

## INFLUENCE OF INTRINSIC MOTIVATION ON ENGLISH LEARNING AS A FOREIGN LANGUAGE AMONG STUDENTS WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD)

Influencia de la motivación intrínseca en el aprendizaje del inglés como lengua extranjera en estudiantes con Trastorno por Déficit de Atención e Hiperactividad (TDAH)

Influência da motivação intrínseca na aprendizagem do inglês como língua estrangeira entre alunos com Transtorno de Déficit de Atenção e Hiperatividade (TDAH)

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**To cite this article:** Zambrano Ascencio, A. L., Valdez Arteaga, W. N., Zambrano Gallardo, G. E. y Mendoza Moreira, F. S. (2025). Influence of intrinsic motivation on English learning as a foreign language among students with Attention Deficit Hyperactivity Disorder (ADHD). *Maestro y Sociedad*, 22(4), 4046-4059. <https://maestroysociedad.uo.edu.cu>

### ABSTRACT

Intrinsic motivation plays a fundamental role in education, particularly in foreign language learning. However, despite evidence indicating that the prolonged use of external reinforcements may undermine this type of motivation, such approaches continue to be prioritized over strategies that foster learner autonomy in the education of students with Attention Deficit Hyperactivity Disorder (ADHD). Consequently, the objective of this review is to analyze studies that examine the influence of intrinsic motivation on learning English as a foreign language among students with ADHD. A systematic review of the literature was conducted following the PRISMA guidelines, in which 25 studies met the inclusion criteria. The findings indicate that intrinsic motivation positively influences both the learning of English as a foreign language and the academic performance of students with ADHD. Nevertheless, a conclusive relationship has not yet been established, as the existing literature has insufficiently addressed intrinsic motivation and its fundamental components in this population. In conclusion, the results suggest that fostering intrinsic motivation and the conditions that sustain it may play a relevant role in supporting engagement and learning in English as a foreign language context, particularly among students with ADHD, nonetheless, further empirical research is required to address the existing gaps in the literature.

**Keywords:** Attention Deficit Hyperactivity Disorder, foreign language, learning English, intrinsic motivation.

### RESUMEN

La motivación intrínseca desempeña un papel fundamental en la educación, en particular en el aprendizaje de lenguas extranjeras. Sin embargo, a pesar de la evidencia que indica que el uso prolongado de refuerzos externos puede socavar este tipo de motivación, estos enfoques continúan priorizándose sobre las estrategias que fomentan la autonomía del aprendizaje en la educación de estudiantes con Trastorno por Déficit de Atención e Hiperactividad (TDAH). En consecuencia, el objetivo de esta revisión es analizar estudios que examinan la influencia de la motivación intrínseca en el aprendizaje de inglés como lengua extranjera entre estudiantes con TDAH. Se realizó una revisión sistemática de la literatura siguiendo las directrices PRISMA, en la que 25 estudios cumplieron los criterios de inclusión. Los hallazgos indican que la motivación intrínseca influye positivamente tanto en el aprendizaje de inglés como en el rendimiento

académico de los estudiantes con TDAH. Sin embargo, aún no se ha establecido una relación concluyente, ya que la literatura existente no ha abordado suficientemente la motivación intrínseca y sus componentes fundamentales en esta población. En conclusión, los resultados sugieren que fomentar la motivación intrínseca y las condiciones que la sustentan puede desempeñar un papel relevante en el apoyo a la participación y el aprendizaje en el contexto del inglés como lengua extranjera, especialmente entre estudiantes con TDAH. No obstante, se requiere más investigación empírica para abordar las lagunas existentes en la literatura.

**Palabras clave:** Trastorno por Déficit de Atención e Hiperactividad, lengua extranjera, aprendizaje del inglés, motivación intrínseca.

## RESUMO

A motivação intrínseca desempenha um papel fundamental na educação, particularmente na aprendizagem de línguas estrangeiras. No entanto, apesar das evidências que indicam que o uso prolongado de reforços externos pode prejudicar esse tipo de motivação, tais abordagens continuam a ser priorizadas em detrimento de estratégias que promovam a autonomia do aluno na educação de estudantes com Transtorno de Déficit de Atenção e Hiperatividade (TDAH). Consequentemente, o objetivo desta revisão é analisar estudos que examinam a influência da motivação intrínseca na aprendizagem de inglês como língua estrangeira entre estudantes com TDAH. Uma revisão sistemática da literatura foi conduzida seguindo as diretrizes PRISMA, na qual 25 estudos atenderam aos critérios de inclusão. Os resultados indicam que a motivação intrínseca influencia positivamente tanto a aprendizagem de inglês como língua estrangeira quanto o desempenho acadêmico de estudantes com TDAH. Contudo, uma relação conclusiva ainda não foi estabelecida, visto que a literatura existente abordou insuficientemente a motivação intrínseca e seus componentes fundamentais nessa população. Em conclusão, os resultados sugerem que o fomento da motivação intrínseca e das condições que a sustentam pode desempenhar um papel relevante no apoio ao envolvimento e à aprendizagem do inglês como língua estrangeira, particularmente entre estudantes com TDAH. No entanto, são necessárias mais pesquisas empíricas para preencher as lacunas existentes na literatura.

**Palavras-chave:** Transtorno de Déficit de Atenção e Hiperatividade, língua estrangeira, aprendizagem de inglês, motivação intrínseca.

Received: 21/7/2025    Approved: 15/9/2025

## INTRODUCTION

Intrinsic motivation in education plays a crucial role in learning; it is associated with positive emotions, greater enjoyment of academic work, and school satisfaction (Vallerand et al. 1989 cited in Deci et al., 1991). Intrinsic motivation, as defined by Ryan & Deci, (2000) refers to the performance of activities for the inherent interest and enjoyment they provide, without the need for external rewards or pressure. This type of motivation arises autonomously from the individual, reflecting a sense of self-determination and free will.

In English learning as a foreign language (EFL), Anjomshoa & Sadighi (2015) state that, due to adverse conditions such as insufficient exposure to the language, limited opportunities for interaction with native speakers, or the usual absence of influential social models that encourage its mastery, a student needs to have exceptional motivation to achieve success in English learning. Similarly, Dörnyei & Csizér (1998) emphasize that without adequate motivation, even people with the most outstanding abilities cannot achieve long-term goals, and neither well-designed curricula nor quality teaching are sufficient to ensure student success.

In this context, Noels et al. (2019) report that intrinsic motivation drives language learners to engage in enjoyable and satisfying linguistic activities. For instance, some people may find a deep interest in activities such as reading fiction, creative writing, or linguistic analysis. These authors highlight that students enter a state of flow when this is combined with situations that present appropriate challenges, that is, their shyness disappears and they immerse themselves in the process.

English learning as a foreign language is a challenge that is intensified when special educational needs (SEN) are present. These needs encompass various conditions such as cognitive, sensory, and emotional difficulties, as well as specific disorders such as Attention Deficit Hyperactivity Disorder (ADHD). According to Kaldonek-Crnjaković (2018, 2020, 2024) students with this disorder have difficulties developing skills related to listening comprehension, reading comprehension, vocabulary acquisition, grammar, and socio-pragmatic skills that are fundamental to their writing and oral expression, due to attention problems and limited working memory. As supported by the literature, they also have motivational deficits that incline them toward learning based on reward or punishment systems, that is, the use of external reinforcements (Luman, Tripp, & Scheres, 2010;

Modesto-Lowe et al., 2013; Plamondon & Martinussen, 2015; Skalski, Pochwatko, & Balas, 2020).

The use of these rewards and punishments is a common practice for treating students with ADHD in the classroom. In accordance with several studies, strategies such as praise, nonverbal recognition, constant monitoring, tangible rewards, and special privileges are used to reinforce positive behaviors. Meanwhile, to address their inappropriate behaviors, strategies typically include withdrawing attention, giving reprimands, removing rewards, or temporarily isolating the student (Barkley & Pfiffner, 1949; Centers for Disease Control and Prevention, 2024; Hornstra et al., 2023; Mezzanotte, 2020; O'Regan, 2022).

The extensive literature on neurotypical individuals shows that the use of external reinforcements undermines their intrinsic motivation. Deci, Ryan, & Koestner (1999), after analyzing 128 experiments, conclude that tangible rewards have a substantially negative effect on intrinsic motivation, even when offered as indicators of good performance. Although these can control behavior, their main adverse effect is to hinder self-regulation, undermining individuals' responsibility to motivate themselves.

In the case of people with ADHD, the limited research available does not support this claim. However, Morsink et al. (2022) explains that this is due to these studies have not been conducted under the right conditions. The tasks they used to assess intrinsic motivation are repetitive, long, difficult and boring; factors that, according to Morsink et al. (2017), suggest the minimization of intrinsic motivation in individuals with ADHD.

Intrinsic motivation plays a fundamental role in education, particularly in foreign language learning. Although the literature indicates that the prolonged use of external reinforcements may undermine intrinsic motivation such approaches continue to be prioritized over strategies that promote learner autonomy in the education of students with attention deficit hyperactivity disorder (ADHD). In this regard, the aim of this study is to analyze studies that examine the influence of intrinsic motivation on the learning of English as a foreign language among students with attention deficit hyperactivity disorder (ADHD). This analysis will inform the design and future implementation of strategies based on the characteristics of motivation that point toward self-regulated behavior, interest, and enjoyment of learning.

### **Intrinsic Motivation**

In accord with Ryan and Deci (2000), intrinsic motivation is conceived as the inherent inclination of human beings to take an interest in new things, take on challenges, develop and put their skills into practice, and explore and acquire new knowledge. It is characterized by being spontaneous and independent of external reinforcements, as well as occurring exclusively when an individual carries out an activity due to the interest and enjoyment produced by it. Its maintenance or weakening depends on the satisfaction or frustration of basic human psychological needs such as autonomy, competence, and relatedness. In this sense, Orbegoso (2016) elucidates that:

El individuo motivado intrínsecamente por su labor la percibe como significativa, interesante, que requiere de sus habilidades, de su criterio y autonomía y que le hace crecer o desarrollarse personalmente. En suma, es alguien que disfruta de las tareas implicadas en su labor cotidiana y que para realizarlas no se enfoca anticipada o exclusivamente en las recompensas externas que obtendrá. [ Individuals who are intrinsically motivated by their work perceive it as meaningful and interesting, requiring their skills, judgment, and autonomy, and enabling them to grow and develop personally. In short, they are people who enjoy the tasks involved in their daily work and who do not focus primarily or exclusively on the external rewards they will obtain in order to perform them.] (Orbegoso G, 2016, pág. 87)

### **English Learning as a Foreign Language**

Learning English as a foreign language involves developing a set of four macro skills that enable a person to communicate effectively using the language. Macro skills, also known as linguistic skills, are classified as productive (oral and written production) and receptive (reading and listening comprehension). These skills are developed collaboratively and in real-world contexts. In this regard, Garro Garita (2019) states that it is essential for these skills to be integrated into the most natural contexts possible because, in academic, professional, and everyday settings, most complex tasks require the combined use of several skills that are rarely used in isolation.

### **Attention Deficit Hyperactivity Disorder (ADHD)**

According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), ADHD is a neurodevelopmental disorder that manifests during childhood and is characterized by a “persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development,” which are diagnostic characteristics of the disorders (American Psychiatric Association, 2014). In accordance with the World Mental Health Report (World Health Organization, 2022), in 2019 an estimated 85 million people suffered from the disorder, representing about 1.1% of the global population. There are three types of ADHD: one in which inattention predominates, one in which hyperactivity/impulsivity predominates, and one in which both are present.

As defined by the DSM-5, inattention in ADHD manifests as difficulties in concentrating, sustaining effort on tasks, and organizing, without this being due to a lack of understanding or challenge. Hyperactivity presents as excessive or inappropriate movement (such as running or talking excessively), and in adults, as constant restlessness that can exhaust others. Impulsivity involves acting without thinking, seeking immediate gratification, which can lead to personal risks. It is also reflected in frequent interruptions in conversations or hasty decisions without considering the consequences.

### Objectives

The overall objective of this research was to analyze studies that examine the influence of intrinsic motivation in English learning as a foreign language among students with attention deficit hyperactivity disorder (ADHD).

The study answered the following research questions:

- From what perspective is intrinsic motivation in English learning as a foreign language assessed or described among students with ADHD?
- What characteristics do students with ADHD exhibit when they are intrinsically motivated during their learning of English as a foreign language?
- How does English learning as a foreign language develop when the process is intrinsically motivated, and how does it benefit students with ADHD?

## METHODOLOGY

This research was conducted through a systematic review of the literature, based on the principles, guidelines, outline, and checklist of the PRISMA statement. The literature search process was conducted rigorously in two recognized databases, Scopus and Google Scholar, ensuring the reliability of the findings through the application of previously defined inclusion and exclusion criteria: (1) articles exploring intrinsic motivation in English learning as a foreign language among students with ADHD; (2) empirical and theoretical studies published between 2014 and 2024; (3) studies with free access, excluding paid articles; (4) studies written in English or Spanish; (5) studies applying instruments to assess intrinsic motivation.

Initially, the review was applied to the study of the influence of intrinsic motivation on English learning as a foreign language among students with ADHD. A thorough search of scientific articles was conducted using key terms in English and Spanish related to the study variables.

Table 1 Initial search equation

(TITLE-ABS-KEY(intrinsic AND motivation) OR TITLE-ABS-KEY(self-determination AND theory) OR TITLE-ABS-KEY(intrinsic AND interest) OR TITLE-ABS-KEY(basic AND psychological AND needs) OR TITLE-ABS-KEY(internal AND motives) OR TITLE-ABS-KEY(competence, AND autonomy, AND relatedness) OR TITLE-ABS-KEY(motivation AND deficits) OR TITLE-ABS-KEY(extrinsic AND motivation) AND TITLE-ABS-KEY(attention AND deficit AND hyperactivity AND disorder) OR TITLE-ABS-KEY(adhd) AND TITLE-ABS-KEY(english as a foreign language))

As no previous research was found that comprehensively analyzed all the variables of interest, it was decided to conduct two independent searches. The first search addressed the influence of intrinsic motivation on English learning as a foreign language. The second search addressed the influence of intrinsic motivation on learning among students with ADHD. This strategy enabled us to collect and compare the available evidence facilitating the subsequent extrapolation of findings and the establishment of connections between the different components of the study. This approach ensured a solid theoretical basis, despite the scarcity of previous studies addressing the complete interaction of the variables under study. The search equations used are presented below:

Table 2 Search equation Intrinsic Motivation- English as a Foreign Language

(TITLE-ABS-KEY("Intrinsic motivation") OR TITLE-ABS-KEY("Self determination theory") OR TITLE-ABS-KEY("Basic psychological needs") OR TITLE-ABS-KEY("Competence, autonomy, relatedness") AND TITLE-ABS-KEY("English as a foreign language") OR TITLE-ABS-KEY("efl"))

The selection of sources in both searches is detailed in the following flowcharts:

Table 3 Search equation Intrinsic Motivation- ADHD

(TITLE-ABS-KEY("adhd") OR TITLE-ABS-KEY("attention deficit hyperactivity disorder") AND TITLE-ABS-KEY("intrinsic motivation") OR TITLE-ABS-KEY(motivation) OR TITLE-ABS-KEY("self determination theory") AND TITLE-ABS-KEY("academic outcomes") OR TITLE-ABS-KEY("academic performance"))

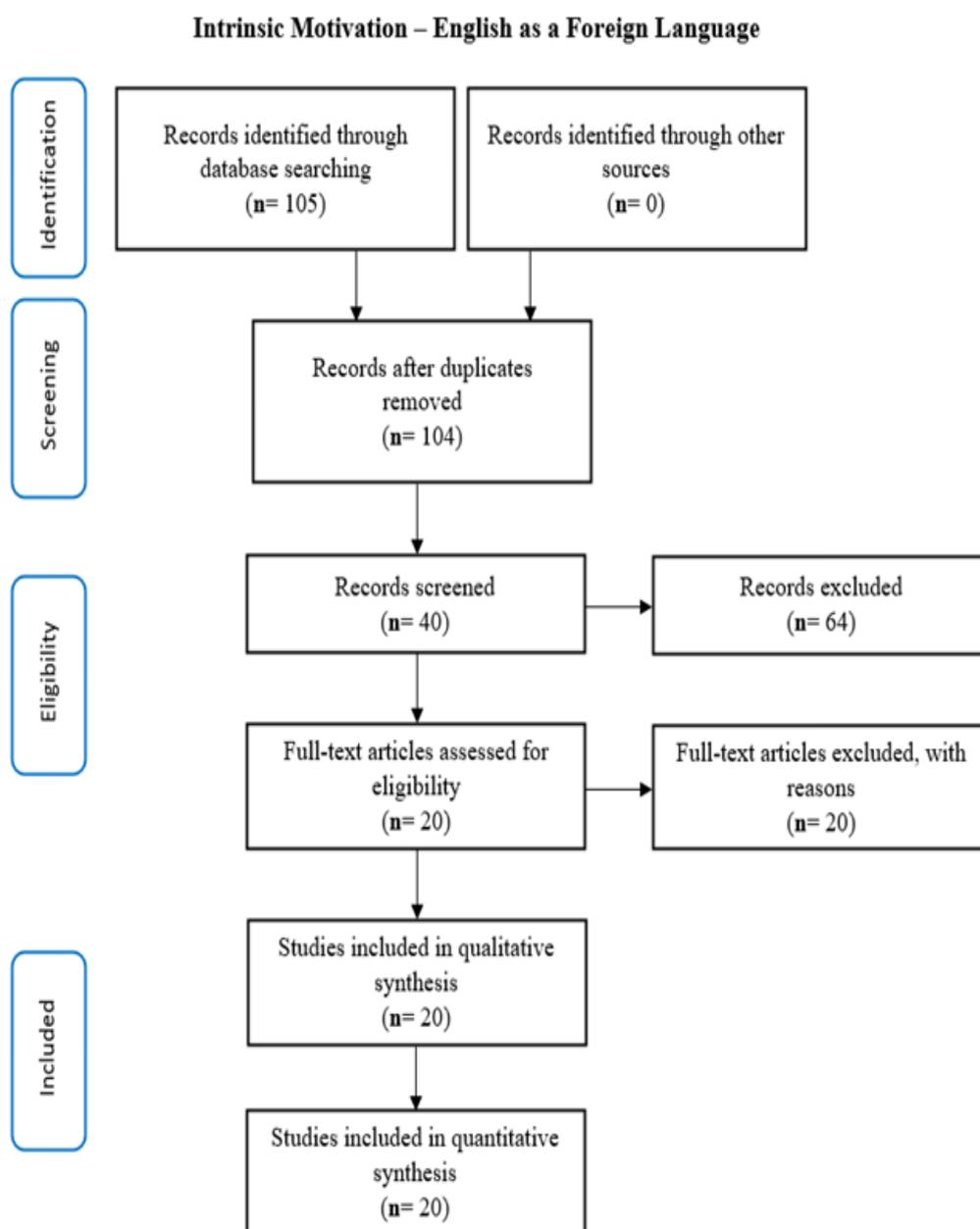


Figure 1 Flowchart of Intrinsic Motivation- EFL

In the search equation focused on analyzing the variables of intrinsic motivation and English learning as a foreign language, 105 initial records were identified in the academic databases consulted, in addition to an additional source located outside the equation. After removing a duplicate record in the screening phase, 104 records were retained for evaluation.

In the eligibility phase, 40 articles were selected based on a detailed review of titles, abstracts, and keywords. Subsequently, after a thorough review of the full texts, this number was reduced to 20 articles, which constituted the final sample for this first search equation.

### Intrinsic Motivation - ADHD

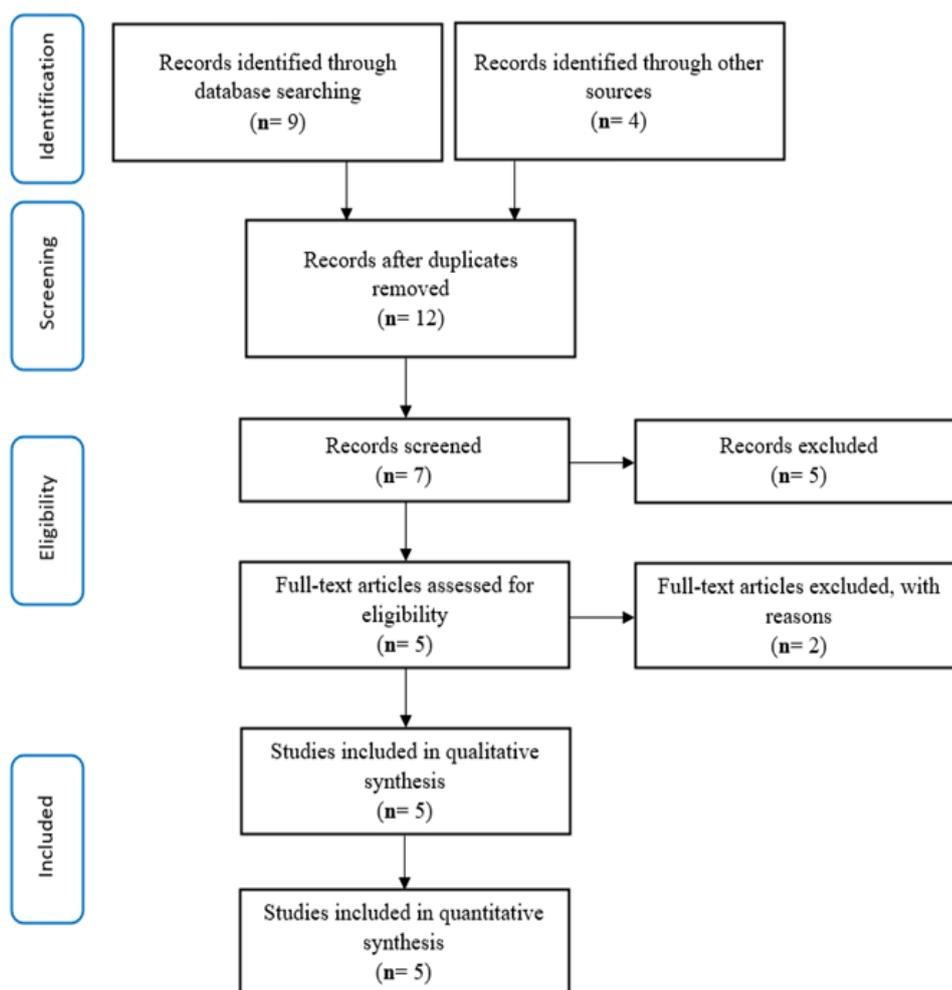


Figure 2 Flowchart of Intrinsic Motivation – ADHD

The search equation focused on analyzing the variables of intrinsic motivation and ADHD, yielding nine records from the databases. Four additional sources identified outside the equation were added to this number. After eliminating one duplicate record in the screening phase, 12 studies were retained for analysis. During the eligibility phase, five records were discarded after titles, abstracts, and keywords were reviewed, leaving seven preselected articles. After a thorough full-text review, two additional articles were excluded, bringing the total number of articles included in the analysis to five.

In order to guide the analysis of the information and answer the research questions, three categories were established and coded as C1, C2, and C3. This allowed the variables from the first search to be addressed from different dimensions: “Intrinsic motivation in English learning as a foreign language” (C1), “English learning as a foreign language mediated by intrinsic motivation” (C2), and “Measuring intrinsic motivation in English learning as a foreign language within the framework of self-determination theory” (C3).

No.	Authors	Article title	Category of analysis
1	Ahmetović E.; Bećirović S.; Dubravac V.	Motivation, Anxiety and Students’ Performance	C1, C3
2	Al Shboul, O. K.; Rababah, L. M.; Banikalef, A. A.; Mehawesh, M. I.	Role of learner autonomy in intrinsic motivation in EFL writing	C2
3	Aldaghri, A. A.	Incorporating Flipped Model in Learning English Grammar: Exploring EFL Students’ Intrinsic Motivation and Attainment	C2, C3
4	Alqahtani, D. A.	An Investigation into the Relationship Between Saudi College EFL Learners’ Motivational Orientations, Learning Autonomy, and Achievement	C1, C3
5	Alsmari, N.	The Interplay Between L2 Motivation and Proficiency in Predicting EFL Learners’ Pragmatic Engagement	C1, C3

6	Cornillie F.; Buendgens-Kosten J.; Sauro S.; Van der Veken J.	“There’s always an option”: Collaborative Writing of Multilingual Interactive Fanfiction in a Foreign Language Class	C2, C3
7	Dan W.; Li, M.	Exploring EFL learners’ actions during the use of lecture materials in Chinese tertiary classrooms from a transactional view	C1
8	Fernández-Ortega C.; Trigueros R.; Fernández A.	Frustration of basic psychological needs and emotions in communicative intent in English as a foreign language	C1, C3
9	Gan Z.; Liu F.; Nang H.	The Role of Self-Efficacy, Task Value, and Intrinsic and Extrinsic Motivations in Students’ Feedback Engagement in English Learning	C1
10	Garrido-Hornos M. C.	The Assessment of Motivation in the Learning of EFL at University Level: Validation of the English Language Learning Motivation Scale (ELLMS) at Four Spanish State Universities	C1, C3
11	Inostroza M. J.; Perez-Villalobos C.; Tabalí P.	Chilean Primary Learners’ Motivation and Attitude towards English as a Foreign Language	C2, C3
12	Lee J. H.; Ahn J. J.; Lee H.	The role of motivation and vocabulary learning strategies in L2 vocabulary knowledge: A structural equation modeling analysis	C1, C3
13	Li J.; Wang C.; Zhao Y.; Li Y.	Boosting Learners’ Confidence in Learning English: Can Self-Efficacy Based Intervention Make a Difference?	C2
14	Salehpour G.; Roohani A.	Relationship Between Intrinsic/Extrinsic Motivation and L2 Speaking Skill Among Iranian Male and Female EFL Learners	C1
15	Sari W. S.; Faruk; Hurley U.	Reading stories for pleasure: An insight into Indonesian university students' practice in online reading platforms	C2
16	Songnuan N.; Nomnian S.	Science Students’ Motivational Orientations of EFL Reading through the Lens of Self-Determination Theory	C1, C3
17	Zeng C.; Fisher L.	Opening the “Black Box”: How Out-of-Class Use of Duolingo. Impacts Chinese Junior High School Students’ Intrinsic Motivation for English	C2, C3
18	Zhang J.	Review of Research on Motivation and EFL Students' Speaking Performance	C1, C3
19	Zhang Z.; Crawford J.	EFL learners’ motivation in a gamified formative assessment: The case of Quizizz	C2, C3
20	Zhou S.; Zhu H.; Zhou Y.	Impact of Teenage EFL Learners’ Psychological Needs on Learning Engagement and Behavioral Intention in Synchronous Online English Courses	C1, C3

Similarly, a category coded as C1 was established to address the variables of the second search, entitled “intrinsic motivation in English learning as a foreign language among students with ADHD”.

No.	Authors	Article title	Analysis category
1	Morsink S.; Sonuga-Barke E.; Mies, G.; Glorie N.; Lemiere J.; Van der Oord S.; Danckaerts M.	What motivates individuals with ADHD? A qualitative analysis from the adolescent’s point of view	C1
2	Morsink S.; Van der Oord S.; Antrop I.; Danckaerts M.; Scheres A.	Studying Motivation in ADHD: The Role of Internal Motives and the Relevance of Self Determination Theory	C1
3	Smith Z.; Langberg J.	Review of the Evidence for Motivation Deficits in Youth with ADHD and Their Association with Functional Outcomes	C1
4	Smith Z.; Langberg J.; Cusick C.; Green C.; Becker S.	Academic Motivation Deficits in Adolescents with ADHD and Associations with Academic Functioning	C1
5	Smith Z.; Flax M.; Becker S.; Langberg J.	Academic motivation decreases across adolescence for youth with and without attention deficit/hyperactivity disorder: Effects of motivation on academic success	C1

## RESULTS

### Manifestations of Intrinsic Motivation in English as a Foreign Language

Self-determination theory held that intrinsic motivation was strengthened when three basic psychological needs were met: autonomy, competence, and relatedness (Ryan & Deci, 2020). Zhou, Zhu, & Zhou (2022), in their study based on this theory, demonstrated that the satisfaction of these needs significantly predicted students’ engagement in English learning as a foreign language (EFL) during virtual classes. When students felt capable, free to choose, and connected to their peers and teachers, they experienced greater intrinsic motivation, which was reflected in higher cognitive and emotional engagement. These authors emphasized

that greater emotional engagement translated into a stronger intention to continue learning. Dan & Li (2024), agreed that intrinsic motivation emerged from previous positive learning experiences, an active participation style, and peer support; learners with greater internal motivation tended to intervene proactively in class.

In their study, Gan, Liu, & Nang (2023) showed that intrinsically motivated students tended to process and apply the feedback they received from the teacher to adjust their performance and learning strategies, as they perceived it as a valuable tool for their personal and academic growth. However, their lack of seeking feedback could have been because these students, being more autonomous and focused on learning on their own, avoided requesting external feedback so as not to create situations that might have affected social dynamics or exposed their weaknesses.

Zhang (2024) emphasized that intrinsic motivation was related to better performance in oral production in students of English as a foreign language; those with high levels of intrinsic motivation tended to be more autonomous in their learning, participated more enthusiastically in class activities, and showed less anxiety when expressing themselves orally. In a similar context, Fernández-Ortega, Trigueros, & Fernández (2024) revealed that when students' basic psychological needs were frustrated, they experienced emotional distress, which diminished their interest in English learning as well as their willingness to communicate orally or in writing; however, when these needs were met, a positive impact on their communicative intention was observed.

Salehpour & Roohani (2020) took gender into account, highlighting a significant correlation between intrinsic motivation and the development of oral skills in English in the case of female students. This group stated that the joy, satisfaction, and inner happiness they experienced when learning the language were directly related to their enthusiasm for improving their oral expression. In the case of male students, this relationship was not as strong, highlighting the importance of fostering intrinsic motivation in this particular population.

Lee, Ahn, & Lee (2022) complementarily demonstrated that intrinsic motivation had a significant influence on vocabulary learning. This not only directly drove the use of vocabulary learning strategies, such as memorization techniques, cognitive processes, and metacognitive methods, but also directly affected vocabulary mastery, both in terms of breadth (number of words known) and depth (detailed understanding of words).

According to Alsmari's (2023) findings, students with autonomous motivation, especially those at an advanced level, were more frequently involved in pragmatic activities; that is, the appropriate use of language according to the social and communicative context, because they considered them relevant or satisfying, while those with lower competence or controlled motivation tended to focus more in grammatical aspects than on communicative ones.

Songnuan & Nomnian (2023) pointed out that when students of English as a foreign language perceived reading as a recreational activity guided by curiosity, they developed greater pleasure and preference for this practice. In their study, students showed a tendency to be autonomous readers, demonstrating intrinsic motivation when reading activities were driven by enjoyment and interest.

In accord with Alqahtani (2024), intrinsic motivation represented one of the strongest motivational orientations among Saudi students of English as a foreign language, surpassing extrinsic motivation and the ought-to L2 Self-concept. Likewise, it is observed that intrinsic motivation, together with the L2 Self ideal, significantly predicted both learning autonomy and academic performance.

Ahmetović, Bećirović, y Dubravac (2020) demonstrated that intrinsic motivation was a significant predictor of student performance, making it crucial to pay attention to the conditions conducive to the development of this motivation. Finally, Garrido-Hornos (2023) asserted that intrinsic motivation was positively related to lower levels of anxiety and higher levels of self-regulation and self-efficacy. During their research, intrinsically motivated students showed less fear of speaking in class, greater persistence in the face of challenges, and confidence in their abilities.

### **English Learning as a Foreign Language Mediated by Intrinsic Motivation**

Al Shboul et al. (2023) demonstrated that autonomous writing activities generated greater intrinsic motivation and better academic performance compared to traditional, non-autonomous activities. These activities were designed to empower students by allowing them to select topics of personal interest, connect tasks to their experiences and preferences, collaborate to solve writing challenges, use technological tools such as online dictionaries and educational platforms, engage in peer evaluation to encourage critical thinking, and design lesson plans in groups to encourage responsibility.

In their study, Sari, Faruk, & Hurley (2023) revealed that Indonesian university students read fiction in English on platforms such as Wattpad and Webtoon because they were intrinsically motivated by the enjoyment derived from the characters, plot, and satisfaction that reading provides. Some students stated that they started Reading fiction in English to improve their language skills. However, as they progressed, their focus shifted to the pleasure of reading. The authors emphasized that teachers could use these platforms as pedagogical tools by incorporating these popular genres and formats to make English learning more appealing and relevant.

According to Cornillie et al. (2021), intrinsic motivation was essential for students to overcome technical and linguistic challenges related to writing in English and engage in complex and multidisciplinary tasks. In their study, students wrote interactive, multilingual stories based on the Assassin's Creed game series. They employed the tool TWINE to integrate other media of personal interest and create non-linear narratives. Nevertheless, the finding revealed that maintaining a balance between creative freedom and the scaffolding provided to students is necessary to prevent complexity from diminishing motivation.

On the other hand, Zeng & Fisher (2023) found that using Duolingo increases students' intrinsic motivation to learn English. For six weeks, students used the app daily for at least five minutes and engaged in gamified activities such as lessons, stories, and interactive exercises. Moreover, they received immediate feedback, rewards, and personalized learning options. The authors identified a motivational transfer: the satisfaction of psychological needs, such as autonomy and competence experienced while using the app was transferred to the broader context of language learning. Participants in the study reported greater interest in English classes and greater confidence in their language skills, However, those with more advanced levels did not experience significant changes, which was attributed to a lack of adequate challenges within the app.

Similarly, Zhang & Crawford (2024) demonstrated that students who interacted with the platform Quizizz exhibited improvements in their accuracy, a favorable perception of assessments as compelling challenges, reduced anxiety and greater engagement with the process. In addition, some students became intrinsically motivated. These results were obtained through weekly assessments on the platform that incorporated playful elements, such as points, rankings, immediate feedback, and virtual rewards. The authors observed that in a second phase of the experiment, when these external incentives were removed, the experimental groups maintained a high level of participation, indicating an internalization of motivation.

Aldaghri (2024) reports that flipped classroom model significantly increased female students' intrinsic motivation to learn English grammar and noted that those with greater intrinsic motivation had a better grasp of grammatical concepts. In the study, the researcher divided the instruction into two components. Outside the classroom, students reviewed the theory at home, including three types of videos: two explanatory videos with different teaching styles and one contextualized video. They also answered questions to ensure their understanding before attending class. Inside the classroom, students participated in practical activities, such as group discussions, role-playing, storytelling, and competitive exercises, which culminated in mind maps; simultaneously, the teacher provided personalized feedback. Students highlighted benefits of learning at their own pace, participating in class, and feeling in control of their learning process which increased their willingness to engage with the content.

In their study, Li et al. (2023) reported an increase in intrinsic motivation toward English learning by implementing various strategies that strengthened language learners' self-efficacy. This increase was reflected in greater enjoyment of learning, willingness to devote extra time outside the classroom, and a more positive attitude toward the learning process in general. The strategies included monthly reflections on past achievements, gradually increasing task difficulty, setting realistic and short-term goals, using multimedia material, preparing for oral presentations in advance, exposure to successful work, and testimonials from more advanced peers. Positive feedback and a safe classroom environment were also key.

Inostroza, Perez-Villalobos, & Tabalí (2024) emphasized that Elementary school students' intrinsic motivation increased significantly when they were taught English by teachers who were trained to teach at that level and who integrated age-appropriate audiovisual and multisensory materials. According to the principles of Self-Determination Theory, these conditions foster a stimulating educational environment in which children transition from learning out of obligation to learning out of genuine enjoyment. This change translates into a more authentic commitment to learning, greater participation during classes, and a more positive attitude toward the language, both inside and outside the classroom. As a result, sustained motivation and student autonomy are promoted.

## **Measuring Intrinsic Motivation in English Learning as a Foreign Language Under the Framework of Self-Determination Theory**

To understand how intrinsic motivation was assessed in the studies analyzed, the predominant theoretical approach employed: Self-Determination Theory (SDT). According to Ryan & Deci (2017), it is an empirically grounded theoretical framework that addresses human behavior and personality formation. The theory classifies motivation as either controlled (extrinsic) or autonomous (intrinsic) and places it on a continuum. Its main focus is to analyze how the social environment influences personal growth by either facilitating or hindering the fulfillment of three basic psychological needs: autonomy, competence, and relatedness. These needs are posited to be crucial for sustaining intrinsic motivation.

Fourteen out of the twenty studies analyzed that measure intrinsic motivation in English learning as a foreign language adopted this perspective as their theoretical basis. The studies include the works of Ahmetović, Bećirović, & Dubravac (2020), Cornillie et al. (2021), Zhou, Zhu, & Zhou (2022), Lee, Ahn, & Lee (2022) Garrido-Hornos (2023), Songnuan & Nomnian, (2023), Zeng & Fisher (2023), Alsmari (2023), Inostroza, Perez-Villalobos, & Tabalí (2024), Aldaghri (2024), Fernández-Ortega, Trigueros, & Fernández (2024), Zhang J. (2024), Zhang & Crawford (2024), Alqahtani (2024). These studies, which were conducted in different contexts and using a variety of methodological approaches, agreed on highlighting the influence that the satisfaction or frustration of basic psychological needs had on language learning, intrinsic motivation, and the internalization process of motivation.

In the aforementioned studies, the authors employed various instruments to assess intrinsic motivation, predominantly structured questionnaires based on SDT, such as the Basic Psychological Needs Frustration Scale and the Academic Motivation Scale for English Classes. They also used scales adapted from previous research, such as Fryer y Oga-Baldwin's scale or Hayamizu's Stepping Motivation Scale. To complement the quantitative data, some studies incorporated focus group interviews or semi-structured interviews to explore in greater depth the experiences and perceptions of students regarding their motivation.

### **Intrinsic Motivation Based on Self-Determination Theory Among Students with ADHD.**

Regarding intrinsic motivation among students with ADHD, according to Smith & Langberg (2018), young people with ADHD exhibited lower levels of intrinsic motivation compared to their peers and scored lower than typically developing young people on curiosity and interest in learning. The authors underline that, lower levels of intrinsic motivation in elementary school predicted lower levels of reading performance in middle school. Consequently, Smith et al. (2019) concurred that adolescents with ADHD demonstrated significant motivational deficit in all areas of academic motivation, including intrinsic motivation. On the other hand, for individuals with the disorder, heightened motivations was linked to enhanced reading accuracy.

In their longitudinal study, Smith et al. (2023) found that higher levels of intrinsic motivation predict better performance on homework, difficult math problem solving ability, and higher GPA (grade point average), with intrinsic motivation being the strongest predictor of the latter. Conversely, the results also suggested that extrinsic motivation played a significant role in academic success. The authors contend that this was a result of the frequent use of external reinforcements in response to the educational system's emphasis on grades and standardized test scores. They argue that this emphasis hinders sustained commitment to learning by neglecting its process, personal growth, and critical thinking.

The studies by Morsink et al. (2017) and Morsink et al. (2021), qualitative and theoretical respectively, suggested that ADHD students experience intrinsic motivation when engaging in enjoyable, challenging, personally meaningful activities, or rewarding social interactions during which time passes quickly. However, students reported an aversion to repetitive or predictable tasks, setting them apart from their peers. These findings align with SDT, emphasizing that satisfying the basic psychological needs of those with the disorder is key to sustaining their intrinsic motivation. These authors also highlight that although these students can achieve levels of this type of motivation similar to their peers without the disorder in context that support these basic psychological needs, dependence on external reinforces can undermine intrinsic motivation if the tasks are perceived as controlling.

### **Intrinsic Motivation on English Learning as a Foreign Language Among Students With ADHD**

When the findings of the studies reviewed are considered together, the evidence suggests that intrinsically motivated students tend to achieve better academic outcomes, with intrinsic motivation functioning as a significant predictor in several contexts. Across both bodies of literature, elements such as meaning, enjoyment,

challenge, novelty and learner autonomy consistently emerge as factors that foster deeper engagement in the learning process. This pattern appears to be particularly relevant for students with ADHD, who are frequently reported to experience lower levels of academic motivation, suggesting that intrinsic motivation may play a compensatory role in supporting their engagement and learning.

Given that intrinsic motivation has been shown to positively influence both English as a foreign language learning and the academic performance of students with ADHD, it can be inferred that learners with and without the disorder may benefit from a state of intrinsic motivation when learning the language. However, a firm connection cannot yet be established, as the literature on English as a foreign language has largely overlooked the examination of intrinsic motivation and its core components specifically among students with ADHD.

The findings further highlight Self-Determination Theory as the common theoretical framework underlying research on intrinsic motivation in both English as a foreign language learning and ADHD-related academic contexts. The convergence of these bodies of literature suggests that the core SDT needs of autonomy, competence, and relatedness may provide a coherent lens for understanding how intrinsic motivation supports engagement and learning across both populations. From an educational perspective, this analysis points to the potential of SDT-informed pedagogical interventions for students with ADHD in EFL contexts, an area that remains largely unexplored by existing research.

## CONCLUSIONS

This systematic review aimed to analyze existing research on the influence of intrinsic motivation on English learning as a foreign language, with a particular attention to students with attention deficit hyperactivity disorder (ADHD). Overall, the findings suggest that fostering intrinsic motivation and the conditions that sustain it may play an important role in supporting engagement and learning in EFL contexts, particularly for those with ADHD. However, the absence of empirical studies directly examining intrinsic motivation in EFL settings among individuals with ADHD highlights a significant gap in the literature. Future research should therefore focus on the development and evaluation of theory-informed pedagogical interventions, particularly those grounded in Self-Determination Theory (SDT), to better understand how intrinsic motivation can be effectively supported in this population.

Limitations within the existing literature include the absence of studies that comprehensively address the interaction among intrinsic motivation, English learning as a foreign language, and ADHD. Furthermore, empirical research examining intrinsic motivation in relation to specific language skills, such as listening, remains scarce. The predominance of research conducted in North America, Asia, and Europe raises questions regarding the generalizability of these findings to other regions, such as Latin America. In this regard, the present systematic review contributed to the field by highlighting the need for research that addresses intrinsic motivation among the ADHD population within EFL contexts.

This systematic review is not without limitations. Potential bias in the resources of information should be acknowledged, as most of the studies included were retrieved exclusively from databases such as Google Scholar and Scopus, which may have resulted in the omission of relevant research not indexed on these platforms. Additionally, restricting the selection to publications in Spanish and English may have limited the representativeness of the findings by excluding studies published in other languages.

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### **Conflict of interest**

The authors declare that they have no conflicts of interest.

### **Declaration of responsibility of authorship**

We, the authors of the aforementioned manuscript, DECLARE that we have directly contributed to its intellectual content, as well as to the genesis and analysis of its data; therefore, we are able to take public responsibility for it and accept that their names appear on the list of authors in the order indicated. Furthermore, we have complied with the ethical requirements of the aforementioned publication, having consulted the Declaration of Ethics and Publication Malpractice.

Alisson Lizbeth Zambrano Ascencio, Wendy Nicolle Valdez Arteaga, Genny Elizabeth Zambrano Gallardo y Francisco Samuel Mendoza Moreira: Literature review and article writing process.