

Pedagogy for Teaching Mathematics to Refugee Students: A Sociocultural Learning Approach

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ABSTRACT

This paper engages in a literature review of pedagogy for teaching refugee mathematics. The paper reviewed includes the pedagogy and refugee students, the difficulty of refugee students, the methodology used to teach mathematics to refugee students, the conceptualization of the cognitive background of refugee students, and the differences in language and cultural barriers were also discussed. The paper underpins sociocultural learning theory, which has profoundly impacted educational psychology and pedagogy. The findings revealed that the understanding of the sociocultural learning approach can enhance the effective use of different pedagogies to teach mathematics to refugee students. The paper concluded that by integrating different elements into their teaching practices, educators can create a more effective and supportive learning environment for refugee students, helping them to succeed in mathematics and beyond.

KEYWORDS

Pedagogy; refugee students; mathematics teaching

INTRODUCTION

The teaching of mathematics is considered crucial for several reasons, and its importance extends beyond academic settings. Mathematics is used daily for budgeting, cooking, measuring, and understanding probabilities. It equips individuals with practical skills for navigating the world (Moschkovich, et al., 2018). Mathematics provides the language and tools for understanding and expressing ideas in this discipline. Mathematics promotes analytical thinking, helping individuals break down complex problems into manageable components (Bhagwonparsadh & Pule, 2024). This skill is valuable in various aspects of life, including decision-making and analysis. Many professions and industries value individuals with strong mathematical skills. Careers in fields like finance, data science, engineering, computer programming, and more often require a solid foundation in mathematics (Lussenhop & Kaiser, 2019). Mathematics, being a foundation for various fields such as physics, engineering, computer science, economics and more, requires s' logical reasoning and problem-solving skills. Mathematics is a fundamental component of science, technology, engineering, and mathematics (STEM) education. Thus, in this era of rapid technological advancements where STEM fields are becoming increasingly important, the teaching and learning of Mathematics becomes more important (Gqoli, 2024; Tsakeni et al., 2023). The learning of Mathematics requires students to analyse situations, identify patterns and develop systematic approaches to find solutions.

In a globalized world, countries recognize the importance of producing a workforce with strong mathematical skills to remain competitive in the global economy. Mathematics has a rich history and has been a part of various cultures throughout the ages. Learning about mathematical achievements contributes to cultural literacy (Ragnarsdóttir, et al., 2017). For those pursuing higher education, especially in STEM fields, a strong foundation in mathematics is often a prerequisite for success in more advanced coursework. Ensuring that all students have access to quality mathematics education is seen as a means of promoting educational equity and reducing disparities in academic achievement. The teaching of mathematics is not only about learning specific mathematical concepts but also about developing critical thinking skills, problem-solving abilities, and a foundation for success in various academic and professional pursuits. It is considered an essential component of a well-rounded education that prepares individuals for the challenges and opportunities of the modern world (Moschkovich, et al., 2018).

Providing sufficient support and instruction to refugee pupils who have inadequate German language proficiency is a significant concern for the German education system. Children and young adults who are refugees are seen to be a vulnerable population with a wide variety of special needs. International Preparatory Classes (IPCs) are classes attended by immigrant and refugee kids in Hamburg (Moschkovich et al., 2018). They get ready for entrance into regular German lessons through IPCs. Very little study has been done yet on how maths teachers interact with pupils in these specific IPCs. Additionally, not much is known about how they

create lessons when faced with variability in language, culture, and performance (Benholz, Magnus & Niederhaus, 2016).

Encouraging the general and mathematical development of refugee students is essential to their ability to participate in society and make a positive contribution to society at large (Corbin & Strauss, 2015). This study presents two case studies from two distinct maths classes (Cornely-Harboe et al., 2016). Exchanging ideas and best practice examples is crucial for the international community to improve the education of refugees in the EU and around the world (Barwell et al., 2016).

Likewise, in Syria, since children have been disproportionately impacted by Syrian migration policy, education is the most important area of focus for assisting the integration of young Syrian refugees. However, in contrast to what happened to refugees in Germany, children of refugees in Syria are denied the opportunity to attend school are more vulnerable to abuse and neglect, exhibit more symptoms of post-traumatic stress disorder, and do not reach their full potential in terms of both physical and psychological development (Erdem, 2017; Chwastek, et al., 2021). Unable to attend school, refugee children end themselves in child work and early marriage. A lack of quality mathematics teaching as an educational option can lead to young people being drawn into radical organisations (İnci-Kuzu & Aljadaan, 2021).

Ensuring refugee children have access to quality teaching of mathematics education and removing obstacles that impede their educational journey are imperative. Access to quality teaching and pedagogies for mathematics is believed to be crucial for helping refugee children reintegrate into society because mathematics is a living and dynamic subject that affects one's daily life. The challenges faced by refugee students during the teaching of mathematics especially cultural barriers and obstacles to education faced by Syrian youngsters and the suggestions made by their teachers (İnci-Kuzu & Aljadaan, 2021). Other challenges include financial issues, issues with access and participation in education, issues with teachers, language barriers, lack of coordination, issues with mathematics curriculum and teaching materials, issues with physical infrastructure, poverty, issues with social acceptance, and adaptation issues are all listed by Gencer (2017) as concerns about the education of refugee students.

With the anticipation that Syrians will return to their country soon, Turkey created its first education plans for Syrian children of school age in 2012. The first step in this direction was the establishment of makeshift educational facilities in the camps housing Syrian refugees. The Syrian civil conflict has intensified during this period, and more people are fleeing to Turkey as refugees. For the first time, in 2013, the Ministry of National Education began looking for institutional alternatives for Syrian children's education (İnci-Kuzu & Aljadathisan, 2021). The education rights of Syrian refugee students were secured up to a particular standard with the circular numbered 2014/21. According to the circular, the temporary education centres' goals are to guarantee that war victims may finish their education and to avoid wasting time whether they decide to continue their studies in Turkey or return to Syria. Furthermore, it has been announced that the ministry will develop weekly lesson plans and curricula to guarantee

consistency in these educational endeavours that accommodate the sociocultural background of the refugees (Coşkun & Emin, 2016; İnci-Kuzu & Aljadaan, 2021).

There are many barriers facing the teaching of refugees. The prominent among these barriers to the teaching of mathematics is Language barriers especially in countries like Germany, Sweden, Syria, and Finland to mention but a few (Bohnacker, et al., 2021). This paper examines the use of sociocultural learning theory to mitigate some of the aforementioned challenges.

Objective of the paper

The objective of this paper is to examine how teachers use the right pedagogy to solve the language barrier during the teaching of mathematics to refugees using the sociocultural approach to learning.

METHOD

This paper employs desktop research to discuss some thematic issues that concern the pedagogy for teaching mathematics to refugee students using sociocultural learning theory, the focus is on some selected European countries like Turkey, Syria, Germany etc. where the literature has revealed the difficulties encountered by the refugee students. Data are obtained from the literature and surveys that have already been carried out.

Theoretical Framework: Sociocultural Learning Theory

The theory suitable for this paper is sociocultural learning theory by Vygotsky. Sociocultural Learning Theory, associated primarily with the work of Russian psychologist Lev Vygotsky, emphasizes the role of social interaction, cultural tools, and the broader social context in the development of cognition. Vygotsky's theory, also known as sociocultural theory or socio-historical theory, has had a profound impact on educational psychology and pedagogy. Here are key concepts associated with the Sociocultural Learning Theory. Vygotsky 1962 cited in Adu & Olowu (2022) defined scaffolding as the support provided by a more knowledgeable person to help a learner advance within their ZPD. A teacher might provide hints, ask leading questions, or offer guidance to help a student solve a problem.

Cultural tools, such as language, symbols, and technologies, play a crucial role in cognitive development. These tools are acquired through social interactions and become integral to thinking processes. Writing systems, mathematical notations, and technological devices are cultural tools that shape cognitive processes. Vygotsky emphasized the importance of considering the cultural and historical context in understanding cognitive development. Cultural practices and traditions influence the ways individuals think and learn. Educational practices, societal norms, and historical events shape the cognitive tools available to learners (Vygotsky, 1978; Adu & Olowu, 2022).

Vygotsky argued that language is not just a communication tool but a cognitive tool that plays a fundamental role in shaping thought. Young children often use private speech (talking to themselves) to internalize and regulate their thinking. He also emphasized the significance of

social interaction in learning. Collaborative activities and group work are seen as opportunities for learners to engage in dialogue, share perspectives, and co-construct knowledge. Knowledge is transmitted and constructed through social interactions within a cultural context. Cultural mediation refers to the role of cultural tools and symbols in mediating thought processes. These tools help individuals navigate and make sense of their environment. Using a map to navigate a new city is an example of cultural mediation (Vygotsky, 1978; Adu & Olowu, 2022).

Vygotsky recognized the importance of play in cognitive development. Play allows children to experiment with different roles, rules, and scenarios, contributing to the development of higher mental functions. His ideas align with the concept of a community of practice, where individuals engage in shared activities, discussions, and learning experiences. A classroom can be viewed as a community of practice where students collaboratively engage in learning tasks. Vygotsky's ideas have influenced dynamic assessment approaches, which assess a learner's ability to learn with assistance. Instead of static tests, dynamic assessments involve interactive tasks that reveal a learner's potential for development with support (Vygotsky, 1962; Adu & Olowu, 2022).

Sociocultural learning theory has implications for education. It suggests that collaborative and interactive learning environments, supported by skilled educators, can enhance cognitive development. It emphasizes the importance of considering cultural and social factors in educational practices and understanding that learning is a socially mediated process.

The difficulty of refugee students

According to Polat (2023), refugee students often face numerous challenges that can significantly impact their educational experiences and outcomes. These challenges stem from the circumstances of forced migration, which may include fleeing conflict, persecution, or other humanitarian crises. Here are some key aspects of the plight of refugee students. Many refugees have experienced trauma, including witnessing violence, loss of family members, and disruptions to their education. Forced migration often leads to significant disruptions in education. Refugee students may have missed years of schooling, leading to gaps in their academic knowledge and skills. In some cases, refugees may face barriers to accessing education in host countries due to language barriers, lack of documentation, or discriminatory policies (Polat, 2023).

Many refugee students may arrive in host countries with limited proficiency in the language of instruction. This can impede their ability to fully participate and succeed in the educational system. Refugee students may experience challenges in adapting to a new cultural and educational environment. This includes differences in teaching styles, classroom norms, and cultural expectations. The experiences of displacement and trauma can contribute to mental health challenges among refugee students. Schools may need to provide support services and resources to address these needs. Refugee students may face discrimination, bullying, or social isolation due to their status as newcomers. This can negatively impact their sense of belonging and well-being. Schools that enrol a significant number of refugee students may face resource

challenges. Limited resources can affect the quality of education and support services available to these students. Some refugee students may lack proper documentation, which can create barriers to enrolment in schools. Legal issues related to residency and refugee status can complicate their access to education (Polat, 2023).

Refugee families often face economic challenges, and children may be compelled to contribute to household income instead of attending school. Some refugee students may have experienced family separation, impacting their emotional well-being and stability. Refugee students may face challenges in accessing higher education due to limited resources, lack of recognition of foreign qualifications, and legal restrictions. Schools and communities may lack the necessary support structures, such as counselling services and language assistance, to address the specific needs of refugee students (İnci-Kuzu & Aljadaan, 2021).

Addressing the challenges of refugee students requires a comprehensive and collaborative approach involving educators, policymakers, communities, and international organizations. This includes providing language support, mental health services, cultural sensitivity training, and policies that promote inclusivity and equal educational opportunities for all students, regardless of their refugee status (Coşkun & Emin, 2016).

Pedagogy and Implication on Refugee Students

According to Lussenhop and Kaiser (2019), teaching refugee students involves recognising and addressing unique challenges they may face due to their migration experiences, trauma, language barriers, and educational disruptions. Pedagogy for refugee students should be sensitive to their needs and create an inclusive and supportive learning environment. Here are some considerations for effective pedagogy with refugee students:

- Teachers should be aware of refugee students' diverse cultural backgrounds. Acknowledging and respecting cultural differences fosters a more inclusive and supportive learning environment.
- Many refugee students may have experienced trauma, including war, displacement, and loss. Teachers should be trained in trauma-informed teaching practices to create a safe and supportive space for learning.
- Many refugee students in the selected European countries are English language learners (ELL). Schools should have effective ELL programs that provide language support and facilitate their integration into mainstream education. Such need is even observable in locales where diversity in students' linguistic skills also poses problems for citizens (Zorba & Arikan, 2019).
- Refugee students may have varied learning styles and educational backgrounds. Teachers should use differentiated instruction to accommodate diverse learning needs and levels of academic preparedness.

- Building relationships with refugee families and involving them in the educational process can be crucial. This includes understanding the cultural importance of parental involvement and communication strategies that are culturally sensitive.
- The curriculum should include content that reflects the cultural diversity of the student body. This can enhance engagement and make learning more relevant.
- Implementing buddy systems or mentorship programs can help integrate refugee students into the school community. Peer support can be especially beneficial for social and emotional adjustment.
- Consideration should be given to alternative assessment strategies beyond traditional testing methods. Performance assessments, projects, and other techniques can better capture the skills and knowledge of refugee students.
- Incorporating social and emotional learning programs helps address the emotional well-being of refugee students, supporting their social integration and mental health.
- Teachers should undergo cultural competency training to understand better and meet refugee students' needs. This includes awareness of cultural norms, communication styles, and potential trauma triggers (Liu & Takeuchi, 2023).
- Schools should provide access to counselling services and support staff trained to assist refugee students with their unique needs.

The teachers can advocate for inclusive school policies that support the needs of refugee students, including language support, anti-bullying measures, and cultural competency training for all staff. Effective pedagogy for refugee students involves a holistic and culturally sensitive approach that recognizes their unique challenges and strengths. It requires collaboration between educators, families, and the broader community to create an environment where refugee students can thrive academically and socially (Lussenhop & Kaiser, 2019).

Thematic/Pedagogical Issues in Teaching Mathematics to Refugee Students

The planning of Mathematics lessons for refugee students

Designing mathematics lessons for refugee students involves considering their unique needs, backgrounds, and potential challenges related to forced migration. The goal is to create a supportive and inclusive learning environment that considers language proficiency, cultural differences, and potential gaps in prior education (Wiseman & Galegher, 2019).

Some strategies for designing mathematics lessons for refugee students begin by assessing the students' prior mathematical knowledge and skills. Another is to recognize that there may be gaps due to disruptions in their education and develop a curriculum that is culturally responsive and inclusive, incorporating examples, problems, and applications that reflect the diverse backgrounds of refugee students. Another strategy is to recognize the language barriers by providing language support. This may include bilingual instructional materials, visual aids, and language support services to help students understand mathematical concepts.

The use of visual aids, manipulatives, and concrete representations to make abstract mathematical concepts more tangible. This is especially helpful for students with limited language proficiency and to implement differentiated instruction to cater to the diverse learning needs of refugee students. Provide varying levels of complexity for tasks and assignments to accommodate different proficiency levels. The strategy encourages collaborative learning experiences. Group work and peer collaboration can foster a supportive classroom environment and help students learn from each other (Polat, 2023).

Incorporating real-world applications of mathematical concepts relevant to refugee students' experiences can enhance engagement and demonstrate the practical value of mathematics through contextualised lessons by relating mathematical concepts to the student's daily lives and experiences. This can make the material more meaningful and relatable. The awareness of potential trauma experiences and adopt trauma-informed teaching practices is another strategy that can also create a safe and supportive classroom environment that promotes emotional well-being (Wiseman & Galegher, 2019).

In planning mathematics for refugee students, there is a need for the use of a variety of assessment strategies that go beyond traditional tests. Performance assessments, projects, and presentations allow students to demonstrate their understanding differently. The utilization of technology, such as educational apps and interactive simulations, to enhance the learning experience. Technology can provide additional support and engage students in meaningful ways. In addition, parents and the community can be involved in the educational process. Engage families to understand their unique needs and cultural expectations and consider ways to incorporate their perspectives into the curriculum (Wiseman & Galegher, 2019).

The role of teachers in planning mathematics for refugees cannot be over-emphasized teachers should involve themselves in professional development opportunities that focus on cultural competency, trauma-informed teaching, and strategies for working with diverse student populations. Teachers should be flexible and adaptable in lesson planning. They should recognize that refugee students may have unique circumstances, and adjustments may be needed to accommodate their needs. Advocating for inclusive school policies that support the diverse needs of refugee students including language support programs, counselling services, and policies that address potential discrimination or bullying should be part of the planning for mathematics for the refugees. Another strategy is the integration of language development with mathematics instruction. Assignments and activities that involve both language and mathematics can help reinforce understanding and language acquisition simultaneously (Wiseman & Galegher, 2019).

Methodologies used to teach refugee Students Mathematics

According to Lussenhop and Kaizer (2019), teaching mathematics to refugee students requires thoughtful consideration of their unique needs, including language barriers, potential educational disruptions, and cultural differences. Methodologies and strategies for teaching mathematics to refugee students are very effective. Some of these methodologies include the

conduct of diagnostic assessments to understand each student's prior knowledge and skills in mathematics. Recognize potential gaps due to educational disruptions and tailor instruction accordingly. Also, the development of an inclusive curriculum that reflects the student population's cultural diversity. Use examples and problems that resonate with the students' cultural backgrounds (Lussenhop & Kaizer, 2019).

The provision of bilingual instructional materials to support students with limited proficiency in the language of instruction. This can include mathematics problems in their native language alongside the target language (Lussenhop & Kaizer, 2019). The use of visual aids, diagrams, and mathematical symbols enhances understanding, especially for students with language barriers and the integration of real-world applications of mathematical concepts that relate to the student's daily lives and experiences. This can make the material more meaningful and relevant (Lussenhop & Kaizer, 2019).

Another pertinent methodology is the implementation of differentiated instruction to accommodate diverse learning needs. Provide varying levels of complexity for tasks and assignments to address different proficiency levels. Similarly, the encouragement of peer collaboration and group work. Collaborative learning experiences can provide support, foster a sense of community, and allow students to learn from each other by using scaffolding techniques to provide structured support that can be gradually removed as students gain proficiency. This helps them move toward independent problem-solving (Polat, 2023).

Lussenhop and Kaizer (2019) consider cultural tools and artifacts that may act as mediators for learning. Incorporate elements from students' cultural backgrounds to facilitate understanding and Integrate technology, such as interactive simulations, to enhance the learning experience. Digital resources can provide additional support and engage students in different ways. The use of storytelling and narratives to explain mathematical concepts (Adu et al., 2022). Connecting mathematics to stories can make the content more engaging and memorable. By combining these methodologies and being responsive to the specific needs of refugee students, educators can create an inclusive and supportive learning environment for mathematics education. Individualized attention, cultural sensitivity, and a focus on building a sense of community are essential components of effective teaching strategies for refugee students in mathematics (Polat, 2023).

Understanding the Cognitive Background of Refugee Students

Refugee students often come from diverse backgrounds, and their cognitive experiences can be influenced by a variety of factors related to their forced migration. Understanding the cognitive background of refugee students involves considering their prior educational experiences, the impact of trauma, language proficiency, and potential gaps in learning. Many refugee students have experienced disruptions in their education due to conflict, persecution, or displacement. This can result in significant gaps in their academic knowledge and skills. Exposure to war, violence, or displacement can lead to trauma. The psychological impact of traumatic

experiences can affect cognitive functions, including attention, memory, and executive functions (Kaplan et al., 2015).

Refugee students often face language challenges, particularly if they are learning in a language that is not their native tongue. Limited language proficiency can impact their ability to comprehend instructions, participate in class discussions, and express themselves. Adjusting to a new cultural and educational environment can be a cognitive challenge. Differences in teaching styles, educational norms, and cultural expectations may require adaptation. In addition, the quality of education and prior learning experiences in the students' home countries may vary. Some may have received a formal education, while others may have limited access to educational resources (Yeter, et al., 2024).

Despite challenges, many refugee students demonstrate cognitive resilience. They may possess problem-solving skills, adaptability, and a strong desire to learn. Refugee students may come from multilingual backgrounds, speaking multiple languages or dialects. This diversity can be an asset but may also pose challenges in terms of language acquisition and academic language proficiency. The cognitive background of refugee students is shaped by the diversity of educational systems in their home countries. Different curricula, teaching methods, and assessment practices contribute to their varied cognitive experiences (Kaplan et al., 2015).

Educational gaps may exist in areas such as mathematics, literacy, and other foundational skills. Teachers need to be aware of these gaps and provide appropriate support to fill them. Refugee students may have different learning styles and preferences based on their cultural and educational backgrounds. Recognizing and accommodating these preferences can enhance their learning experiences. Refugee students may have developed various coping mechanisms to deal with stress and challenges. Teachers should be sensitive to these mechanisms and create a supportive environment that fosters positive coping strategies (Kaplan et al., 2015).

Recognizing the individual differences among refugee students can lead to the understanding of the cognitive background of the refugees. Each student will have a unique cognitive background shaped by personal experiences, family dynamics, and educational histories. The cognitive background is closely linked to the social and emotional well-being of refugee students. Addressing their emotional needs is essential for creating an environment conducive to learning. Identifying and leveraging the cognitive strengths and assets that refugee students bring to the learning environment could promote problem-solving skills, creativity, and resilience. In other words, adopting trauma-informed teaching practices that take into account the potential impact of trauma on cognitive functioning. Create a safe and supportive space for learning (Ainamani, et al., 2017)

Lastly, Understanding the cognitive background of refugee students requires a holistic approach that considers their educational histories, cultural contexts, and individual strengths and challenges. Students always learn in different styles (Adu & Duku, 2021). By recognizing the diversity within this student population, educators can implement effective teaching strategies that cater to their unique cognitive needs. Educational systems need significant resources to

address and resolve the unique needs of refugee and asylum-seeking youth. For example, refugee and asylum-seeking youth are often trauma victims, both physically and psychologically. Educational systems need significant resources to address and resolve the unique needs of refugee and asylum-seeking youth. According to Wiseman and Galegher (2019), education systems need significant resources to resolve and address the unique needs of refugee and asylum-seeking youth. Physically and psychologically, refugee youths are trauma victims, these affect their cognitive background. Hence, there is a need for human resources like counsellors, social workers, and medical personnel for different therapies to assist the victims.

Addressing Language Barriers and Cultural Differences of the Refugee Students

Addressing language barriers and cultural differences, especially in some selected countries in Europe is essential for creating an inclusive and supportive learning environment for refugee students. There are some strategies that educators can implement to address these challenges, such as providing bilingual instructional materials to support students with limited proficiency in the language of instruction. This can include textbooks, worksheets, and other learning resources in both the student's native language and the language of instruction. Implement language support programs, such as English as a Second Language (ESL) or English Language Learner (ELL) programs. These programs can provide targeted language instruction to help students develop proficiency (Babane, 2020).

Another strategy to combat the challenges of language barriers and cultural differences is to offer cultural competency training for teachers and school staff. This training can enhance educators' understanding of diverse cultural backgrounds, communication styles, and potential challenges refugee students face. Also, fostering open communication between teachers, students, and parents encourages dialogue considering different cultural perspectives and communication norms. Developing an inclusive curriculum that reflects the cultural diversity of the student population. Incorporate examples, literature, and content that relate to the students' cultural backgrounds (Babane, 2020).

Integrating cultural awareness activities into the curriculum could include celebrating holidays, sharing stories, and exploring cultural traditions. Furthermore, implementing buddy systems or peer mentoring programs, such as pairing refugee students with peers who can provide support in language acquisition and cultural adaptation, would foster a sense of belonging. Encouraging collaborative group work that allows students to share their perspectives and learn from one another will promote social integration and the exchange of cultural knowledge (Adu & Duku, 2021).

The employment of multilingual support staff, including teachers, aides, or interpreters who can assist with communication and language support and the provision of resources such as translation services or multilingual handouts to ensure that important information is accessible to students and their families. Alternative assessment strategies that consider language proficiency and cultural differences can also address the challenges. Performance assessments, projects, and presentations may allow students to demonstrate understanding in

ways beyond traditional exams. The training of teachers to act as cultural mediators in helping students bridge cultural differences and navigate the educational environment and the organization of cultural exchange activities where students can share aspects of their culture with their peers can solve the challenges and promote mutual understanding and appreciation. According to Babane (2020), results showed that low language competency results in a wide range of negative feelings among immigrant learners. The study also demonstrated how language obstacles cause poor social connections between foreign and native learners. Focus group interviews with immigrant learners found that their incapacity to speak English and other South African languages fluently causes them to feel anxious, traumatized, frustrated, and low self-esteem.

Incorporate trauma-informed teaching practices. Understand the potential impact of trauma on students' learning and well-being and create a safe and supportive environment. A study by Makwarela, Mammen, and Adu (2015) wrote that the media has reported and shown a rise in shootings, victimisation, bullying violence, sexual harassment, stabbings, rapes, and robberies in South African schools environment. The provision of access to counselling services or social workers who are trained to address the emotional and psychological needs of students who may have experienced trauma should be given priority (Makwarela, et al., 2015)

Actively involve parents and families in the educational process. Create opportunities for parents to engage with teachers, share insights into their cultural practices, and participate in school activities. According to Adams and Hannum (2016), efforts should be made to reduce insecurity in the school environment by implementing clear school policies, encouraging the reporting of incidents, and providing support to victims. Focusing on changing school practices is essential to create a safer learning environment for all students. Refugee families must be connected with community resources that can provide additional language and cultural support. This may include local cultural organizations, language classes, or community centres.

To address language barriers and cultural difficulties, there is a need for flexibility in instructional approaches and expectations. Recognize that students may need additional time to acclimate and provide ongoing support as needed. Demonstrate patience and understanding. Building trust and rapport with students is crucial, especially as they navigate language and cultural adjustment (Alrawashdeh, & Kunt, 2022).

CONCLUSION

Pedagogy for teaching mathematics to refugee students involves specialized instructional strategies and practices designed to address the unique needs and challenges faced by refugee students. This pedagogy aims to create an inclusive, supportive, and effective learning environment that helps these students overcome barriers to learning mathematics. Each refugee student is an individual with unique strengths and challenges. Regular communication with students, their families, and the broader community in their sociocultural setting are crucial for creating a learning environment that is supportive, inclusive, and responsive to their needs.

The sociocultural approach in this paper emphasizes the interconnectedness of social interaction, cultural context, and individual cognitive development, and highlights the importance of the environment and social relationships in the learning process of the refugees.

Recommendations

The paper recommended among others that teachers should use the entry cognitive levels of the refugee students and their context to determine the pedagogies. Similarly, the socio-cultural status of the refugee students should also be considered. Teachers should also understand the sociocultural background of the refugees and adopt inclusive school policies that support the needs of refugee students, the teacher should be holistic and culturally sensitive to the unique challenges and strengths of the refugee students. Refugee teachers in European countries should update their knowledge of the use of the English language as a medium of teaching. The teacher should be trained on how to use the English language as the language of teaching and learning (LoTL) during classroom activities since the majority of the refugees speak English as a language apart from their mother tongue.

Disclosure and conflicts of interest

There is no conflict of interest as regards this paper and the author

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REFERENCES

- Adu, E.O. & Olowu, R.T. (2022). Teachers' perceptions of how global citizenship education promotes problem-solving skills and conflict resolution in Nigeria. *International Journal of Social Sciences & Educational Studies (IJSSES)*, 9(4), 54-67.
<https://doi.org/10.23918/ijsses.v9i4p54>
- Adu, K., Badaru, K., Duku, N., & Adu, E. (2022). Innovation and Technology: A Panacea to Teaching and Learning Challenges during the Covid-19 Lockdown in South Africa. *Research in Social Sciences and Technology*, 7(1), 69-89.
<https://doi.org/10.46303/ressat.2022.5>
- Adu, K.O. & Duku, N. (2021). Learning styles and instructional material as a correlate of grade 6 learners' mathematics performance in Buffalo City; South Africa. *Journal of Social Science and Technology*, 6(3), 242-255
- Adams, J. & Hannum, E.C. (2016.). School violence in China: A multi-level analysis of students victimization in rural middle schools. Gansu survey of children and familiar paper. *University of Pennsylvania Scholarly Commons*, (56):1-53.
- Ainamani, H. E., Elbert, T., Olema, D. K., & Hecker, T. (2017). Ptsd symptom severity relates to cognitive and psycho-social dysfunctioning study with Congolese refugees in Uganda. *European Journal of Psychotraumatology*, 8(1).
<https://doi.org/10.1080/20008198.2017.1283086>

- Alrawashdeh, H.A. & Kunt, N. (2022). Refugee children and English language: Challenges from English language teachers' perspectives. *Frontier in Psychology*. Vol. 13
doi: [10.3389/fpsyg.2022.918734](https://doi.org/10.3389/fpsyg.2022.918734)
- Babane, V.C., (2020), 'How language challenges affect the behaviour of immigrant learners in the Foundation Phase at three schools in Gauteng, South Africa', *South African Journal of Childhood Education* 10(1), a868. <https://doi.org/10.4102/sajce.v10i1.868>
- Barwell, R., Clarkson, P., Halai, A., Kazima, M., Moschkovich, J., Planas, N., Ubillús, M. V. (2016). Mathematics education and language diversity: The 21st ICMI Study. Cham: Springer.
- Benholz, C., Magnus, F. K., & Niederhaus, C. (2016). Neu zugewanderte Schülerinnen und Schüler—eine Gruppe mit besonderen Potentialen: Beiträge aus Forschung und Schulpraxis. Münster, New York: Waxmann.
- Bhagwonparsadh, Y., & Pule, K. (2024). The Effects of Educators' Mathematics Pedagogical Content Knowledge on The Mentoring of Grade 12 Students Using Problem-Based Learning. *Journal of Culture and Values in Education*, 7(1), 99-117.
<https://doi.org/10.46303/jcve.2024.7>
- Bohnacker, U., Haddad, R., & Öberg, L. (2021). Arabic-Swedish-speaking children living in Sweden: vocabulary skills in relation to age, SES and language exposure. *Journal of Home Language Research*, 4(1), 1–18. <https://doi.org/10.16993/jhllr.37>
- Chwastek, S., Leyendecker, B., Heithausen, A., Ballero, R., & Busch, J. (2021). Pre-school teachers' stereotypes and self-efficacy are linked to perceptions of behaviour problems in newly arrived refugee children. *Front. Psychiatry* 11:574412. Doi: 10.3389/fpsyg.2020.574412
- Coşkun, İ., & Emin M. N. (2016). Türkiye'deki Suriyelilerin eğitiminde yol haritası fırsatlar ve zorluklar (SETA Yayınları 69). Turkuvaz Matbaacılık Yayıncılık A.Ş.
http://file.setav.org/Files/Pdf/20160906135243_turkiyedekisuriyelilerin-egitiminde-yolharitasi-pdf.
- Corbin, J. M., & Strauss, A. L. (2015). Basics of qualitative research: Techniques and procedures for developing grounded theory (4th ed.). Los Angeles: SAGE.
- Cornely-Harboe, V., Mainzer-Murrenhoff, M., & Heine, L. (Eds.) (2016). Unterricht mit neu zugewanderten Kindern und Jugendlichen: Interdisziplinäre Impulse für DaF/DaZ in der Schule. Münster, New York: Waxmann.
- Gencer, T. E. (2017). Göç ve eğitim ilişkisi üzerine bir değerlendirme: Suriyeli çocukların eğitim gereksinimi ve okullaşma süreçlerinde karşılaştıkları güçlükler. *Journal of International Social Research*, 10(54), 838-851. Doi: 10.17719/jisr.20175434652
- Gqoli, N. (2024). Digital Technologies for Mathematics Learning in Rural Higher Education: Students' Perspectives. *Research in Social Sciences and Technology*, 9(1), 265-278.
<https://doi.org/10.46303/ressat.2024.15>

- İnci Kuzu. Ç., & Aljadaan, M. M. (2021). The problem faced by Syrian refugee students in the general education process and especially in mathematics education. *Curr Res Soc Sci*, 7(2), 61-75.
- Kaplan, I., Stolk, Y. & Valibhov, M. (2015). Cognitive assessment of refugee children: Effects of trauma and new language acquisition. *Transcultural Psychiatry* 53(1): 81-109.
DOI:[10.1177/13634615155612933](https://doi.org/10.1177/13634615155612933)
- Karsli-Calamak, E., Tuna, M.E., & Alleksaht-Snider, M. (2020). Transformation of teachers' understandings of refugee families' engagement: multilingual family mathematics spaces. *International Journal of Early Years Education* Vol. 28, issue 2. Pp 189-205
- Lussenhop, M. & Kaiser, G. (2019). How do we teach mathematics to refugee students? A qualitative study of the teaching and learning of mathematics in International Preparatory Classes. Eleventh Congress of the European Society for Research in Mathematics Education, Utrecht University, Feb 2019. Utrecht, Netherland.
- Makwarela M.C., Mammen, K.J & Adu, E.O. (2017). An Assessment of the implementation of DOE and UNICEF guidelines for creating safe, caring, and child-friendly schools. *Soc Science; Kamla-Raj. Soc Sci*, 50 (1-3):1-7.
- Moschkovich, J. N., Wagner, D., Bose, A., Rodrigues Mendes, J., & Schütte, M. (2018). Language and communication in mathematics education: *International Perspectives*. Cham: Springer.
- Polat, S. (2023). The impact of mitigating refugee students' mathematics learning loss on their resilience levels. *International Journal of the Whole Child*. Vol.8 No.2. 21-37
- Ragnarsdóttir, H., Berman, R., & Hansen, B. (2017). Successful educational contexts in Iceland for immigrant students: Case studies of nine Icelandic schools. *SAGE Research Methods Cases*. <https://dx.doi.org/10.4135/9781473981676>
- Tsakeni, M., Munje, P., & Jita, L. (2023). Exploring School Improvement Opportunities through Distributed Leadership Practices for Science and Mathematics in South African Schools. *Research in Educational Policy and Management*, 5(3), 20-40.
<https://doi.org/10.46303/repam.2023.19>
- Vygotsky, L. S. (1962). *Thought and language*. Cambridge MA: MIT Press.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.
- Wiseman, A.W. & Galegher, E. (2019). Teacher preparation, classroom pedagogy, and the refugee crisis in national education systems *Comparative Perspectives on Refugee Youth Education* (pp.75-101) DOI:[10.4324/9780429433719-4](https://doi.org/10.4324/9780429433719-4)
- Yeter, P., Evcen, E., Rabagliati, H., Ozge, D. (2024). Understanding cognitive and language development in refugees: Evidence from displaced Syrian children in Turkey. *Cognitive Development*. Vol 69: 1-41.