, 2025). Such physical difficulties lead to a decrease in their efficiency at work and frequent absenteeism. Furthermore, women with low levels of education and income have limited access to the resources and support they need to successfully rehabilitate and adapt to new working conditions. This makes it even more difficult for them to return to work and contributes to a sense of disability (Musti et al., 2018). Thus, mastectomy not only affects the physical condition of women, but also considerably affects their ability to work and

their overall quality of life.

Veiga (2019) examined the impact of various types of breast cancer surgery on women's ability to work and productivity. Specifically, the study compared women who underwent mastectomy or breast conservation with those who underwent breast reconstruction. The results showed that women who had undergone mastectomy had reduced work capacity and productivity compared to women who had undergone breast reconstruction. One of the key factors influencing these figures was the availability of radiotherapy. The study noted that women who received radiotherapy had a higher risk of capsular contracture, which led to an unsatisfactory aesthetic result after breast reconstruction.

This could have a negative impact on their performance and productivity. In the group of women who underwent breast reconstruction, the percentage of those who received radiotherapy was significantly lower (31.5%) compared to the groups with mastectomy (60.5%) and breast conservation (100%). Thus, the findings of the study highlight the significance of breast reconstruction in improving the performance and productivity of women after mastectomy and indicate the negative impact of radiotherapy on these indicators due to the aesthetic complications it can cause.

Zomkowski et al. (2020) investigated functional capabilities and factors related to work behaviour among women who have recovered from breast cancer. The study included 62 Brazilian women who had survived breast cancer. The study used a cross-sectional design and analysed various socio-demographic, workplace, and clinical aspects. The results of the study showed that 56.5% of women did not return to work after treatment. The main factors associated with a low probability of returning to work were modified radical mastectomy and moderate to severe upper limb disability. Women who underwent modified radical mastectomy were five times more likely to not return to work (odds ratio (OR)=5.13, 95% CI=1.35 to 18.66). Women with moderate to severe upper limb disability also had a higher probability of not returning to work (OR=6.77, 95% CI=1.86 to 24.92). Furthermore, the average time before returning to work was 16 months (± 15.21), and the average duration of absence from

work was 41 months (± 34.58). The study also showed that productivity losses were higher among informal workers (21.5%) ($p=0.04$). These findings highlight the significance of developing specific rehabilitation programmes for women after mastectomy aimed at reducing the level of upper limb disability and supporting their return to work. Rehabilitation programmes can include physiotherapy, occupational therapy, and psychological support to improve the physical and emotional state of patients, which will increase their ability to return to work.

Thus, the labour adaptation of women after mastectomy is an important aspect of their return to normal life and work. Recent studies have highlighted the significant physical and psychological challenges women face after surgery. Limited mobility of the arm, pain, and general weakness make it difficult to perform professional duties. Psychological difficulties, such as depression and low self-esteem, also affect women's performance and efficiency at work. Social support and rehabilitation programmes play a significant role in improving the quality of life of women after mastectomy. Research shows that employers are ready to adapt the workplace for such employees, but they need to be informed about their limitations. Women with low levels of education and income have limited access to rehabilitation

resources, making it difficult for them to return to work. The importance of breast reconstruction in improving performance has also been confirmed by studies that have shown that women who have undergone reconstruction have better outcomes. Special rehabilitation programmes can include physiotherapy, occupational therapy, and psychological support to improve the physical and emotional state of patients. The development and implementation of such programmes are key to supporting women in returning to work after mastectomy.

Workshops in Circles for People after Mastectomy: Concept and Testing of the Model

Workshops in mastectomy circles are an essential part of an innovative programme designed to support women who have undergone breast surgery. This concept was developed as part of the TransferHUB Social Innovation Incubator, organised by the Foundation for Social and Economic Initiatives and the Forum for Responsible Business. The programme was aimed at overcoming the labour market inequalities faced by women after mastectomy by providing them with comprehensive support in physical, emotional, social, and spiritual aspects. The project has concrete goals (Table 1). They are divided into short-term and long-term.

Table 1.

Goals of the Project to Overcome Labour Market Inequalities Faced by Women After Mastectomy

Project goals	Description
Short-term goals	
Personal empowerment of participants	Promotion of self-confidence and decision-making
Connection with the community after mastectomy	Creation of a supportive community for interaction and exchange of experience
Increase in chances of keeping and getting a job	Preparation for a successful return to the labour market by developing the necessary skills
Recognition of the strengths of the participants and identifying their professional interests	Assistance in identifying and using strengths for professional development
Improvement of psychological well-being	Provision of psychological support to reduce stress and improve emotional well-being
Boost of motivation to find a job	Motivation to actively seek employment or change career paths
Long-term goals	
Creation and implementation of friendly methods of working with people after mastectomy	Development and implementation of methods that accommodate the special needs of women after mastectomy
Raising visibility and awareness of the needs of people after mastectomy	Dissemination of information about the needs and problems of women after mastectomy among the public and professional circles
Raising employers' awareness of the needs of these people	Informing employers about the specific needs of women after mastectomy to create favourable working conditions

Source: Created by the author

The project is based on the concept of a holistic approach to rehabilitation, which includes physical, emotional, social, and spiritual components. This approach allows providing comprehensive support and recovery for women after mastectomy, focusing on restoring their self-esteem, professional, and personal development. The workshops include work in four principal areas. Firstly, the physical area. Rehabilitation after mastectomy includes breathing exercises, physiotherapy to reduce swelling and restore mobility. An essential component is yoga for cancer patients, which helps to restore contact with the body, relieve tension, and improve overall well-being. The rehabilitation process begins with breathing exercises, effective coughing and improving the functioning of venous and lymphatic pumps. It is recommended to keep the upper limb on the operated side elevated to reduce swelling, and to use compression sleeves or bandages. Self-massage and lymphatic drainage form an integral part of the therapy. Subsequently, exercises are introduced to restore tissue flexibility, range of motion and muscle strength in the chest, shoulder blade and upper extremities. Yoga classes are held with special attention to the chest and lymph node area, including breathing techniques and light exercises to relax and reconnect with the body.

Secondly, the emotional area. Support in this area is aimed at relieving stress, traumatic experiences, and building a positive self-perception. Mindfulness, relaxation, and bodywork techniques are used to remove emotional blocks. Participants are offered mindfulness techniques that help them better handle stress and emotions, as well as develop their inner observer. At the mindfulness workshops, participants are introduced to techniques that allow them to observe their thoughts and emotions, choose their reactions and change unhealthy beliefs. Relaxation exercises are also offered, including body scans and visualisations, which allow achieving deep relaxation and tranquillity. Bodywork techniques, such as Tension & Trauma Releasing Exercises (TRE), help relieve stress and traumatic experiences through bodily exercises. Thirdly, the spiritual/creative area. Art therapy and music therapy are used to express emotions, relieve stress, and improve psycho-emotional state. These

methods allow participants to experience deep relaxation and find inner harmony. Art therapy includes a variety of creative activities, such as painting, sculpture, dance and singing, which help to express inner emotions and experiences. Music therapy is carried out using therapeutic instruments such as Tibetan bowls, gongs, bells, koshi, and other ethnic instruments. Participants lie in a comfortable position, listen to relaxing music, and immerse themselves in sound vibrations, which promotes deep relaxation and restoration of inner harmony. Voice techniques, such as yoga nidra, are also used to help with positive visualisations and maintain a positive attitude.

Fourthly, the social (career) area. Career workshops and individual consultations with career coaches help participants identify their strengths, develop a professional development plan, and increase their confidence in the labour market. Career mentors conduct group and individual sessions that address beliefs about work, rational behaviour in the context of a career, principles of healthy thinking and methods of career development planning. The purpose of these sessions is to strengthen participants' self-esteem, identify their potential and help them plan their next steps in the labour market. Individual consultations allow tailoring support to the concrete needs of each participant, providing them with the necessary tools and resources to successfully integrate into the labour market.

A self-esteem survey conducted among participants in workshops for people after mastectomy using the Rosenberg methodology yielded impressive results. After receiving comprehensive support, the percentage of women who positively assess their level of self-esteem increased from 36.3% to 81.8%. The percentage of women who are aware of their positive character traits has also increased significantly, from 45.5% to 72.7%. The percentage of people who believe that they are not doing well in life has fallen from 27.3% to 0%. At the same time, the percentage of women who strongly agree with the statement that they can do things as well as most other people has increased from 36.4% to 45.5%.

In addition, the statistical indicators of the participants before the workshop, immediately after the workshop, and three months after the workshop were

examined in detail. Descriptive statistics were conducted and Shapiro-Wilk tests and univariate analysis of variance in the within-group design were applied. The classical significance threshold of $\alpha=0.05$ was used as the basis for determining the statistical

significance of the results. At the first stage, basic descriptive statistics for quantitative variables were calculated (Table 2). Shapiro-Wilk tests showed that all variables have distributions close to normal. In this regard, a one-way analysis of variance was conducted.

Table 2.

Goals of the Project to Overcome Labour Market Inequalities Faced by Women After Mastectomy

Variable	M	Me	SD	Sk	K	Min	Max	W	p
Measurements before the workshop	28.82	30	4.33	0.04	-1.72	23	35	0.91	0.23
Measurement immediately after the workshop	32.18	31	4	0.57	-1.07	27	39	0.91	0.227
Measurement 3 months after the workshop	34	34	3.89	0.13	-0.85	28	40	0.97	0.912

Notes. M – mean; Me – median; SD – standard deviation; Sk – skewness; K – Kurtosis; Min and Max – minimum and maximum values; W – result of the Shapiro-Wilk test; p – significance.

Source: Created by the author

The analysis of variance showed statistically significant results ($F(2.29)=4.39$; $p=0.022$; $\eta^2=0.22$), indicating a high strength of effect. A post-hoc analysis using the Sidak test showed that the level of self-esteem was higher three months after the seminar compared to the level before the seminar ($p=0.021$). The results immediately after the workshop were not statistically significantly different from the pre-workshop level ($p=0.178$) or three months after the workshop ($p=0.681$). The study showed that participation in the workshop had a positive impact on participants' self-esteem three months after the event. However, no significant changes in self-esteem were observed immediately after the workshop. These results highlight the significance of the long-term effect of training seminars and workshops on personal development. The percentage of women who believe that they have few reasons to be proud of themselves has fallen from 18.2% to 0%. At the same time, the percentage of women who say they definitely like themselves increased from 18.2% to 45.5%. 36.4% of participants strongly agree that they are satisfied with themselves, compared to 9.1% before the support. The percentage of women who sometimes feel unnecessary has decreased: 0% of participants strongly agree with this statement compared to 9.1% initially, and 45.5% agree compared to 54.5%. 27.3% of participants strongly disagreed with the statement that they sometimes feel like

they sucked, compared to 9.1% before the support started. As a result of the support, the percentage of people who rate their skills needed to compete in the labour market as fairly low or average fell from 45.5% to 27.3%.

On the other hand, the degree of very high self-esteem in the face of labour market competition increased by as much as 45%. The percentage of people who rate their motivation to find a job or change their professional life as medium or medium low decreased by 9.1%. At the same time, the number of people who declare high or very high motivation for change has increased significantly (by 36.4%, from 54.6% to 91%). The number of people who rate their physical condition as low or moderately low has also decreased (from 27.3% to 9.1%). On the other hand, the proportion of people who declare their physical condition as average, high or very high has increased significantly from 72.7% to 91%. Prior to the workshop, 18% of participants rated their level of self-kindness, letting go, and acceptance as low or medium. After the support was provided, all these people moved into the area of medium, high, or very high self-kindness. Thanks to the project, 54.5% of participants rate their level of friendliness highly. Workshops for people after mastectomy have proven to be effective in supporting women who have undergone breast surgery. A holistic approach that encompasses physical, emotional, social, and spiritual

aspects contributes to a considerable improvement in self-esteem, stress reduction, and increased motivation to find a job. Statistical analysis confirmed the long-term positive impact of the workshops on the participants, particularly three months after they were completed. It is recommended to implement such rehabilitation programmes in medical and social institutions to support women after mastectomy. It is important to continue to provide comprehensive support, including physical rehabilitation, emotional and psychological care, and career counselling. To achieve maximum impact, access to individual counselling should be ensured and programmes should be tailored to the concrete needs of each participant. Furthermore, employers should continue to raise awareness of the needs of women after mastectomy to create favourable working conditions. Overall, such programmes contribute to improving the quality of life of women and their successful integration into society and the labour market.

Discussion

The findings of the study highlight the significance of long-term support for women after mastectomy. Thanks to the programme, the participants feel an improvement in their emotional and physical state, as well as an increase in self-esteem and motivation. The project also contributed to an increase in the number of women who declare themselves highly motivated to make changes in their professional lives. Through a comprehensive approach, the project helps women after mastectomy regain their strength and self-confidence, as well as successfully integrate into the labour market. A self-esteem survey conducted among participants in workshops for people after mastectomy yielded substantial results. After receiving comprehensive support, the percentage of women who positively assess their level of self-esteem increased from 36.3% to 81.8%.

According to Liu et al. (2024), perceived social support acted as a mediating factor in the effects of the Managing Cancer and Living Meaningfully (CALM) intervention on women's psychological resilience and quality of life following breast cancer surgery. In comparison to the control group, the results show that the intervention significantly improves psychological

resilience ($F=9.059$, $p<0.01$), and a partial mediator between resilience and quality of life was found to be enhanced social support. These results are consistent with the ongoing research on mastectomy-related self-esteem and labor adaptability, which also highlights the critical role that social support plays in psychological rehabilitation following surgery. The consistent data emphasizes the need of including social support systems into recovery programs for breast cancer patients, supporting all-encompassing, multifaceted rehabilitation strategies to improve post-mastectomy patients' quality of life.

This is also confirmed by Janowski et al. (2020), who found that social support significantly reduces the level of depressive symptoms and improves the overall psychological state of women after mastectomy. The results showed that women who reported higher levels of perceived social support had statistically significantly lower levels of depressive symptoms, higher ratings of their illness in terms of challenge and value, and lower ratings in terms of obstacles/losses. Women with higher levels of social support also showed higher levels of acceptance of living with the disease compared to those with less support.

The regression analysis showed that spiritual support was the type of support that substantially influenced most of the functioning indices. Some functioning indices were also substantially dependent on emotional and instrumental support. Thus, social support, including spiritual support, is a significant factor in psychological adaptation to a serious illness such as breast cancer. Another study by Nurhidayati et al. (2023) noted that strong family support is positively correlated with higher self-esteem and better psychological outcomes in patients after mastectomy. This support plays an essential role in their recovery and adaptation.

A significant correlation was found between family support and patients' self-esteem ($p=0.001$, $r=0.57$). This indicates that the more support a patient receives, the higher her self-esteem and better her psychological well-being. A study by Gooda et al. (2023) examined the impact of self-care programmes on women after mastectomy. The purpose of the study was to increase self-esteem and improve women's self-support practices. The programme included training

women in effective methods of self-care and psychological support. The results showed that after taking part in the programme, women's self-esteem improved considerably, as well as their satisfaction with their physical and emotional state. This confirms the effectiveness of self-support programmes in improving the self-esteem of women after mastectomy.

As a result of the workshops conducted within the framework of this study, women felt a decrease in their sense of uselessness. The percentage of women who sometimes feel unwanted has dropped to 0% compared to the initial 9.1%. Thus, Urio et al. (2019) found that support from family, friends, and faith substantially helps women handle psychological difficulties after mastectomy. It was found that women who had dedicated support had significantly lower levels of depression and anxiety, as well as better psychological adaptation to their condition. The results of the study showed that women who had dedicated support from their loved ones had significantly lower levels of depression and anxiety. Specifically, women who received family support felt less lonely and more confident in their condition.

Another study conducted by Olasehinde et al. (2019) examined the experiences of young women in Nigeria after mastectomy, namely the impact of family, friends, and faith support on their psychological adjustment. The study showed that women who had strong social support significantly improved their psychological adaptation, reduced anxiety and depression, and increased their motivation to make changes in their lives. One of the key findings of the study was that the percentage of women declaring high or very high motivation to make changes in their professional lives increased from 54.6% to 91% after taking part in support programmes. This confirms that social support is critical for the psychological well-being of women after mastectomy.

There was also an improvement in physical condition. The proportion of people who declare their physical condition as average, high, or very high increased from 72.7% to 91%. A study conducted by Odinets et al. (2019) evaluated the effectiveness of individual physical rehabilitation programmes to improve respiratory function in women with postmastectomy syndrome.

The randomised controlled trial involved 50 women who had undergone mastectomy. All participants were divided into two groups: the experimental group, which practised water aerobics, conditional swimming and recreational aerobics, and the control group, which practised only conditional swimming and Pilates. Both groups attended individual physical rehabilitation programmes three times a week for 48 weeks.

The primary outcome measure was spirometry performed before the study, 6 months, and 12 months after the intervention. The results of the study showed that most parameters of respiratory function improved significantly in both groups during the year of training. The physical rehabilitation programme for the experimental group was significantly more effective ($p < 0.01$) compared to the control group, except for the reserve inspiratory volume and maximum ventilation, which had no statistically significant differences. This study showed that individualised physical rehabilitation programmes can be effective in improving respiratory function in patients with post-mastectomy syndrome. These results can serve as a basis for the wider development of clinical rehabilitation programmes. Women also experienced an improvement in their competitiveness in the labour market. The percentage of women who rate their skills to compete in the labour market at a fairly low or average level fell from 45.5% to 27.3%.

Salime and Srour (2022) evaluated the impact of a structured training programme on the health needs and practices of women after mastectomy. The programme consisted of several components, including educational seminars, physical rehabilitation, psychological support, and professional counselling. Women who took part in the programme reported significant improvements in their skills and confidence in the labour market. The programme included individual consultations with professional coaches, group sessions on developing self-management skills, and job search training.

Studies show that participation in psychoeducational programmes considerably improves self-esteem and psychological adaptation of women after mastectomy. Women who took part in such programmes showed significant improvements in body image and reduced anxiety about their

appearance. Social support, including emotional and spiritual support, also plays a critical role in psychological adaptation to breast cancer. Women with higher levels of social support had lower levels of depression and anxiety and felt more peaceful and optimistic about their future. Individual physical rehabilitation programmes have been shown to be effective in improving the function of the respiratory system in women with post-mastectomy syndrome. Such programmes also help to boost self-esteem and improve physical condition, which helps women feel more competitive in the labour market. Women who took part in structured training programmes reported significant improvements in their skills and self-confidence. Thus, comprehensive support programmes are important for the psychological and physical recovery of women after mastectomy. They help women handle negative emotions, encourage active life changes, and improve their overall psychological and emotional well-being.

Conclusion

Mastectomy has a significant impact on the mental and physical state of women, reducing their quality of life. Physical problems, such as pain and limited mobility, make it difficult to perform professional duties, and psychological difficulties, including depression and anxiety, reduce motivation and productivity. Social support and rehabilitation programmes are critical for improving psychological well-being and physical rehabilitation, which facilitates return to work. Women who undergo breast reconstruction have better indicators of psychosocial well-being and ability to work. The lack of proper support and rehabilitation negatively affects women's ability to adapt to new living and working conditions. The significance of specialised rehabilitation programmes to reduce upper limb disability and provide psychological support is clear. Overall, a comprehensive approach to rehabilitation is key to restoring performance and improving the quality of life of women after mastectomy.

Mastectomy has a significant impact on women's ability to work, making it difficult for them to return to normal life and work due to physical and psychological problems. Women face pain, limited arm

mobility, and general weakness, which reduces their effectiveness at work. Psychological difficulties, such as depression and anxiety, impair their motivation and productivity. Social support and rehabilitation programmes are critical to improving the quality of life and ability to work for women after mastectomy. The lack of proper support makes it difficult to adapt to new living and working conditions. Studies show that breast reconstruction improves performance and productivity compared to mastectomy without reconstruction. Radiotherapy can adversely affect the results of reconstruction due to aesthetic complications, which reduces the ability to work. Specific rehabilitation programmes, including physiotherapy, occupational therapy, and psychological support, are necessary to reduce the level of upper limb disability and support return to work. Women with low levels of education and income need additional resources and support for successful rehabilitation. Workshops in mastectomy groups are an important part of an innovative programme aimed at supporting women who have undergone breast surgery. They help women to overcome physical and psychological problems, increase their self-esteem and facilitate their return to active life and work. The programme includes comprehensive rehabilitation, covering physical, emotional, social, and spiritual components. Physical rehabilitation includes breathing exercises, physiotherapy, and yoga to help reduce swelling and restore mobility. Emotional support is aimed at relieving stress and traumatic experiences using mindfulness and relaxation techniques.

Spiritual and creative areas include art therapy and music therapy, which promote emotional recovery. Social support includes career workshops that help women identify their strengths and increase their confidence in the labour market. Studies have shown that after taking part in the programme, the percentage of women who rate their self-esteem positively increased from 36.3% to 81.8%. They also improved their physical condition, motivation to find work, and overall quality of life. The participants of the workshops reported a decrease in the feeling of uselessness and increased confidence in their professional skills. Positive changes persisted even three months after the programme was completed, which indicates

its long-term effect. The introduction of such comprehensive programmes is an essential step in supporting women after mastectomy and their successful integration into society. The limitation of the study is the small sample of participants, which may affect the overall representativeness of the results. However, prospects for further research may include expanding the sample and conducting long-term studies of the impact of rehabilitation programmes.

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