

Promoting multilingualism and executive functions: a cross-cultural study on language learning support

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Abstract

This cross-cultural study examined the impact of multilingualism on executive functions in adults. The research sought to understand how language diversity influences cognitive abilities, particularly executive functions, across different cultural backgrounds. The study used email interviews with five open-ended questions to examine difficulties and methods for helping teachers and parents with language learning. Six ESL teachers and six Arabic-speaking parents whose children were enrolled in the ESL program were purposefully chosen for this study. The study identified the communication and coordination challenges between ESL teachers and parents in supporting language learning among ESL students, emphasizing the importance of trust and respect. Effective strategies for language acquisition, such as regular communication, integrating language learning into daily routines, utilizing technology, and involving children in cultural events, were identified. Inclusive teaching practices and the role of caregivers in language learning were also discussed as significant factors. Diverse participants should be involved in future research on language learning support while exploring effective collaborative strategies and multiculturalism.

Key words: multilingualism, executive functions, cross-cultural, language diversity, inclusive language learning, effective strategies

Introduction

Globalization has created a globalized world where multilingualism offers cognitive, social, and cultural advantages (Cenoz, 2013; Van den Noort et al., 2019). In a wide range of studies, multilingualism has been linked to executive functions such as working memory, inhibition, cognitive flexibility, and task switching. As compared to monolinguals, bilinguals perform better in tasks that require executive function (Yurtsever et al., 2023) Despite this, the mechanisms behind this connection are still incomplete. To maximize multilingualism's cognitive benefits, these mechanisms need to be further investigated (Bialystok & Craik, 2022; Filippi et al., 2022). The importance of this connection can be seen in the development of individuals, in public policy, and in educational programs.

As well as improving executive functioning, multilingualism has been shown to enhance academic performance in both children and adults. The results of several studies have shown bilingual children perform better in activities related to executive function than monolingual children (Filippi et al., 2022; Poulin-Dubois et al., 2011).

According to the cognitive control hypothesis, multilingualism and executive functioning are closely related. According to this theory, managing multiple languages requires the brain to develop stronger cognitive control skills, which boosts executive function performance. Alternative hypotheses suggest that the brain's capacity to learn and use multiple languages is mediated by experience-dependent plasticity. Consequently, executive functioning improves due to changes in brain structure and function (Lindck et al., 2020)

Several studies have shown that being bilingual or multilingual can improve cognitive processes associated with executive control, even though the precise mechanisms which underlie the association between multilingualism and executive functions have

yet to be fully understood. Multilingualism and the acquisition of languages in social and educational environments are therefore extremely valuable and it is possible to gain cognitive benefits on top of the social and cultural benefits of fostering multilingualism and language acquisition (Mohamed & Shaaban, 2023; Yurtsever et al., 2023)

Therefore, this study aims to investigate the impact of multilingualism on executive functions in a cross-cultural sample of bilingual and monolingual adults. The study aims to explore the following research questions:

1. How do parents and ESL teachers collaborate to address the challenges of raising and educating multilingual children?
2. How do ESL teachers perceive the impact of multilingualism on children's executive function and academic success?

Literature Review

Monolingualism refers to only knowing and using one language (Raitskaya & Tikhonova, 2023). Bilinguals speak two languages, and multilinguals are proficient in three or more languages, focusing on the third language learned (Limberger & Buchweitz, 2014). This may imply that multilingualism is a broader term that includes the concept of bilingualism (Aronin & Hufeisen, 2009; DEWAELE et al., 2024; Raitskaya & Tikhonova, 2023). Grosjean (2008) challenges the definition of bilingualism as achieving equal proficiency in two languages. Instead, he suggests that bilinguals regularly use two or more languages daily, emphasizing the importance of language use frequency over pronunciation skills (Grosjean, 2010). Although multilingualism is a newer area of research than bilingualism, it is increasingly valued for its potential positive effects on executive functioning (Kwon et al., 2021).

The First International Conference on Third Language Acquisition and Multilingualism in 1999 marked a significant shift in research on multilingualism (Raitskaya & Tikhonova, 2023). Previously, the acquisition of multiple languages was treated similarly to acquiring a second language (Cenoz & Genesee, 1998). However, researchers now recognize the unique nature of acquiring a third language and its impact on cognition. Third-language learners benefit from increased language exposure and develop better learning strategies and metalinguistic awareness (Limberger & Buchweitz, 2014). Multilingual adults exhibit distinct brain functional connections, particularly in emotional tasks and at rest, and demonstrate strong correlations between working memory connectivity and behavioral performance (Kwon et al., 2021).

The cognitive advantages of multilingualism are believed to stem from the constant need to switch between different languages and suppress interference from other languages. This leads to increased cognitive flexibility and inhibitory control, planning, decision-making, and task-switching, which can enhance executive functioning performance. These processes work together to help individuals manage their lives effectively and adapt to new situations (Mohamed & Shaaban, 2023; Quinteros Baumgart & Billick, 2018)

Executive functioning refers to higher-level cognitive processes that control goal-oriented behavior. The executive function was coined by Karl Pribram in 1973 to describe the role of the frontal cortex in implementing flexible organizational programs. There is a correlation between frontal lobe impairment and difficulties in decision-making, planning, and social behavior. Studies have demonstrated the cognitive benefits of multilingualism when compared to monolingualism. Parental and ESL teachers should consider these findings when implementing language acquisition methodologies (Shan & Xu, 2023; Kwon et al., 2021; Noone et al., 2016; Simonis et al., 2020).

Clark et al. (2021) have presented an executive functioning model that bears similarities to earlier models put forth by Chelune and Duff (2019) and Miyake et al (2000). According to the concept, the adult executive function can be divided into three primary domains, each of which has smaller subcomponents. For these domains to function properly, high processing speed is required. It is believed that the executive function develops into a sophisticated adult model as people age, starting as a single unit in childhood. As people get older, there is less of a correlation between executive function and processing speed. An established three-factor model of executive function appears by the age of fifteen. Figure 1 depicts the executive function summary for healthy persons.

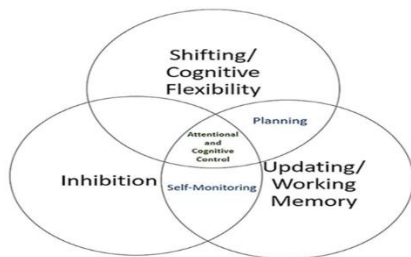


Figure 1: Adults’ Executive Function Domains and Subconstructs (Clark et al.,2021)

The diagram illustrates the executive function domains and subcomponents in adults. This also shows three primary domains with smaller subcomponents. The domains are labeled as ‘Shifting/Cognitive Flexibility,’ ‘Updating Work Memory,’ and ‘Inhibition.’ This diagram represents the executive function model proposed by Clark et al. (2021).

Research on executive functioning has been conducted extensively, and numerous hypotheses and models have been put up to explain the underlying mechanics of the function (Tran et al.,2019). The study of executive functions has significant ramifications for education, therapeutic practice, psychology, neuroscience, and other domains.

Chung-Fat-Yim et al. (2023) investigated how adults’ mentalizing abilities were affected by multilingualism and the number of languages they knew. The study took into consideration several variables that could have an impact on mentalizing and divided multilingualism into groups of people who spoke English and people who did not. In terms of mentalizing ability, bilinguals and monolinguals did not significantly differ, although bilinguals performed worse than monolinguals. With a sizable sample size, the study examined a critical area of adult social cognition by determining if multilingualism improves mentalizing abilities in addition to bilingualism.

Parents’ participation in children’s language development is a crucial factor. By exposing their children to the language, involving them in language-rich activities, and providing encouragement and constructive criticism, parents can help their children learn a language (Chow et al., 2020; Mercer & Dörnyei, 2020; Shaaban & Mohamed, 2023). Thus, ESL teachers need to understand the importance of parental participation in language learning to improve their instructional strategies and help children learn the language more effectively. Parents may also benefit from receiving tools and advice on how to support their children’s language development at home (Hong et al.,2019).

As Farrell (2016) points out, a teacher’s beliefs, character, and life experiences affect a student’s learning of English. To build self-awareness and introspection for future actions, the study examined the reflective stories of three experienced instructors. It was discovered that language, culture, culturally and linguistically relevant pedagogy, and collaborative community are the four key components of effective education.

In this area, a research gap exists in understanding how instructors and parents assist ESL students with their language acquisition. Prior studies focused on teachers and parents separately, not on their interactions. Furthermore, not enough research has been done on how parents and instructors can help ESL children learn English. Therefore, this study closes a gap in the literature by examining the difficulties and successful strategies for assisting ESL students' language development.

Theoretical Framework

Important concepts from relevant literature serve as the foundation for the study's theoretical framework, which offers a means of understanding the relationship between adult multilingualism and executive processes in a cross-cultural context.

Bilingual Advantage Hypothesis

This theory incorporates the Bilingual Advantage Hypothesis, which postulates that multilingual individuals may possess higher executive function than monolingual individuals. The hypothesis states that learning and mastering multiple languages increases the cognitive load on the brain, enhancing flexibility, problem-solving skills, and attentiveness. However, some research findings cast doubt on the notion that acquiring a second language improves executive function much in general. An earlier study found that bilinguals performed better than monolinguals on just one out of twelve executive tests. Importantly, when group matching was applied to exclude potential confounding variables, this benefit disappeared. It implies that the benefits of bilingualism, if any, are probably negligible and have nothing to do with an individual's cognitive capacities (Nichols et al., 2020; Paap, 2019).

Cultural Variability in Cognitive Processes

The influence of cultural variation on cognitive processes is acknowledged in theoretical foundations. Cultural factors can have an impact on the development and manifestation of executive functions, which can have an impact on how individuals from various cultural backgrounds employ their cognitive capacities in various contexts (Miller, 2005).

Socio-Cognitive Theory

The study examines how social interactions affect cognitive development by using socio-cognitive theory as a framework. In this context, the study's conclusion about the difficulty in arranging and corresponding between parents and ESL instructors is consistent with the fact that social interactions are important in the maturation of executive functions (Castelfranchi & Falcone, 2005). In addition, the framework emphasizes the importance of trust and respect as sociocultural elements influencing language learning and their involvement in the research process. The development of executive functions is associated with the development of positive socioemotional connections between language learners, teachers, and caregivers, highlighting the importance of amiable and trustworthy interactions in the development of executive functions.

Inclusive Teaching Practices and Caregiver Involvement

Additionally, caregivers play an important role in the development of a child's language, as do creative teaching strategies that are inclusive. An inclusive educational method and caregivers' active involvement are key components of multilingual adults acquiring executive functions (Gerholm et al., 2019). Among the frameworks that will be incorporated into the study are the Bilingual Advantage Hypothesis, cultural variety, sociocognitive theory, trust and respect, inclusive

teaching methods, caregiver involvement, and ecological systems theory. Using a combination of various viewpoints, this study attempts to comprehend the intricate relationship between executive functions and multilingualism in people from different cultural backgrounds, to gain a better understanding of how they work together.

Methodology

Participants

This study involved six ESL teachers and six Arabic-speaking parents whose children were enrolled in the ESL program, purposefully selected for diversity of gender, age, and teaching experience. The purpose of purposeful sampling is to identify participants based on their specific characteristics, without requiring underlying theories or predetermined numbers of participants (Etikan et al., 2016). There were a limited number of multilingual parents and teachers who met the study criteria, which led to the small sample size. While these limitations exist, the perspectives provided by the participants provide valuable insight into the role of the caregiver in language acquisition.

Table 1: Sample characteristics for six ESL teachers

Teacher ID	Gender	Age	Years of Teaching Experience	Linguistic Proficiency
T1	Female	32	5	Bilingual (Arabic -English)
T2	Male	45	12	Multilingual (Indian, English, Arabic)
T3	Female	28	3	Bilingual (Filipino-English)
T4	Male	55	20	Monolingual (English)
T5	Female	40	8	Bilingual (English, Arabic)
T6	Male	30	2	Bilingual (Arabic-English)

Table 1 summarizes the characteristics of the six ESL teachers who participated in the study, including their ID, gender, age, years of teaching experience, level of multilingualism, and country of origin. The teachers have diverse backgrounds, with one being monolingual in English, four being bilingual in combinations such as Filipino-English, two English-Arabic, and Arabic-English, and one being multilingual in Indian, English, and Arabic. They come from different countries and cultural backgrounds.

Table 2: Sample characteristics for six parents

Parent ID	Gender	Age	Education Level	Multilingualism
P1	Female	38	Bachelor's degree	Trilingual (Arabic, English, French)
P2	Male	42	Master's degree	Trilingual (Arabic, English, French)
P3	Female	30	High School	Bilingual (Arabic, English)
P4	Male	45	Bachelor's degree	Trilingual (Arabic, English, French)
P5	Female	35	Master's degree	Bilingual (Arabic, English)
P6	Male	40	PhD	Trilingual (Arabic, English, French)

Table 2 displays the characteristics of six parents, including their Parent ID, Gender, Age, Education Level, Multilingualism, and Country of Origin. The parents are from various Middle Eastern and North African countries, including Saudi Arabia, Lebanon, the United Arab Emirates, Egypt, Jordan, and Morocco. Their education levels range from high school to Ph.D., and their ages range from 30 to 45 years old. All six parents are multilingual, with Arabic, English, and French being the dominant languages.

Study instrument

The study aimed to identify effective approaches to support multilingualism and executive functions. The purpose of this study was to explore the challenges and strategies that teachers and parents face when supporting the learning of a foreign language through email interviews with five open-ended questions. To get a better understanding of sensitive topics, email or chat interviews are recommended (Saarijärvi & Bratt, 2021). The questions focused on developing executive functions and multilingualism as well as developing executive functions. Parents were asked questions about the impact of cultural factors on multilingualism, while ESL teachers were asked questions about adapting teaching methods to meet the needs of multicultural students.

This study tool was evaluated for its reliability by administering the email interview to several groups of parents and ESL teachers at different times and comparing their responses for consistency in the responses. Additionally, the reliability of the inter-rater agreement was also assessed by having several researchers independently code the responses. In addition to having good face validity, the study tool is also pertinent to the research topic and addresses some of the challenges associated with language learning and executive functions in the workplace. The study tool was more reliable as a result of a careful administration and coding procedure.

Data collection tools and procedures

To recruit participants, the researchers first obtained approval from two international schools to recruit the study participants. Using an email invitation system, potential participants were contacted and invited to take part in the study. Interested participants were sent the interview questions via email, and they were asked to provide their written responses to the questions. To ensure they were fully informed and gave their consent to the study, researchers provided them with a document describing the study's objectives and risks. A participant's rights, including the right to withdraw at any time from the study without giving any reason, may also have been included in this document. A consent form may have been required to be signed by participants before they could be enrolled in the study, indicating their understanding and agreement with the terms of the study.

Based on interviews with teachers and parents, the researchers analyzed the data using thematic analysis. Coding and categorizing keywords and phrases relevant to the research questions was done. Teachers and parents' responses were then compared and contrasted. Peer debriefing and member checking enhanced the credibility and validity of the study.

As a result of the data analysis of the interviews with parents and teachers, the following themes emerged:

- a. **Communication and Collaboration:** This theme aims to highlight how crucial it is for parents and educators to communicate well to raise and educate multilingual children. Among the sub-themes are cooperation, working together, and communication.
- b. **Challenges and Resources:** This theme examines the challenges faced by educators and parents while assisting multilingual children as well as the tools and resources that are available to give them the support they require. This issue has three sub-themes: creative solutions, time constraints, and money restrictions.
- c. **Inclusion and Cultural Understanding:** This theme aims to draw attention to how crucial inclusiveness and cultural sensitivity are to supporting multilingual children's language development. Participating in cross-cultural activities and accepting cultural variety are two of its sub-themes.

- d. **Impact on Executive Functions:** The primary focus of this issue is how multilingualism affects children's academic performance and executive functioning, as observed by ESL teachers working with young students. Exposure to language, cognitive flexibility, and creating an atmosphere where students feel emotionally supported throughout their learning process are some of its sub-themes.

Results

Collaboration and Communication

Involving parents in learning can greatly enhance children's language development. Resources and information on supporting multi-language development at home are crucial for Teacher 1. Additionally, there are tips for practicing language skills, suggestions for bilingual books and media, and ways for parents and teachers to communicate. According to Teacher 2, it is essential that parents feel comfortable and involved in the classroom environment. Parents can be offered cultural and language information in addition to being invited to cultural events and language classes and being updated regularly on their children's progress. Furthermore, Teacher 3 mentioned that:

"I have found that involving parents in the language learning process can also help to promote a positive attitude towards language learning and multiculturalism. Families can feel a sense of community by recognizing and celebrating diversity in the classroom."

Teachers 4 and 5 also recommend providing regular feedback to parents. Several methods can be used to achieve this goal, including progress reports, parent-teacher conferences, and ongoing dialogue about language goals and strategies. The provision of information and support concerning language development and multiculturalism can also be provided through workshops and training sessions. As a result, parents must be recognized and valued as partners in their children's education.

Parents of multilingual children face various challenges when it comes to their child's education. Communication is a significant challenge, especially when there is a language barrier between the parents and the teacher. This can lead to misunderstandings and miscommunication. Another challenge mentioned by Parent 2 is finding ways to support their child's language learning at home that align with the strategies used by the teacher in the classroom. Coordinating and aligning their efforts can be challenging. Parent 3 and Parent 6 also find it hard to find time to communicate with the teacher and stay up to date on their child's progress due to their busy schedules and other commitments. Additionally, understanding the teacher's approach to language learning and ensuring that it aligns with their own beliefs and values regarding language learning can be a challenge for Parent 4. Parent 5 said:

"When it comes to education, building trust and respect with teachers is crucial to navigating cultural differences and collaborating effectively. This promotes a supportive learning environment, facilitates communication, and ensures that students' needs are met, ultimately enhancing the educational experience, and promoting academic success."

Challenges and Resources

The parents have shared various challenges that come with raising a multilingual child "Difficulty in finding appropriate resources and maintaining consistency in language exposure," shared Parent 1, reflecting on the challenges of raising a multilingual child. Parent 2 added that finding opportunities for their child to practice all the languages they are learning is a challenge. Parent 3 talked about balancing exposure to different languages:

"As a parent, I have found that it is important to balance my child's exposure to different languages while also finding schools or educational

programs that support multilingualism. I believe that this approach can help my child to develop strong language skills and cultural competence, which will be valuable throughout their life. By seeking out educational opportunities that prioritize multilingualism, we can provide our children with the tools they need to succeed in our diverse and interconnected world.”

Parent 4 mentioned the challenge of overcoming the misconception that bilingualism can be detrimental to a child’s language development, while Parents 5 and 6 noted the difficulty in maintaining language use and exposure when they are not in their home country or are surrounded by a dominant language that is not spoken at home. In order to address these challenges, education, community support, and language exchange programs and resources can be used to help children develop and maintain their multilingual abilities.

Study participants discuss their strategies for assisting their children in learning languages. As part of their daily routines, parents 1 and 2 read books in different languages and watch movies in different languages. In addition, they encourage their children to communicate with friends and relatives who do not speak English or their mother tongue.

Similarly, Parent 2 & 6 strive to find native speakers who can help their child improve his or her language skills. In addition, they travel to countries where their languages are spoken. With language learning apps and online language communities, Parent 3 supports language learning. Furthermore, they expose their child to a variety of media in different languages, such as music, TV shows, and movies.

Parent 4 cultivates an environment in which their child is encouraged and supported to learn languages by giving positive feedback and recognizing his/her efforts. In addition to teaching their children languages, the parents engage their children in cultural activities and events that promote multiculturalism and language learning. In addition, Parent 5 makes language learning engaging and fun:

“For my child to succeed, I have to make learning languages fun and engaging. Playing games, singing songs, and doing other activities help learn new words. Besides finding age-appropriate and interesting books and resources, I also make sure they’re fun. It keeps my kid motivated and excited to learn a new language because I create an immersive learning experience.”

The parents show that there are many different ways to support a child’s language learning, and it often involves incorporating language learning into everyday life and finding resources and activities that are enjoyable for the child.

It is also noteworthy that all six teachers offer effective strategies for promoting the learning of multiple languages in children. Teacher 1 mentioned that:

“Interactive and engaging activities, like games, songs, and stories, that incorporate multiple languages are effective. It’s also good to practice in real life by going on field trips and going to cultural events.”

Teacher 2 emphasizes rather than treats children’s existing language skills as deficits by building on their existing cultural backgrounds. Supporting children’s learning with visual aids, scaffolds, and feedback is recommended by teacher 3. Teacher 4 emphasizes the importance of creating a safe and supportive environment where children can express themselves in multiple languages. To promote intercultural understanding and appreciation, Teacher 5 emphasizes the importance of exposing children to native speakers of different languages.

Children can improve their language skills and gain a greater understanding of their cultural heritage by using these strategies. Engaging children in interactive, stimulating activities, appreciating their existing language skills, and providing visual aids and scaffolding can all contribute to their development of language proficiency

and confidence. Moreover, these strategies are crucial for navigating today's globalized world, which requires intercultural understanding and appreciation.

In order to stay informed about their child's progress and provide support at home, parent 1 feels it is important to communicate with their child's teacher regularly. Meetings can be conducted via email or in person. In order to reinforce what their child is learning in the classroom, parent 2 has incorporated the language into their daily routine at home. Online language communities and language learning apps are useful for parents 3 and 6 who want to learn languages outside the classroom. Building a relationship of trust and respect with the teacher has proven effective for parent 4 when collaborating and supporting their child's language learning:

"As a parent, I have found that establishing a trusting relationship with my child's language teacher is essential for ensuring that we collaborate effectively and find ways to support the child. When we work together and maintain open communication, I am able to better understand my child's learning needs."

Lastly, Parent 5 believes in promoting language learning and multiculturalism by bringing their child to cultural events and activities at school and in the community.

Cultural Understanding and Inclusion

All participants agreed that learning more than one language has significant benefits, regardless of age. Nevertheless, each teacher emphasizes different aspects of learning a language. According to Teacher 1, multilingualism has practical advantages, including improved communication skills and a greater variety of professional opportunities. Teacher 2 emphasizes the cultural perspective by emphasizing awareness of different cultures, tolerance, and embracing diversity. Teacher 3 uses personal experience to illustrate how language learning can enhance academic achievement, social skills, and overall well-being. Language acquisition is emphasized in teachers 4 and 6 as an aspect of cultural heritage and identity, acknowledging that learning multiple languages can be a source of pride and a connection to the past. Lastly, Teacher 5 emphasizes the flexibility and self-confidence that come with being multilingual:

"As a teacher, I believe that individuals who speak multiple languages possess confidence and flexibility useful both in professional and social settings. The importance of recognizing and celebrating multilingualism in schools and communities cannot be overstated. It is important to value and embrace multilingualism no matter what one's linguistic background may be."

Multiple languages should be taught to children by parents. Participants stress the importance of this. Additionally, it improves communication skills, broadens horizons, fosters cultural appreciation, and improves academic performance. Children can also benefit from multilingualism by gaining confidence and adaptability which will give them an advantage in today's globalized world. From an early age, schools and communities should promote language learning and recognize the different linguistic backgrounds of students. It is not enough to be able to communicate in another language to reap the benefits of language learning. As stated by Teacher 1:

"Having a multilingual background can boost your kid's memory, attention span, and problem-solving skills, so they can do better academically. Multilingualism not only promotes cultural competence, but it promotes global awareness, which is essential today."

In addition, as Teacher 2 points out, learning multiple languages can provide children with greater opportunities for academic and career advancement, boosting their self-esteem as well as their confidence.

Furthermore, language learning helps students develop critical thinking skills, analysis skills, and cross-cultural understanding as well as math, science, and social studies

skills. As teacher 4 points out, speaking multiple languages can also improve communication skills, which are critical for academic success and lifelong learning. Furthermore, it fosters positive social relationships between children and improves communication between them. The final benefit of language learning, according to Teacher 5, is that it can lead to a love of learning and a sense of wonder about the world, leading students to discover new ideas and perspectives while appreciating other cultures. Furthermore, it promotes global citizenship and social responsibility. Therefore, learning another language is beneficial in more ways than one.

The parents all share the belief that being multilingual is important for their child's personal and academic growth. Parent 1 mentioned:

“Having grown up bilingual, I always wanted my child to have the same advantages as me when he or she grows up. The ability to speak multiple languages can open up a whole world of opportunities and broaden one's horizons.”

While Parent 2 believes that it can broaden their perspective and deepen their understanding of different cultures. Parent 3 sees being multilingual as a competitive advantage in today's globalized world, and also wants their child to be able to communicate with others who speak different languages. Parent 4 values learning another language as an important aspect of education and personal growth and hopes that it will foster a love for learning and an appreciation for other cultures in their child. Finally, Parent 5 emphasizes the importance of exposing their child to a multilingual environment as a way to foster an appreciation for diversity and build bridges between cultures. These parents share a common belief that being multilingual is valuable and can bring many benefits to their child's life.

Impact on Executive Functions

All teachers agree on the positive impact of learning multiple languages on children's executive function, but they emphasize different aspects of this benefit. Teacher 1 highlights how multilingualism can enhance cognitive flexibility, attentional control, and creative thinking. Teacher 2 recognizes the challenges involved but emphasizes how learning multiple languages can provide a cognitive workout that strengthens executive function skills, such as language switching, inhibiting irrelevant information, and monitoring performance. Teachers 3 and 5 observe that bilingual or multilingual children often demonstrate better working memory, mental flexibility, adaptability, and resilience, all of which are crucial components of executive function. Teacher 4 explains that learning multiple languages can stimulate different brain regions, establish new neural pathways, and foster metalinguistic awareness and systematic thinking about language. Finally, Teacher 6 stated:

“My experience teaching ESL has taught me that studying different languages enhances children's ability to process and retain knowledge, which improves their executive function. As well, it helps develop more effective communication techniques and adapt language usage to different situations.”

Teachers argue persuasively that studying many languages helps children's cognitive development. Learning many languages can enhance children's executive function abilities, including working memory, cognitive flexibility, attentional control, mental flexibility, adaptability, and resilience. Aside from stimulating different parts of the brain and creating new neural pathways, learning multiple languages promotes metalinguistic awareness and systematic thought about language. The advantages of learning multiple languages are clear, and they can improve children's cognitive abilities and communication skills, contributing to their professional and personal development.

Discussion

The findings of this study contribute to our understanding of effective cooperation, multilingualism, and the strategies parents use to support their children's language acquisition. Moreover, this study aimed to find out how parents and ESL teachers could work together to solve the challenges of raising and teaching multilingual children. The research sought effective methods to promote language acquisition at home and in the classroom in the context of limited resources, time constraints, and cultural variations.

One of the main challenges in promoting language learning was coordination and alignment between parents and ESL teachers. Multilingual children can effectively develop their languages by developing a cooperative relationship between these two groups. Additionally, parents and instructors had to balance language study with academic and personal obligations. To integrate language learning into daily routines, innovative and effective strategies were developed (Tamah et al., 2020).

In addition, parents and teachers did not understand one another as well as cultural differences were cited as major obstacles. By considering students' experiences and cultural backgrounds, teachers can cultivate a culture of trust and respect. Additionally, parents were encouraged to participate in multicultural events and activities to help their children develop their language skills. The use of technology, consistent communication, and participation in cultural activities are effective methods of overcoming these obstacles (Bonner et al., 2018; Danzak, 2015).

Moreover, the study examined how ESL teachers and parents perceived multilingualism's impact on academic performance and executive function. Multilingual children should be exposed to multiple languages, especially their second languages, according to the findings. Although literature and meaningful interactions play an important role in language development and cognitive flexibility, both of which are crucial in executive function, the study emphasized their importance in language development. Enhancing executive function in the classroom can also be achieved by creating an emotionally supportive environment. The support of multilingual students' language acquisition, cognitive growth, and academic performance can be achieved through collaboration between educators and parents (Sundari, 2017).

The study found that parents' goals and methods influence how they expose children to language and provide support. In addition to multilingualism, culture significantly impacts executive function. Multilingual students must be integrated into the classroom by teachers and parents who respect their cultural origins and identities. For children who speak many languages to succeed academically and grow cognitively, their learning environments should support, encourage, and incorporate their cultural diversity. Cross-cultural communication is linked to building bridges between cultures and fostering a more inclusive society (Gay, 2018; Tran et al., 2019).

Additionally, this study highlights the importance of collaborative efforts between teachers and parents in developing executive function in multilingual children. Multilingual children's cognitive development and academic success can be influenced by a culturally responsive learning environment and effective teaching and parenting practices. Culture diversity can foster language learning and growth when parents and teachers acknowledge and embrace it.

Conclusion

Teachers and parents were interviewed about the challenges and strategies they used to support language learning at home and in the classroom. In supporting language

learning, communication, coordination, and alignment among parents and teachers were key challenges. Teachers and parents need to build a relationship of trust and respect to collaborate effectively. Furthermore, the study identified several effective strategies for supporting language learning, including regular communication, incorporating language learning into daily routines, utilizing technology, engaging children in cultural events, and establishing a sense of trust and respect between teachers and students. In addition to culturally responsive and inclusive practices, the study underscored the significance of valuing and recognizing students from diverse linguistic and cultural backgrounds. Pedagogically, the study suggests that teachers should actively involve parents in supporting their children's language learning by establishing a collaborative relationship that values their input. To support language learning in diverse, inclusive classrooms, teachers should incorporate effective strategies, including those identified in this study. The study provides valuable insights into challenges and strategies for promoting diversity and inclusion in the classroom as well as supporting language learning.

Pedagogical implications

To support language learning, teachers and parents must establish clear expectations. Teachers should also adopt culturally responsive and inclusive teaching practices to accommodate students from diverse cultural and linguistic backgrounds. In addition, bilingualism and multilingualism should be promoted and supported. Continuous professional development, staying up to date with current research, and collaboration with colleagues will enhance the knowledge and skills of ESL teachers. The implementation of these implications can encourage multiculturalism and diversity in the classroom as well as support students' language acquisition.

Limitations and recommendations

Although the study provides insight into the experiences of six ESL teachers and six parents, the sample size is limited and may not represent the views of the entire population. Results of studies based on self-reported data may be biased or inaccurate, and they may only apply to Arabic-speaking parents.

To gain a comprehensive understanding of teachers' and parents' experiences, future research should include a more diverse group of participants. Furthermore, further research should be conducted to examine how specific strategies can improve collaboration between teachers and parents in supporting language learning. Students' perspectives on home and classroom support would also be valuable to consider. Further research could examine effective strategies for promoting multiculturalism in language learning environments.

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