



RESEARCH ARTICLE

Section: *Language and Linguistics*

Tracing the brain mechanism and exploring the current factors affecting the process of learning the English language/disorder

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ABSTRACT

This study aims to identify and clarify certain concepts related to the current state of English language learning. Throughout history, numerous studies have explored the challenges faced by learners of the English language. In contrast, this study tries to follow a new technique to add another circle to the chain of acquiring a language from a different dimension related to the biological function of the human brain since Neuroscience is taking considerable concern on language learning from the early stages to discover the various brain systems that motivate the human language scope. Apart from this, theories and approaches were stated and linked to the biological use of brain mechanisms to show the importance of this factor. Previous studies have also explored different regional varieties to facilitate better generalization. The study concluded that some issues were related to the neuroscience aspect of language learning.

KEYWORDS: brain mechanism, language difficulties, Language Disorder, Language learning, Neuroscience.

Research Journal in Advanced Humanities

Volume 6, Issue 1, 2025

ISSN: 2708-5945 (Print)

ISSN: 2708-5953 (Online)

ARTICLE HISTORY

Submitted: 20 August 2024

Accepted: 16 December 2024

Published: 30 April 2025

HOW TO CITE

Al Momani, A. M., & Hammouri, D. M. . (2025). Tracing the brain mechanism and exploring the current factors affecting the process of learning the English language/disorder. *Research Journal in Advanced Humanities*, 6(1). <https://doi.org/10.58256/319g7618>



Published in Nairobi, Kenya by Royallite Global, an imprint of Royallite Publishers Limited

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Introduction

The number of language learners has increased rapidly, and they use the language for various purposes. Lately, there has been no institutional curriculum in which the English language is not a primary focus. (Harmer, 2001) stated that it is not wrong to say that most students around the world study English because it is compulsory in their institute's curriculum. In Jordan, English is considered a foreign language, and it is taught from the first grade of elementary school to the university level. Hence, learners at school typically do not have the option to choose between learning the English language. Due to this, English language teachers have faced a significant challenge in motivating their students and encouraging them to engage with their subjects. This appears to be one of the most challenging tasks for teachers to find suitable and well-organized materials that meet students' needs. This responsibility gets even more challenging for students with special needs, who require additional equipment and treatment.

Studies were carried out to explore more such scenarios (Al-Khatib & Khreisat, 2022). Conducted a study on the importance of early intervention programs based on distance training of mothers in improving the social and language skills of children with intellectual disabilities, and the need to engage families in training and education. The study revealed that the intervention program focuses on the social and linguistic skills of children with intellectual disabilities. It identifies the program's impact on the mothers' abilities to train their children. The findings have practical applications in the development of early intervention programs that can be implemented remotely, which can be especially useful for children with Down syndrome and intellectual disabilities who may have limited access to traditional intervention programs.

Language is considered to be a social and mental process. For this purpose, studies were conducted by Al-Shawabkha, H., & El-Zraigat, I. (2022). They concluded that evaluating the effectiveness of a program based on symbolic communication in reducing challenging behaviors and improving social interaction among individuals with autism spectrum disorder who have an intellectual disability in Jordan. The study also concluded that using symbolic representation in the experiment significantly influenced participants' cognitive processing abilities.

Rudd, L. C., & Kelley, H. M. (2011). Defined language development as the distinguished level of skills awareness involving audible and oral communication capabilities to express their needs. Consequently, language development can be expressed as language acquisition, which appears to be one of the learners' most remarkable achievements at certain stages of their lives. Hoff, E. (2009). Stated that

“The recent research shows that the area of language development and its underlying mechanisms are usually described separately for the subdomains of phonological development (the sound system), lexical development (the words), and morpho-syntactic development (grammar), although these domains are interrelated both in language development and in language use.”

In contrast, a language disorder can be described as a lack of or miscomprehension in the use of spoken and written forms. In line with Hoff, E. (2009), Language disorder can be classified into the following categories. Firstly, the form of language (phonology, morphology, syntax); secondly, the content of language (semantics); and finally, the function of language in communication (pragmatics) in any combination.

Producing language is considered a highly complex process. The brain, which contains a complex network of neuronal systems, is the tool that enables this process. It starts with the production of sounds. Speech comprises several sounds that happen instantaneously, and the variety of frequencies makes it variable. The receptive tools turn the sound into an auditory signal. Consequently, the brain decodes these signals into electric impulses, and nerve cells transform into the auditory part of the cerebral cortex. Moreover, it is typically stored in a specific part of the brain. When learners face difficulties or problems in this process, language disorder becomes one of the symptoms because of biological aspects.

Aim of the study

This paper aims to shed light on key factors for making practical recommendations for teaching the English

language, with special attention to learners with special needs and difficulties. The paper also focuses on the importance of various factors related to the difficulties faced by English language learners, such as their ability to learn the English language, teachers' methods in educating these learners, and the choice of appropriate and necessary instructional changes tailored to their needs. Finally, it discusses aspects of language development and language disorders from a biological perspective.

Learners with Language Learning Disorders and Difficulties

According to a UNESCO report (2009:8), inclusion is defined as 'a process of presenting and reacting to the variety of learners' needs, either at a young age or for adults, through increasing participation in learning, cultures, and communities, and reducing and eliminating exclusion.' Kauffman, J. M., Hallahan, D. P., Pullen, P. C., & Badar, J. (2018) stated that students with special needs, regardless of the nature of their disability or difficulty, are attending ordinary schools in their hometowns. They become the responsibility of general teachers who are not well-trained to deal with this specific sample of learners. Moreover, it is the responsibility of regular teachers to identify the weak points of learners with disabilities and difficulties by applying instructional and content justification, in addition to recognizing these learners in the class.

These learners can be classified through language-based learning disabilities (LBLD), which has been best elaborated by Newhall (2012) as a spectrum of difficulties related to the understanding and use of spoken and written language. However, a few problems regarding language disorders appear with some students at an early stage of their schooling, which can be identified from the fact that educational demands and expectations increase with their language-based learning disorder.

DiFino, S. M., & Lombardino, L. J. (2004). The problems faced by learners of foreign languages can be categorized into three categories that cause difficulties in learning the English language. Firstly, learners often struggle with skills such as recalling or memorizing. Secondly, anxiety and shyness about using language in the classroom, as well as syntactic and morphological ambiguity, hinder learners' ability to comprehend grammatical concepts.

Additionally, the scenario of language learning disabilities can be at any stage, as in DiFino, S. M., & Lombardino, L. J. (2004). Conducted a study with higher-level university students, concluding that an important sign helps identify students at risk. Common signs may include unexpected performance evaluations on daily quizzes and exams, despite attending regular classes. Learners also get easily confused while attending lessons, either by asking questions or frequently. One of the most critical points is that learners. Feel frustrated and misbehave, as they may act aggressively towards their teacher due to the gap between their ability and the course material. In such cases, learners must be given enough time to catch up with their classmates. Additionally, some learners find it difficult to follow the teacher's instructions.

Based on the previous investigation, it is clear that learners may face different obstacles, such as classroom capacity. Teachers will definitely not be satisfied if the number of students in class exceeds the standard. In such a case, they will be unable to provide individualized feedback to each student. There is only one research study by Xu (2001), which suggests that class size does not affect the teaching process. However, most studies emphasize that a small class size results in better student understanding. In addition, there is an external factor worth mentioning: motivation. Learners should be motivated to learn the English language, as motivation is considered very important because it bridges the gap between students and teachers.

Additionally, teaching another language requires a well-trained teacher. Unfortunately, some teachers do not appear to follow the latest teaching methods and lack training in addressing the challenges encountered in teaching English. Due to these facts, the teaching process does not improve, and the difficulties persist.

Factors Affecting Language Development

The process of language development can be determined through two significant domains: theoretical or socio-psychological and social factors. This study sheds light on the theoretical aspects, with a greater emphasis on socio-psychological factors.

The theoretical part has been extensively discussed in numerous studies, providing logical explanations despite differing viewpoints. For example, the Chomskyian theory of universal grammar claims that the individual has the inner capacity to learn a language, even though everyone inherits some language components. The Competition Model disagrees with Chomskyian theory, which posits that the communication process should be generated dynamically rather than simply inheriting language patterns. The competition model emphasizes how a learner develops a language rather than what is acquired in the mind. Furthermore, it presents the main components of language accordingly: phonetically (sound production), syntactically (form), and semantically (meaning), which complement each other in enabling effective communication through language use.

(Malone, 2012) reported that Anderson's Adaptive Control of Thought is another theory that contradicts Chomsky's UG theory. Anderson has presented the process of knowing language as a consequence of a "highly complex cognitive structure," which can be achieved through collecting data and reorganizing them to become comprehended units. It also indicated that language learning is procedural, not just what is kept in mind (declarative knowledge). Anderson believed that language develops practically more. As a result of Anderson's findings, they agreed and supported Skinner's behavioral theory. The behavioral theory, also known as S-R-R (Stimulus, Response, and Reinforcement), proposes that knowing the language is like any behavior, which can be learned through the triangle process of stimulus, response, and reinforcement until it becomes a habit.

Experts in the field of language acquisition, such as Krashen, Vygotsky, and Schumann, have become solid pillars due to their theories on language learning. SLA (Theory of Second Language Acquisition) by Krashen, Acculturation Theory by Schumann, and Vygotsky's sociocultural theory are all considered essential from the perspective of social interaction in learning L2. Krashen emphasizes five main hypotheses: Acquisition-Learning, monitoring, Natural Order, Input, and Affective Filter.

Previous research has emphasized the biological innateness and honest communication. Krashen, through the Affective Filter hypothesis and the Input Hypothesis, pointed out the elements that affect learning a second language (L2). The input hypothesis suggests that a learner efficiently improves in a "natural situation" if they obtain "Second Language Input" that exceeds their existing linguistic competence. The Affective Filter hypothesis identifies important factors, including anxiety, self-confidence, and motivation, that contribute to the successful learning of an L2. Learners become successful with great motivation, self-confidence, and low anxiety (Krashen's Theory, Malone, 2012). The theory of acculturation, as proposed by Schumann and Vygotsky's sociocultural theory, suggests that social interaction is a crucial factor in the successful learning of an L2. The acculturation theory encompasses domains in sociology, politics, and the learner's context, aiming to facilitate better achievement in L2 learning. In support of Krashen's theory, the willingness to learn a second language and a low affective filter indicate that the achievement of L2 proficiency is higher in terms of mastering the language. The Theory of Sociocultural highlights the connection between mental functioning and the concepts of social, cultural, and historical contexts in which the functioning takes place. Through its three important scopes (Mediation, Zone of Proximal Development, and Scaffolding), the theory claims that second language learning happens through a social interaction (mediation), which usually appears when there is a gap between an entity's actual developmental stage and potential stage (Zone of Proximal Development) that he/she can accomplish through the assistance (scaffolding) of a more capable individual (Safari & Rashidi, 2015). These approaches are commonly referred to as "poststructuralist approaches" because they reconceptualize L2 learning as "intrinsically social" rather than "simply cognitive," which is often referred to as "situational learning."

Due to the clashing thoughts, constant dynamism of L2 learning, and its relativity to each person, the Chaos/Complexity Theory (C/CT) has been detailed. Under this hypothesis, L2 learning is viewed as a complex, nonlinear framework. Subsequently, it is described as "dynamic, nonlinear, disorderly, eccentric, sensitive to introductory conditions, open, self-arranging, input delicate, and versatile" (Larsen-Freeman, 1997, as cited in Tamjid, n.d.). A C/CT model views L2 learning as something that no specific hypothesis can explain because of its multifaceted nature. In any case, various hypotheses, whether nativist (Chomsky), input-based (Krashen), environmental (Skinner), or interactionist (Anderson), can be incorporated into a comprehensive framework for a better understanding of the process (Safari & Rashidi, 2015; Theories of L2, n.d.).

Additionally, the investigation highlights the significant disparity in teaching strategies in foreign language classes. These days, open requests instructors to utilize various systems, such as regular methodologies, informative exercises, technology, and multi-sensory strategies. Nevertheless, despite the conscious efforts to implement these procedures, language challenges arise due to the uniqueness of students' styles or examples and educational techniques. The confusion is a definitive reason for issues in L2 gaining besides character, insight, and sentiments Bai, B., Shen, B., & Wang, J. (2024). For example, in the investigation of Marantika (J. E. R., 2022), the learning styles and inclinations of Iranian students are found to be distinctive and dependent on gender orientation. Female students are more inclined toward sound-related learning, while male students are less inclined toward it. Female students have the least inclination for sensation learning. Male students have the least inclination toward material learning. Given such, if the two gender orientations are uncovered using a similar strategy, they may not learn most proficiently, or one will learn to the detriment of the other. Then again, an investigation directed by T. Schütze, C. (2016) contended that female students have higher standards for dependability compared to male students when the words have been repeated multiple times. He likewise discovered that the estrogen hormone, which stimulates serotonin production, has no significant impact on maintaining romantic words; however, serotonin is strongly linked to feelings, especially happiness.

Linguistic capacity and the mother language can cause trouble for students who have joined L2 classes. In the investigation by Ebrahimpourtaher, A., & Eissaie, S. (2015), Iranian intermediate L2 students have considered language structure (when contrasted with jargon) as the most challenging yet the least helpful aspect of L2 learning. Regardless of the syntactic difficulties, respondents perceived a need for first language use or code-switching to help them understand punctuation and jargon. Then again, the local language may likewise frustrate effective L2 learning. For example, Ameri, H., & Asareh, F. (2010) contended that because of the way that Turkish and Arabic dialects did not emerge from a similar language branch as Persian, bilingual rudimentary understudies took a crack at Persian dialects experience inconveniences in subject-action word understanding, verbal affectations, linguistic structure, and semantics.

Language Development and Biological Concept

Formative increments in neural specialization for language are related to Socioeconomic status (SES) contrasts. For instance, differences in the structure of left frontal cerebrum regions, which are significant for language handling, were found in five-year-old children as an element of SES. Raizada, R. D., Richards, T. L., Meltzoff, An., and Kuhl, P. K. (2008). Another examination found that SES was associated with brain volume in the left frontal and posterior cerebrum, which is significant for language; these SES differences may increase with age. Honorable, K. G., Houston, S. M., Kan, E., and Sowell, E. R. (2012). Lower SES was associated with a diminished surface zone in various brain areas, including frontal regions supporting language. Respectable, K. G., Houston, S. M., Brito, N. H., Bartsch, H., Kan, E., Kuperman, J. M., & Schork, N. J. (2015). These connections may persist into adulthood. In adults, financial hardship predicts the level of decline in the cortex in back language areas. Krishnadas, R., McLean, J., Batty, G. D., Burns, H., Deans, K. A., Ford, I., and Shiels, P. G. (2013). Retrospective youth SES also predicts language capability and early neural response to grammar over left frontal brain regions in adults.

Kandel, D. B., Johnson, J. G., Bird, H. R., Canino, G., Goodman, S. H., Lahey, B. B., ... and Schwab-Stone, M. (1997) The procedure of composed language obtaining, as happens with oral language, includes different areas of the cerebrum, including the parieto-occipital point. In the occipital lobe, the primary visual cortex processes realistic images, and parietal projection zones are responsible for the visuospatial aspects of composition. The handled data is perceived and decoded by Wernicke's area, which is responsible for language comprehension, and the output of spoken language requires the activation of the primary motor cortex and Broca's area. For this procedure to happen, intra-hemispheric associations must be unblemished.

Over the past decade, significant advances have been made in our understanding of language improvement, particularly in terms of accuracy, replicability, and the importance of specific outcomes. Just because we are in a situation to state astonishing and non-inconsequential outcomes about language improvement. The

conventional thought was a misguided glorification of certainty about immediate advancement, as though data were accessible to the youngster at a single point in time. Current practice and results turn this unique idea on its head, rendering the idea of youngsters' organic improvement focal instead of fringe. Currently, great work on language and science, specifically Lenneberg's Biological Foundations of Language, was correct, yet still appeared to be in its conceptual stage. We would like to present some new findings and outline how they fit into a broader scientific context. New techniques make this conceivable: the degree of quantitative exactness in computationally exact formative etymological practices has raised the expressive bar in terms of scope compared to 10 years ago. Now and again, the outcomes look to some extent like logical laws. Furthermore, it is a cliché that human language both limits and consolidates learned and heritably transmitted capacities, and we should consequently pay attention to the communication of genetic traits and language. Generally, this is presently practiced through investigations of freak populations. In the past, this was demonstrated by the fact that we lacked essential data on ordinary development. Given significant advances in the field, we can now examine disabled populations, and an astounding number of customary outcomes are beginning to be revealed across a range of etiological and subjective deficits. These discoveries appear to hold extraordinary promise in the journey toward hereditary comprehension; for example, because both social hereditary and linkage studies are being conducted in the typically developing child, as well as in children with specific disabilities. These new strategies involve a thorough understanding of how etymological portrayals are created and how to address these two significant shortcomings.

Based on the Bayesian hypothesis, language advancement may be influenced by general learning techniques, suggesting that it serves as a prime occurrence at present, which is currently under scrutiny in many research programs. In that light, a key inquiry for Bio-linguistics is whether, assuming any, specific structures have evolved in administering such procedures for language specifically, which have developed for discernment in general, and which are only unintentionally influenced by such inferential instruments in humans. Over the past 20 years, there has been an extreme investigation of the early computational representation of language in children. The outcomes show that small children "learn" essential properties unique to their language much more quickly than unguided learning models could predict. Such marvels have persuaded etymologists to propose a solid hereditary component that prefigures potential languages in the child's brain, as is typical of species-specific learning overall. Moreover, the capacity to acquire language as a first language deteriorates quickly after puberty (Lenneberg, 1967). Research exploring the intellectual and neural bases of language acquisition often raises accompanying questions about this phenomenon: How unexpected is this decline in language learning capacity? Is it an averaging impact? Are parts of language influenced similarly and simultaneously? In the accompanying segments, we present atomic genetic investigations of second language learning, as well as conducting genetic examinations (twin studies, family studies) of second language learning, revealing insight into a deeper understanding of why there is a critical period for language acquisition. Ebb and Flow investigate the effect of sex hormone levels on language, examining the use of variability in the onset and duration of adolescence in various clinical and non-clinical populations. The examination of the connection among hereditary qualities and the supposed basic time frame, for instance, atomic hereditary investigations of second language learning, allows a far more profound comprehension of why there is an introductory period, how it is identified with the learnability hypothesis, language handling, and language advancement, just as unwinding the connection between language learning and neural movement and its structure.

Conclusion

There are various reasons for language issues and learning disabilities, although numerous studies indicate that neurological factors may be involved. Improved understanding of the neurobiology of language development and learning processes will contribute to a more effective therapeutic approach to this phenomenon. An orderly examination focused on an exact determination may help experts pick the best treatment for each case.

Neuroimaging procedures help investigate the effects of natural and genetic factors on the neurobiology of language development. Research utilizing these procedures with youngsters from a broader range of

socioeconomic backgrounds and diverse early experiences will lead to a more comprehensive understanding of the developmental trajectory of language subsystems and the impact of environmental factors on this development.

Numerous students experience challenges with foreign language learning, even those who have not recently been identified as having learning disabilities. Learning disabilities are sometimes identified in students who encounter difficulties learning a new language and achieve poor results. Researchers should consider Learning Disabilities; the two students with learning disabilities and those with foreign language learning troubles often have issues with their native language abilities (particularly phonological and orthographic aspects of language) and exhibit a weaker interest in foreign languages, which later affects their foreign language learning. Although it is obsolete, the Modern Language Aptitude Test remains a significant indicator of foreign language proficiency. Aside from being accomplished, qualified, motivated, experienced, and capable, effective dialect instructors should also be prepared to work in a comprehensive classroom. They should learn how to effectively perceive students with language learning disabilities or challenges in their classroom and make suitable instructional adjustments to address their needs. Various examinations have demonstrated that multisensory organized language (MSL) guidance has become one of the most effective instructional techniques for students with issues in foreign language learning.

Funding: This research received no external funding.

Acknowledgments

The authors would like to thank their mentors and colleagues for their support and guidance in this research.

Conflicts of Interest: The authors declare that they have no conflict of interest.

Disclaimer Statement

The work is not a part of a thesis submitted to a university for the award of any degree.

Biographies

Abdullah Mohammad Al-Momani is a staff member in the Department of English Language & Translation at Applied Science Private University. Al Momani holds a Bachelor of Arts Degree in English language and literature, an MA in Applied linguistics, as well as a PhD in linguistics, including teaching English at the university since 2009

Dina Mahmoud Hammouri holds a PhD in Linguistics and is an Assistant Professor in the Department of English and Translation. Dr. Hammouri has over nineteen years of experience in teaching at educational institutions, including eight years at the University of Jordan and Al-Hussein Technical University. During this period, she has taught various courses in her field of specialization. Her research interests focus on pragmatics, sociolinguistics, and second language acquisition. Dr. Hammouri is a member of the Association of Professors of English and Translation at Arab Universities.

Authorship and Level of Contribution

Both authors contributed equally to the conceptualization, research, and writing of this paper.

Glossary of Terms

Neuroscience: The study of the nervous system, including the brain's role in cognitive functions...

Broca's Area: A region in the brain responsible for speech production

References

- Ameri, H., & Asareh, F. (2010). An investigation about language learning problems at elementary levels in bilingual areas of Iran. *Procedia-Social and Behavioral Sciences*, 9, 1757-1761.
- Al-Shawabkah, H., & El-Zraigat, I. (2022). The effectiveness of a program based on symbolic communication in reducing challenging behaviors and improving social interaction among individuals with autism spectrum disorder who have intellectual disability in Jordan. *Jordan Journal of Applied Science-Humanities Series*, 33(2), 88-110.
- Al-Khatib, J., & Khreisat, S. (2022). The Impact of an Early Intervention Program Based on Distance Training of Mothers in Improving the Social and Language Skills of Children with Intellectual Disability in Jordan. *Jordan Journal of Applied Science-Humanities Series*, 32(2), 35-58.
- Bai, B., Shen, B., & Wang, J. (2024). Impacts of social and emotional learning (SEL) on English learning achievements in Hong Kong secondary schools. *Language Teaching Research*, 28(3), 1176-1200.
- DiFino, S. M., & Lombardino, L. J. (2004). Language learning disabilities: The ultimate foreign language challenge. *Foreign Language Annals*, 37(3), 390-400.
- Ebrahimpourtaher, A., & Eissaie, S. (2015). A survey of Iranian EFL learners' opinions about problems in learning English as a foreign language: the case of vocabulary, grammar and L1 use in learning L2 skills. *Indian Journal of Fundamental and Applied Life Sciences*, 5(2), 986-991.
- Harmer, J. (2001). *The Practice of English Language Teaching*. Harlow: Pearson Education Limited.
- Hoff, E. (2009). Language development at an early age: Learning mechanisms and outcomes from birth to five years. *Encyclopedia on early childhood development*, 1-5.
- Kandel, D. B., Johnson, J. G., Bird, H. R., Canino, G., Goodman, S. H., Lahey, B. B., ... & Schwab-Stone, M. (1997). Psychiatric disorders associated with substance use among children and adolescents: findings from the Methods for the Epidemiology of Child and Adolescent Mental Disorders (MECA) Study. *Journal of Abnormal Child Psychology*, 25(2), 121-132.
- Kauffman, J. M., Hallahan, D. P., Pullen, P. C., & Badar, J. (2018). *Special education: What it is and why we need it*. Routledge.
- Krishnadas, R., McLean, J., Batty, G. D., Burns, H., Deans, K. A., Ford, I., ... & Shiels, P. G. (2013). Socioeconomic deprivation and cortical morphology: psychological, social, and biological determinants of ill health study. *Psychosomatic medicine*, 75(7), 616-623.
- Larsen-Freeman, D. (1997). Chaos/complexity science and second language acquisition. *Applied linguistics*, 18(2), 141-165.
- Lenneberg, E. H. (1967). The biological foundations of language. *Hospital Practice*, 2(12), 59-67
- Malone, S. (2012). Theories and research of second language acquisition [PDF Document]. Retrieved from http://www.sil.org/sites/default/files/files/theories_and_research_of_second_language_acquisition.pdf
- Marantika, J. E. R. (2022). The relationship between learning styles, gender and learning outcomes. *Kıbrışlı Eğitim Bilimleri Dergisi*, 17(1), 56-67
- Newhall, P. (2012). Language-Based Learning Disability: What to Know. Retrieved July 2019. from <http://www.ldonline.org/article/56113/>
- Noble, K. G., Houston, S. M., Brito, N. H., Bartsch, H., Kan, E., Kuperman, J. M., ... & Schork, N. J. (2015). Family income, parental education and brain structure in children and adolescents. *Nature neuroscience*, 18(5), 773.
- Noble, K. G., Houston, S. M., Kan, E., & Sowell, E. R. (2012). Neural correlates of socioeconomic status in the developing human brain. *Developmental science*, 15(4), 516-527.
- Raizada, R. D., Richards, T. L., Meltzoff, A., & Kuhl, P. K. (2008). Socioeconomic status predicts hemispheric specialisation of the left inferior frontal gyrus in young children. *Neuroimage*, 40(3), 1392-1401.
- Rudd, L. C., & Kelley, H. M. (2011). Language Development. *Encyclopedia of Child Behavior and Development*, 865-865.
- Safari, P., & Rashidi, N. (2015). A Critical Look at the EFL Education and the Challenges Faced by Iranian

- Teachers in the Educational System. *International Journal of Progressive Education*, 11(2).
- T Schütze, C. (2016). The empirical base of linguistics: Grammaticality judgments and linguistic methodology (p. 244). Language Science Press.
- UNESCO. (2009). Policy Guidelines on Inclusion in Education. Paris: UNESCO.
- Xu, Z. (2001, February). Problems and strategies of teaching English in large classes in the People's Republic of China. In *expanding horizons in teaching and learning. Proceedings of the 10th Annual Teaching Learning Forum* (pp. 7-9).