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The role and impact of learning a second language in the growth and development of intellectual and mental creativity

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Abstract

Learning is a cognitive process that engages various mental functions and creativity has the opportunity to emerge in the child's mind and thought; therefore, the development of the child's mental field during the period of learning a second language causes sparks of creativity in his mind that make the child's mentality more active. This study aimed to explore the role of second language learning in fostering intellectual and creative development in children. This study was conducted using an analytical-descriptive approach based on a literature review. According to the results, learning must be based on appropriate educational materials to lead to the development of the child's intellectual creativity. Furthermore, the findings indicated that second language acquisition promotes cognitive flexibility, identity formation, and creativity, depending on the intensity of exposure and practice.

Keywords: Second Language Acquisition, Bilingualism, Cognitive Flexibility, Creative Thinking.

El impacto del aprendizaje de una segunda lengua en el desarrollo de la creatividad intelectual y mental

Resumen

El aprendizaje es un proceso cognitivo que involucra diversas funciones mentales y brinda la oportunidad para que emerja la creatividad en la mente y el pensamiento del niño. En este sentido, el desarrollo del campo mental del niño durante el proceso de aprendizaje de una segunda lengua genera destellos de creatividad que estimulan y potencian su pensamiento. El presente estudio tuvo como objetivo explorar el papel del aprendizaje de una segunda lengua en el fomento del desarrollo intelectual y creativo en la infancia. La investigación se llevó a cabo mediante un enfoque analítico-descriptivo basado en la revisión de literatura científica. Los resultados evidencian que el aprendizaje debe sustentarse en materiales educativos adecuados para favorecer el desarrollo de la creatividad intelectual del niño. Además, se identificó que la adquisición de una segunda lengua promueve la flexibilidad cognitiva, la formación de la identidad y la creatividad, dependiendo de la intensidad de la exposición y la práctica.

Palabras clave: Adquisición de una segunda lengua, Bilingüismo, Flexibilidad cognitiva, Pensamiento creativo

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I. INTRODUCTION

Language development occurs in all children with normal brain function, regardless of race, culture, or general intelligence. In other words, the ability to learn language is uniquely human. The view held by many linguists is that although different groups of people speak different languages, all human languages share a similar level of complexity and detail, and share common abstract features. For example, all human languages can be analyzed as systems consisting of discrete, discrete structural units, with rules for combining these units in various ways. That is, although languages are superficially different, they all reflect the general features of a common linguistic system that is typically human. The emergence of a child's mental and intellectual creativity in learning a second language is due to several factors, some of which are within the control of the language teacher and coach, and others are within the control of the child. Language instructors should employ creative methods to actively stimulate the child's creative thinking and, in a sense, to direct the child's mind and thought. However, learning and teaching a language in itself causes the emergence of indicators of creativity in the child, including autonomy, self-confidence, creating an identity, etc. In this study, we will explain the role of learning a second language in the emergence of a child's intellectual and mental creativity. The following will refer to studies conducted in this area. Yousefi et al. (2017) found that learning a second language can improve children's performance on switching tasks. Using two languages requires children to change their language system according to context, and this constant change can lead to greater flexibility in thinking and, as a result, children's better performance in situations where there are parallel rules. The results also showed that learning a second language affects children's creativity. In fact, a second language introduces children to new cultures and customs, which, together with intensive practice in language classes and the prevailing classroom atmosphere, can increase creativity in language learners. Doustizadeh and Seyedi Fazlollahi (2022) found that Language learning in the form of dramatic games strongly affects the level of creativity and autonomy in learning, and such approaches are effective in promoting independent language learning. Creating changes and creative initiatives in the direction of changing and adjusting literary-dramatic texts can serve as a foundation for achieving proficiency in independently applying language learning techniques. Through individualistic practices based on constructivist theory, reading in German can be made unique so that the genetic and psychological structures of each language learner provide them with the opportunity to enhance motivation and foster more autonomous learning outcomes in an appropriate environment. Geravand (2024) found that there is a positive and significant correlation between the level of students' creative problem solving and their reading comprehension. Moreover, the linear regression analysis showed that students' avoidant approach style can predict their reading comprehension. Finally, creative problem solving as a psycho-physiological element can be taught to students to achieve a higher ability in "reading comprehension" and effectively deal with a wide range of problems in the reading comprehension process. For this, we aimed to explore the role of second language learning in fostering intellectual and creative development in children.

II. MATERIALS AND METHODS

This study was conducted using an analytical-descriptive method and relying on library resources. The purpose of the present study is to explain the position of learning a second language in the development of the child's intellectual and mental creativity.

III. RESULTS

The role of second language learning in a child's mental flexibility

Today, much research has been conducted on the brain plasticity of bilingual children. For instance, in 2009, French researchers at the University of Paris Descartes found that children begin to develop cognitive processes useful for language learning at 20 months of age and appear to be most prepared to learn a foreign language, even if they do not have a deep understanding of their native language at this age. In order to achieve these results, these researchers prescribed a group of French children to learn English briefly. The results of this research showed that children over 20 months were able to

master English in the same way as they spoke French.

Coggins et al. (2004) stated that the brain structure of the corpus callosum changes due to the repeated use of two languages, and the increase in the number of myelin and synapses of the corpus callosum leads to the mental flexibility of bilinguals. At birth, a child's brain demonstrates high plasticity and adaptability to transform into any form. In addition to the mother tongue, the child's mind has the ability and flexibility to learn second and even third languages. However, what plays a fundamental role in learning a second language and taking advantage of this mental flexibility is the way parents and educators teach the child the language. Time and place and the use of appropriate language learning tools play a pivotal role in the flourishing of this mental flexibility.

The role of second language learning in children's cognitive processes

Others believe that the use of a second language is effective in cognitive processes (Bialystok et al., 2007), because in bilinguals both languages are active simultaneously (Poarch & Bialystok, 2015; Pallant, 2010; Blumenfeld and Marian, 2007; Morales et al., 2012). As a result, being bilingual requires the use of efficient cognitive mechanisms to manage two languages and use language appropriately according to context. Accordingly, bilingualism can be considered a continuous and extensive cognitive exercise (Poarch & Bialystok, 2015) that brings numerous benefits in the performance of different domains (Bialystok, 2005; Kharkhurin, 2009; Bialystok et al., 2008); thus, learning a second language in childhood will have a greater impact on cognitive processes (Colzato et al., 2008).

Cummins (1976) states that bilinguals' greater and broader experiences are the reason for their superior performance, and bilinguals communicate with the world through two different conceptual systems due to their connection to two different cultures. As a result, increasing conceptual representations has a positive effect on their cognitive flexibility and creativity. In line with Cummins' explanation, Ghonsooly and Showqi (2012) believe that in addition to learning the language, language learners also become familiar with new cultures, customs, and beliefs, and ultimately can represent the world through two conceptual systems. They also stated that in bilinguals, tolerance for ambiguity that is a characteristic of divergent thinking, increases through exposure to subtle cultural differences.

The role of second language learning in child autonomy

Perhaps the background of autonomy and creativity in foreign language teaching is critical thinking during learning. Critical thinking is a responsible and organized type of attitude that leads the learner to correctly judge whether his/her linguistic ability has reached the level of autonomy and creativity. In this type of attitude, evaluation and innovation are strengthened and the reasoning power of the learners increases, ultimately creating areas for autonomy and innovation in the learning method. In the field of autonomy and creativity in foreign language learning, Howard Altma can be considered one of the first people to theorize on this subject. Altma introduces the phrase individual structure as a keyword in terms of autonomy in learning and adds in his explanation that general patterns in learning should be avoided, and there is a unique structure for each person, in other words, the individual needs of each person require it (Altma, 1972: 12).

Another important theory after Altma's is Hulk's theory. According to Hulk's theory, autonomy in learning includes establishing learning goals, the rate of progression in learning, choosing learning methods, and also evaluating learning. In 1979-1980, Henry Hulk defined the term autonomy in the educational field in a distinctive way. According to the proposed model, this term is based on the learner's personal perspective and point of view on learning. This type of personal perspective is a type of educational behavior in the sense that the scholar shows a kind of competence in performance. According to the theory of Hulk (1980), an independent scholar learns to be competent and to manage his own learning processes. He also distinguishes between the terms autonomy in learning and steering in learning, and in this way forms an individual identity in learning (Müller & Hulk, 2001).

Autonomy in educational games can lead to the emergence of intellectual and mental creativity in children. Pfeiffer's research is one of the few studies that have been written about the benefits of

games in foreign language classes. The research was conducted in an educational environment in English classes with two classes of 35 students each for 58 hours of instruction. In the first class, game elements were used, and in the same class, the method was based more on the question-evolutionary method. The extent of the effect of educational games in the first class on students' scores was very decisive, and his research generally emphasizes the effect of educational games on students' scores. The challenge and commonality of play and creativity in learning is that learning is something that is achieved with effort, while the nature of play is leisure and a kind of rest. Seriousness and regularity, except in free-form games that are related to early childhood, are common in play and work (intellectual or practical work). Therefore, due to the entertaining nature of play, mental and physical activity during play cannot be denied.

The role of second language learning on a child's thought processes

According to Piaget, a child goes through four stages of development, of which the concrete operational stage (7 to 11 years old) and the formal operational stage (11 years later) can be considered among the child's intellectual processes in which learning a second language has a direct impact on its growth and development. Also, the second stage, the preoperational stage (2 to 7 years old), can also be influenced by a second language if the child has a very high IQ, not an average IQ. However, the concrete operational stage involves acquiring skills in logical operations. Logical operations enable a person to act mentally on objects. This ability allows elementary school children to think actively about the objects and events they experience every day. In fact, a child in the concrete operational stage overcomes all the limitations of the preoperational stage and acquires the relevant abilities.

In the formal operational stage, thinking becomes much more complex and advanced. Children can think about abstract and theoretical concepts and use logic to come up with creative solutions to problems. Skills such as logical thinking, deductive reasoning, and systematic planning also emerge at this stage. Learning a second language develops and expands a child's abstract thinking and paints new images in his mind that ultimately lead to creative thinking, whereas before, despite the child's mastery of the mother tongue, this abstract thinking had a very limited scope.

The role of second language learning on a child's sense of identity

Identity in the literal sense means the truth and nature of something; or identity is the answer to the question of who one is and how one is. Identity is a set of beliefs, convictions, and attitudes that are acquired through exploration in the individual and interpersonal environment. (Salahi, 2016) James Marcia has described identity under two concepts: exploration and commitment. Exploration is related to crisis and indicates cognitive and behavioral distinctions. Commitment is actually a decision-making process. By considering the presence or absence of each of these two concepts, the bases of an individual's identity can be determined during the period of identity formation.

By combining the absence or presence of these criteria, four bases were determined: identity acquisition, identity interruption, identity capture, and identity dispersion (Barak, 2017). In defining each of the bases, it can be said that identity dispersion: people who do not have a clear direction and do not adhere to values and goals and do not try to achieve them. Identity capture: people who are unexploredly committed to the values and goals that those in power (parents, teachers, etc.) have chosen for them. Identity interruption: people who do not yet have a definite commitment and are collecting information to achieve their values and goals. Identity acquisition: people who are committed to goals and values and feel psychologically healthy (Salahi et al., 2018).

In addition, learning a second language has a profound impact on a person's sense of identity. Identity context theory suggests that language is not just a means of communication, but also a reflection of a person's cultural and social identity. When people learn a second language, they are exposed to new cultural perspectives and practices. This exposure can lead to a transformation of a person's identity as they move between different linguistic and cultural contexts.

Creativity of bilinguals compared to monolinguals

Bilinguals perform better than monolinguals on switching tasks. Second language learning improves the ability to reshape the association between stimulus and response, just as it does each time a language switch is used to remap language concepts in the minds of bilinguals. Therefore, the unique nature of bilinguals' use of two languages, i.e., the availability of two representational systems, may be responsible for the long-term benefits of bilingualism on nonverbal tasks, including switching tasks (Wiseheart et al., 2014). Research also suggests that language acquisition in language learning institutions can have a significant effect on increasing children's creativity. Leikin et al. (2014) showed that balanced preschool bilinguals outperformed monolinguals in creativity and reported superior performance of bilinguals on fluency and originality.

Coggins et al. (2004) stated that the structure of the corpus callosum changes as a result of repeated use of two languages, and that an increase in the number of myelin and synapses in the corpus callosum leads to mental flexibility in bilinguals. Ghonsooly and Showqi (2012) considered the superior performance of language learners to be due to their motivation to change and adapt to this new experience and consider the tendency to adapt to be a characteristic of creative thinking.

To the extent that the vocabulary of the child who speaks to them develops, the layers of his brain and mind also grow and develop, and this ultimately fosters the emergence of the child's creativity. In contrast, a child who uses a limited vocabulary until the first seven years of life, and those words are mostly related to his mother tongue, his brain and mental development takes place slowly, and in adolescence and youth, he does not find any traces of creativity. Therefore, the emphasis on learning language in childhood is actually aimed at the education of flourishing and creativity in adolescence and youth.

IV. CONCLUSION

According to the findings, second language learning at an early age has a positive relationship with children's creativity and this has a significant impact on academic performance. In other words, children who are exposed to second language learning from an early age have a higher ability in problem solving and cognitive focus, and have also shown better academic performance. On the other hand, the creativity of bilinguals is the result of their increased brain and mental capacity and talent, while monolinguals are deprived of this creativity. Therefore, the more mental and intellectual activity the brain system has, the more creativity it displays, and this fosters the child's development across all areas, including personal and social life.

Given the significant cognitive and creative benefits associated with early bilingualism, this study recommends integrating structured second language programs into primary education curricula. These programs should incorporate play-based and culturally responsive methods to enhance motivation and identity formation among young learners.

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