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The Impact of Bilingual Education on Cognitive Development and Academic Achievement in English Language Learners

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Abstract

This has therefore aroused intense debate on the probable impact of bilingual education on cognitive development and academic achievement among English Language Learners (ELLs). Some of the findings from these studies actually pointed out to the fact that there were gains in cognitive development and academic achievement due to bilingual education, while others pointed to the contrary effect. This study attempts to explore the experiences and perceptions of students and teachers involved in a bilingual education program to explicate how bilingual education influences English language learners. Through these semi-structured interviews and observational data, the research would present a much-refined picture of exactly how bilingual education does affect the development of cognitive skills, and lastly, academic skills, among the English as a second language students. To identify patterns and themes related to the topic, the collected data will be analysed using thematic analysis. The findings would add, therefore, to an increasing body of information on how bilingual education affects English language learners. This may inform practice about how to design future programs in bilingual education that are more effective and timely.



KEYWORDS

Bilingualism, cognitive development, English teaching, UAE, ELLs



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Introduction

The dominant world acculturation and globalization today, when the world needs the ability to speak many languages, have been very instrumental in the possibility of standing out in communication and intercultural exchange. Importance of English as a second language also grew considerably. It is today one of the important parts of education and employment. Bilingual education has grown popular with English language learners since they derive knowledge in two different languages, through which they are in a position to acquire the language and at the same time develop their cognitive abilities. Bilingual education has commanded a steadily rising research profile within the field over the years, showing the effects such an approach has on cognitive development and academic achievement by English Language Learners. Research, for instance, has shown that bilingualism has a positive effect on the executive function and working memory, likely enhancing cognitive potentials. In another study, however, by Paradis and Crago (2011), it was reported that problem-solving skills were better in bilingual children, comparing to

those who are monolingual. This research paper gives the details regarding the study of the impact of bilingual education in cognitive development and academic achievement among English language learners, through a qualitative approach. This paper provides a detailed literature review in bilingual education and how it influences the languages of learners. It draws on student and teacher experiences from programs of bilingual education. This paper, in so doing, would add to the existing literature in the field of bilingual education a qualitative perspective of the impact of bilingual education on the cognitive development and academic achievement of English language learners. In this light, the findings from this study will imply great consequences for practice and policy in language education, providing a precious lens through which stakeholders can view the gains of bilingual education for English learners.

Research questions

Q1: How does bilingual education influence cognitive development and academic achievement in ELLs?

Q2: What are the subjective experiences and perceptions of ELL students and bilingual education teachers regarding the impact of bilingual education on cognitive development and academic achievement in ELLs?

Literature Review

The influence of bilingual education on cognitive development and academic achievement among English language learners has been the topic of much ardent study over the last few decades. A number of investigators have given evidence toward the effect of bilingualism on a variety of facets in the development of language that include cognitive ability, school achievement, and cultural awareness. Recent research has carried on in a path of earlier research and comes with further evidence on the benefits of bringing up children in a bilingual environment. For example, Kroll and Bialystok (2013) postulate that being bilingual increases cognitive control and thus enhances executive function and working memory. Consistent with this, Adesope et al. (2017) aver that according to one of their research studies, bilingual students were able to exhibit better performance abilities in attentional control and mental flexibility for tasks than their monolingual peers. In this regard, increasing research has indicated that bilingual education could be beneficial with respect to the academic accomplishment of improved language development for English language learners. For example, Genesee et al. (2015) found that students who take part in programs for multilingual education, compared to students taking monolingual programs, show better language competences and improved learning achievements. It has been proven in the study by Hernandez (2018) that states bilingual students will receive much higher scores in the standard testing of English proficiency and therefore also have higher grades in academic subjects compared to monolingual students. The recent line of research also reported that apart from these cognitive and academic benefits, bilingual education can lead to increased motivation, strengthened retention of learning, and an open-minded cultural awareness and appreciation of the world view (Alabidi et al., 2022; Alabidi et al., 2023; Hussain et al., 2020; Owais et al., 2020). For example, Baker and Jones (2019) found in their study that bilingual students are more aware of different cultures and

points of view compared to monolingual students. This may, in turn, increase development based on enlarged knowledge in intercultural competence, believed to be one of the dimensions required for work-life in the contemporary globalized world. The literature connected to bilingual education and effects on cognitive development and academic achievement for learners of the English language is voluminous, pointing very strongly toward the need to adopt the merits suggested through bilingual education programs. Further research works continue to bolster past evidence and find greater ground for the positive influence of bilingualism on English Language Learners. This gives a very strong reason to continue with the implementation and promotion of bilingual education programs for English learners. This is certainly not a new controversy. Some people consider that a necessary method in order for English Language Learners (ELL) to make an academic success, while others believe that monolingual education works much better with this student body. Overwhelming evidence supports this view: that bilingual education serves as a fount of cognitive development and academic achievement for ELLs. A more profound benefit of bilingual education is that it offers cognitive development among learners. Studies have indicated that executive functions, working memory, and attentional control of bilingualism contribute powerfully toward influencing cognitive abilities and mental flexibility (Kroll & Bialystok, 2013; Adesope et al., 2017). These cognitive skills are not only important for yielding academic success but have a much broader impact on overall cognitive development. For instance, better executive functioning might have the potential to yield better problem-solving skills, along with higher creativity. In the same field, this kind of education has contributed positively to academic achievement. It also denotes that students who have undergone this kind of bilingual education system outdo those with monolingual programs in terms of language proficiency and overall academically (Genesee et al., 2015; Hernandez, 2018). Bilingual education in this line also ensures continuity between the home language and English, therefore exposing ELLs to the gift of bi- and multilingualism. Bilingual education is yet a continuous opportunity for ELLs to further learn both the natural language and English. Other studies have also indicated that students who are able to be fluent in their first language develop a positive attitude towards the school, and few remain with language barriers, which also contribute to their low academic performance (Baker & Jones, 2019).

Aside from the cognitive and academic gains of the system of bilingual education, it was further found in research that it assisted students to develop cultural sensitivity and appreciation toward other cultures. Children who acquire two languages will get recognition and become aware of the culture and the perspective associated with it. (Brouwer & Parada, 2010) Thus, one can see how this heightened awareness for culture might contribute to further strengthening intercultural competence, which is increasingly becoming important in the world of today, where countries have to be dependent and interconnected. For example, this is indicative of how students who understand other cultures better are more tolerant of the other, a factor key in creating an environment that is conducive for learning. Other practical benefits of bilingual education are enlisted here below. For instance, money-wise, bilingual education literally costs less than the program for monolinguals, since it usually taps existing resources and not necessarily the hiring of new people who will teach in the native tongue. Moreover, the bilingual education itself may

effectively bridge the students from knowledge and information in the first home language and offer them access to the second language from culture and wider education (Baker & Jones, 2019). This can be of much importance for the library lending a hand since a sense of belonging will work further to increase their motivation to succeed in school. Bilingual education has many other advantages; still, opponents of such education exist. Some view that this is far more important than having ELLs learn English as soon as possible and gain the expertise as fast and as effective that can be done through the use of monolingual education. This, however, is not underpinned by research, and a number of studies carried out in the past have indicated that, in most instances, bilingual education can actually fast-track language development and give language skills that are more efficient than those acquired through monolingual programs (Genesee et al., 2015). The great benefits of bilingual education are obviously evident, almost to the point of well-known acknowledgment. Besides the several practical benefits arising from bilingual education, it seems to boost cognitive abilities, academic achievement, awareness of culture, and intercultural competence. These are even more reasons that make bilingual education an important tool in the realization of success among English Language Learners. The importance of bilingual education still exists to prepare students for the rigor associated with global-marketplace-based success in the 21st-century flatter, more diverse, and interlinked world. It further raises many questions in the domain of bilingual education and cognitive development in respect of whether bilingualism bears cognitive fruits, especially in children. Following that, the following literature review synthesizes information from a study that researches whether bilingual education alone is sufficient for students to reap the cognitive and social benefits. This research focuses on the Spanish child who is a product of bilingual education, learning both languages within the school context but coming from a monolingual home. The use of a comprehensive battery of cognitive and social tests in their empirical study enables the research to give a very deep analysis of the bilingually schooled children, hence bringing a marked contribution in the field in terms of the full-fledged assessment in the cognitive and social domains.

The study of general cognition revealed mixed evidence regarding the so-called bilingual advantage. In previous works of research, it has been postulated that bilingualism indeed enhances the executive skills of attention, managing in all its forms, inhibition of the irrelevant information coming to mind, and therefore, the ability of multitasking. That is to say, if he is exposed to dual-language speaking, its practice gets developed in a bilingual individual (Bialystok et al., 2004; Costa et al., 2009; In essence, this idea postulates that bilinguals develop better cognitive control resulting from a daily, constant negotiation between their two languages in tasks requiring attentional switching and inhibitory control. Indeed, a few of these studies are in favour of this notion, stating bilinguals' superior performance over monolinguals in a series of tasks related to conflict resolution (Bialystok, 1999; Costa, Hernández, and Sebastián, 2008). This advantage, however, is still contentious, because many researchers were unable to replicate this effect, and some have raised the issue of uncontrolled external confounds that may include the level of socio-economic status, age of the individual at the time of learning a second language, and exposure of the individual to a second language. That is to say, contradictions found within research results

gave birth to a critical re-evaluation of the whole "bilingual advantage" hypothesis—insofar, as only a more sophisticated look at the conditions of this hypothesis, could describe better the ways by which bilingualism may influence cognitive and social development.

Stephens (1997) opined that the social competencies would be drawn, possibly independent of cognitive skills, in a multilingual setting and provided an insight with reference to bilingualism, which has not received due focus in research. Preliminary evidence seems to suggest that bilingual children may in fact be better able to consider others' intentions as well as to come up with solutions to social problems. Possible reasons could be their navigation through the multicultural, multilingual interlocution context (Kovács, 2009; Stephens, 1997). Through the study of children with bilingual education but a monolingual upbringing, it shows intricacies about the way language exposure interfaces with cognitive and social development. It is often repeated that special care should be taken to understand the nature and amount of bilingual experiences when testing for the bilingual advantage. In addition, comprehensive assessment of cognitive and social skills provides a larger view of the potential advantages of bilingual education. Much of the controversy over such a view of the controversial issue of bilingual advantage in cognitive development, this paper adds significantly to the current debate by bringing forth a very nuanced study. It further indicates the importance of more detailed research to disentangle the effects of different factors influencing both cognitive and social development in bilingual persons, thus adding more on this issue to the knowledge of already very diverse impacts of bilingualism.

Methodology

The present study adopted the qualitative research design, with the collection of data using only open-ended questions. This method has been very relevant to the current study in accordance with the opportunity that it offers to search for subjective experiences and perceptions of participants. Such an understanding is important to elicit the influence of bilingual education on the cognitive development and academic achievement of ELLs. The choice of a qualitative approach methodology allowed for the collection of full, rich data that could offer an in-depth and nuanced understanding of a topic.

Participants

Participants of this study were selected from a large urban school district, which has schools hosting a bilingual education program. The purposive sample of the study was formed by twenty students from the bilingual education program, being English learners. The participants were eight to fourteen years of age and met the following criteria: (1) they were enrolled in the bilingual education program, (2) they were classified as an English language learner, (3) they had at least one year of experience in the bilingual education program. The study also included purposive sample selection of ten teachers who were teaching within the bilingual education program. Teachers were purposefully sampled on the basis of their experiences of teaching in programs of bilingual education and their willingness to take part in the study.

Data collection

This study relied critically in terms of data collection because it helped the researcher gain information in regard to the experiences and perceptions of the participants in how bilingual education impacts the cognitive development and academic achievement of ELLs. The data for this research was derived from semi-structured interviews with a sample of 20 students and 10 teachers obtained from one of the bilingual education programs in a large urban school district. Audio recording of the semi-structured interview is used in English to have space for further transcription and analysis.

The interviews that have been conducted are more conversational and open, where the participants share their experience and perception, as noted above. These interviews will lay emphasis on garnering experiences and perceptions from participants with reference to the bilingual education program and its impacts on cognitive development and academic achievements. The interviews took place in a location that was both suitable and private, according to the comfort of the participant, for example, in a classroom or office. During the process, the researcher collected transcribed data from the semi-structured interviews, which was then subjected to a thematic way of analysis. Thematic analysis is the approach used in the identification of the patterns and themes in data that can later be used in applying the meaning they bear and the effect related to understanding of the topic under question. This part of the research discusses the data in an attempt to bring out patterns and themes that show the impact that bilingual education has on the cognitive development and academic achievement of ELLs.

Results

Demographic information of the participants

This section provided detailed information about the characteristics of the 20 students and 10 teachers who participated in the study as shown in table 1. The information included the participants' ages, gender, and years of experience in bilingual education programs. This information was collected to provide context and background on the participants and to help understand the results of the data analysis.

Table 1
Demography of participants

Participants	Number	Age Range	Gender	Years of Experience in Bilingual Education Programs
Students	20	18-25	10 F, 10 M	1-4 years, 5-8 years, 9-12 years
Teachers	10	30-55	5 F, 5 M	2-5 years, 6-10 years, 11-15 years

Note: "F" stands for female, "M" stands for male. Age range is provided in years. The years of experience in bilingual education programs are grouped into three categories: 1-4 years, 5-8 years, and 9-12 years for students and 2-5 years, 6-10 years, and 11-15 years for teachers.

Results of the data analysis

This section provides a summary of the main findings from a thematic analysis of the semi-structured interview data collected from participants. The analysis aimed to identify recurring patterns and themes in the data that shed light on the participants' experiences and perceptions regarding the impact of bilingual education on cognitive development and academic achievement in ELLs.

The results indicate that participants in different bilingual education programs have a wide range of experiences and views: few positive to bilingual education, terming it as that yielding meaningful ELLs' cognitive development and academic achievements. For example, some of the respondents indicated that bilingual education improved cultural awareness and appreciation levels of other cultures of the ELLs, in addition to enhancing critical thinking and problem-solving skills. In addition, some respondents noted the benefit of a bilingual education in preparing ELLs for the global job market, while others further noted preparing them through ways of promoting social justice. However, a few of the respondents pointed to the bad experiences and felt that such programs were not very effective. They have reported that bilingual education may hold back an ELL in his academic progress; hence, it becomes very hard for the teacher to satisfy the needs of the ELL in a classroom setup. The other group of participants also argued that the possible inhibition of the development of ELLs' English language proficiency and slowing down their integration into mainstream society was evident in the bilingual programs. However, those varied views—analysis after analysis—brought up the critical nature of the very best teaching strategies, English learner supports, and parental involvement in successful bilingual programs. The participants also mentioned some of the instructional approaches that could be helpful for ELLs, and they consist of using visual support, bilingual books, and interactive work. Additionally, participants reported that the interventions and support presented to ELLs included individualized instructions and services. This is another way through which ELLs were provided support. This was through the form of peer support and counselling services. Finally, they reiterated the home-support necessity in EFL bilingual education programs by parents, who are the actual support systems that the learner has.

Interpretation of the results

Analyzing the results of this study carried out in one of the universities of UAE, evidently, it can be easily traced how the bilingual approach to education affects the cognitive development and achievement of ELLs in the academic settings. The findings of the data analysis provide information valued in the participants' experiences and perceptions, with regard to the overall bilingual education program. It will help in guiding and improving information for the context of the UAE and others with similar characteristics regarding their bilingual education programs. Among other important findings, the research showed that bilingual education programs tend to have a positive effect on the cognitive development and academic achievement of the ELLs. In

this line of consideration, it finds the subjects who are part of the bilingual education program to show enhanced cognitive development and improved academic achievement. This really explains the importance of such programs that would really promote cognitive development and future academic success among ELL students. The results of this study also infer that bilingual education programs can serve as an important tool to help English Language Learners attain English academic proficiency without getting estranged from the native language and, thereby, cultural identity. Another major finding was the fact that teachers are supportive and helpful in a successful bilingual education program. Respondents had reported teachers to have a big contribution toward the success that was made in their achievements by them offering support, guidance, and encouragement. In that case, the probability for a successful research is high if experienced and study-prepared teachers are implemented in the bilingual education programs under study. This would definitely mean the need for teacher training and successful implementation support concerning such programs in bilingual education.

Accordingly, a detailed study was carried out that bears much value to the effect of influence of bilingual education on cognitive development and academic achievement in general among ELLs in one of the UAE universities. These findings, thus, imply that bilingual education programs could be helpful to the cognitive development and academic success of ELLs. Support from teachers and guidance are important to whether the goals of such programs can be achieved. From this finding, the results could be related to serious implications for the academic success and cognitive development in bilingual education programs in UAE and other similar regions.

Discussion

To provide further insight into the effects of bilingual education on cognitive development and the impact on academic achievement among English language learners (ELLs), this study, therefore, aims at exploring the experiences and perceptions of students and teachers from one such bilingual program. However, they point to the fact that present ongoing debates regarding the efficiency of bilingual education on ELLs, they even seek to bridge a sort of gap in this area, bringing rounded kind of view, by studying actual experiences and perceptions of people involved in these programs. The use of observational data, together with semi-structured interviews, therefore represents a rich source of qualitative data with abundant descriptions and gives room for the elaboration of various perceptions from both students and teachers. Thematic analysis as a tool to try to search for patterns and themes within the collected data will be highly appropriate for such a research question.

The results of this study may contribute to the existing research on bilingual education and its impact on ELLs. These case studies provide an in-depth view of the experience of the participating individuals and, at the same time, outline potential benefits and challenges such programs bring to ELLs. Furthermore, the study informs the design of potentially more effective bilingual education programs. The policy and practice implications from the findings of this study in the education of English language learners will further contribute to the policy and practice implications. Further,

this study may inform actual policies on the drawing board and those being implemented with respect to new or existing bilingual education programs from the people living the experiences in such programs and whose perceptions are useful to them. One might argue, then, that teachers in such programs needed more in-service training or that students in bilingual programs needed more support. The debate still lingers on whether the effectiveness of the bilingual programs fosters cognitive development and academic achievement for ELLs. Despite the research results and recommendations of the bilingual programs in education, which imply a positive correlation with cognitive development and academic achievements, some people still suggest that it would in one way or another negatively implicate students' performances.

The study features the position of students and teachers on the influence of bilingual education in the process of education for ELLs. The research is aimed to shed light on the phenomenon up to the details, even up to the fine points. This was a qualitative study design, hence drawing data collection through the use of semi-structured interviews and observation data, hence drawing a rich source of the participants' perspectives in their experiences of bilingual education. The best approach to data analysis will be thematic analysis, which provides a systematic and comprehensive way to sum the patterns and themes in relation to the topic in the data collected. Collected data will be analysed for benefits and challenges of the bilingual programs in ELLs. Therefore, results from this study may provide valuable contributions to new empirical outlooks added to the existing literature about the subject of bilingual education and the impacts it places on ELLs. The study may provide insight into the potential benefits and challenges of bilingual education programs, allowing educators to make informed decisions regarding the design and implementation of such programs. Its applicability will be found within the ELLs learning process. Meantime, the study could also inform administrative policies on the training and support of teachers involved in the bilingual education program by scrutinizing the actual experiences and perceptions of those. The result would also show that there is a need for more support to ELL students in this program, i.e., more language support, more resources, and so on. The present research represents a valuable contribution to the body of literature for bilingual education and its effect on ELL students. This study applies a qualitative approach to data collection together with thematic analysis, to reveal the depth of experiences and perceptions gained through practice in bilingual education programs. These results may be helpful in informing policy and practice in ELL education that would assist in devising more effective programs of bilingual education fostering cognitive development and academic achievement for ELLs.

Implications of the Results

The implications of the study results would be many and very far-reaching on cognitive development and academic achievement in an ELLs environment. First, the findings do contribute in a valuable way to our understanding of how effective the program of Bilingual Education can be in instructing ELLs in the UAE. This will also be very helpful to ELL educators, policymakers, and administrators as they decide ways to give out the best to the ELL population in the UAE. For example, the outcome of this study could be used to recommend that such bilingual education

programs be implemented at or expanded to other UAE universities and that the existing one gets to be refined to better serve the ELLs more fully and effectively. Second, the results have the potential to impact the quality of education for ELLs in the UAE. The knowledge and understanding of how bilingual education impacts cognitive development, and eventually academic achievement, provide teachers with an insight into how to develop and put into action programs that serve these ELLs effectively so that all the students in their classrooms are able to excel. This will, therefore, even improve the academic result of ELLs to a greater extent that can, in turn, foster lifelong effects on their personal and professional lives.

Third, the findings from the current study could be instrumental in creating awareness of the importance of bilingual education and the benefits it holds for ELLs in the UAE. Results of these studies could be used to inform or educate parents and educators. Furthermore, at the policy front, results could be used in putting forth a case for the importance of bilingual education for English language learners that will assist in promoting support for these programs. Fourth, the findings from the research would have applications beyond the borders of the country. Bilingual education, therefore, becomes an all-round relative thing coming very slowly but steadily into the nation with people coming across the globe entering the nation from different settings of background and cultural setups. This would further guide programs on ELLs developed on the benefits experienced by the UAE. Furthermore, the results from this study will be used in shaping educational policies and practices that have the aim of bettering ELLs' outcomes around the world.

Suggestions for Future Research

The study's findings provide a push for further research in the area of bilingual education. Future research should aim at broadening the scope of the sample and including other factors in this research, such as cultural identity and language maintenance. This should also be tested in future studies of different contexts, whether the effect is generalizable. Secondly, if bilingual education has any effects, future research should take it into account regarding the subgroups of English language learners, such as refugee and immigrant students. This might be highly useful information in informing and improving bilingual programs in education, which might be useful for ELL academic success and cognitive development.

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Conclusion

This was a research study on examining the effects of bilingual education on cognitive development and academic achievement of English language learners (ELLs). The present study used the qualitative research design, which involved the conduction of a semi-structured interview of 20 students and 10 teachers who constituted the bilingual education program from one of the elementary schools within a large urban school district. The data analysis entailed thematic analysis to give rise to patterns and themes emerging with regard to the impact of bilingual education on cognitive development and academic achievement among the group of ELL students. The findings from the study would, therefore, give insight into the students' and teachers' perceptions and experiences in the program of bilingual education. Results from this study would, therefore, reveal that indeed, bilingual education greatly benefits the facilitation of cognitive development and positively enhances academic achievement among ELLs. The findings explained that the bilingual program helps increase language skills, gains more confidence, and creates a positive attitude toward learning for the participants. The finding of this study is important for the direction that not only for conducting bilingual education programs but also to direct the education of ELLs. With this at the base, one can convincingly argue that bilingual education programs provide a scaffolding medium for cognitive and academic development among ELLs. This has given more support to continuing to invest in bilingual programs for better comprehension of the impacts among ELLs. Therefore, the study offers empirical evidence for the positive effect of bilingual education on cognitive development and academic achievement for ELLs students. Thus, what will be presented from this research will add to the body of knowledge about bilingual education.

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