trends in higher education

MDPI

Systematic Review

A Systematic Review of the Use of AI in EFL and EL Classrooms for Gifted Students

Carmen García-López [1], María Tabuenca-Cuevas [1,*] and Ignasi Navarro-Soria [2]

[1] Department of Innovation and Teacher Training, Faculty of Education, University of Alicante, 03690 San Vicente, Alicante, Spain; carmen.garcialopez@ua.es
[2] Department of Developmental and Educational Psychology, Faculty of Education, University of Alicante, 03690 San Vicente, Alicante, Spain; ignasi.navarro@ua.es
* Correspondence: maria.tabuenca@ua.es

Abstract

There is a growing body of literature that focuses on the applicability of artificial intelligence (AI) in English as a Foreign Language (EFL) and English Language (EL) classrooms; however, educational application of AI in the EFL and EL classroom for gifted students presents a new paradigm. This paper explores the existing research to highlight current practices and future possibilities of AI for teaching EFL and EL to address gifted students' special needs. In general, the uses of AI are being established for class instruction and intervention; nevertheless, there is still uncertainty about practitioner use of AI with gifted students in EFL and EL classrooms. This review identifies 42 examples of GenAI Models that can be used in gifted EFL and EL classrooms. In addition, the research conducted thus far has highlighted the positive contribution of the use of AI in EFL and EL environments, albeit some disadvantages and challenges have also been identified. The results also endorse the use of AI with gifted students as an asset and highlight the need for AI literacy for both teachers and gifted students in order to adapt to this new educational paradigm. In conclusion, more studies are needed, as many aspects regarding both teachers' and gifted students' use of AI remain to be elucidated to improve future applications of AI to teach EFL and EL to gifted students.

Keywords: gifted students; EFL/EL; AI in education; artificial intelligence; secondary education; personalized education; machine learning; chatbots

check for updates

Academic Editors: Carlos Hervás-Gómez, María Dolores Díaz-Noguera, Liliana Mâță and Nadia Barkoczi

Received: 29 April 2025
Revised: 22 June 2025
Accepted: 23 June 2025
Published: 10 July 2025

Citation: García-López, C.; Tabuenca-Cuevas, M.; Navarro-Soria, I. A Systematic Review of the Use of AI in EFL and EL Classrooms for Gifted Students. *Trends High. Educ.* **2025**, *4*, 33. https://doi.org/10.3390/higheredu4030033

Copyright: © 2025 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https://creativecommons.org/licenses/by/4.0/).

1. Introduction

The National Association for Gifted Children (NAGC) states that although gifted students demonstrate strong cognitive abilities and excel academically, they may also face social and emotional challenges; therefore, it is essential to recognize their unique learning differences, cognitive and emotional traits, and academic, social, and emotional needs [1]. Although these students are commonly seen as exceptional students, they often struggle and require an appropriate educational response to their special needs [2]. Studies indicate that gifted students need a differentiated educational response [3]; however, many teachers tend to use one teaching method in the classroom, limiting the way gifted students think and solve problems, as they have divergent thinking patterns that need constant encouragement in order to be developed [4]. There is a misconception that "gifted students have sufficient cognitive abilities to learn, although the reality is that, at times, they abandon their studies due to a lack of support for their needs" [5] (p. 6). Research shows that, as

a group, gifted students can suffer higher rates of school failure and dropout if they are not assisted according to their needs in the classroom [5–7]. It has also been pointed out that gifted students spend a significant amount of time in traditional classrooms, where the learning environment greatly influences their motivation and academic success. Conventional, uninspiring lessons are not ideal as gifted students tend to be more motivated when teachers encourage higher-order thinking and inductive learning [8]. Therefore, it is crucial to offer these students an inclusive and multimodal educational intervention as they tend to become bored in a traditional classroom, as their distinct academic and psychological needs require a differentiated educational approach [5,9].

Currently, there is research that highlights how AI can play a crucial role to meet individualized learning needs to ensure that each student, including gifted students, can make daily educational progress [8]. AI Transformers are an AI model that uses specific neural network architectures, which are particularly effective at processing sequential data, like text, and understanding the context in the data. These transformers can serve as valuable tools by providing additional resources and challenges to gifted students. AI Transformers can, for example, assist in designing individualized learning plans, offering feedback on writing, and presenting complex questions or challenges to students [10]. Moreover, the use of AI for gifted students can be useful to avoid demotivation and boredom, as AI application in the classroom favors the preference of gifted students to work independently [5,9]. Furthermore, AI Transformers can foster 21st-century skills in gifted students by presenting diverse viewpoints and scenarios that challenge them to boost their creativity, encourage critical thinking, facilitate collaboration as virtual partners, and strengthen communication through immediate feedback [10]—all within a dynamic learning environment that goes beyond traditional classroom limitations.

Additionally, applying AI increases gifted students' engagement [11,12] as they have a multidimensional intelligence and often employ metacognitive abilities relating information obtained from different fields and in different formats [13]. An example of a suitable educational intervention for gifted students consists of formulating challenges in order to develop their innate creativity [13] using Generative AI (GenAI), which can create new content, like text or images, based on patterns in data. This is an appropriate tool to enrich the curriculum for gifted students as it can help create extension activities, foster project-based learning, and pose challenging questions that emphasize critical thinking and creativity. [14]. In addition, educational interventions for gifted students must also be aligned with their interests [5,15], and the multimodal essence of AI can help gifted students develop multidimensional, creative, and divergent thinking by incorporating their personal interests as part of the personalized educational intervention [10]. Another example is the use of AI chatbots that connect gifted students with a great volume of online content, which can be adapted to their high capacity and their interests [16].

AI integration is evident across all disciplines, and the research indicates that the implementation of GenAI, Machine Learning (ML), and Natural Language Processing (NLP) has transformed pedagogical approaches and assessment methodologies in EL and EFL education in unprecedented ways [17]. For example, interacting with ChatGPT is like having a conversation with an expert who can adjust their language and explanations to meet the user's level of understanding [14]. In fact, AI is used to teach and enhance EL and EFL language skills, such as (1) writing [18], (2) speaking [19], (3) reading [20], and (4) listening [21]. Some studies point out how gifted students show a preference for learning English at their own pace and with selected and appropriate texts and contents to meet their abilities and needs and, as previously stated, studies have shown that providing gifted students with virtual learning environments helps them overcome boredom in the English classroom [22]. Therefore, it can be said that AI is a valuable asset to teach English in

21st-century classrooms [23,24] as artificial intelligence provides EL and EFL learners with a myriad of opportunities such as (1) an individualized and tailored learning experience; (2) suitable and immediate feedback; (3) rich learning resources; (4) an interactive learning atmosphere that raises the student's interest; and (5) engagement and motivation which increase student autonomy, (6) self-esteem, and (7) willingness to communicate [25].

As recent studies have shown, content flexibility and personalization are very successful tools that can help teach gifted students [5–7]; however, the research emphasizes the necessity of teacher training to adopt educational strategies to learn how to manage these new resources. Teachers sometimes feel threatened or pressured by gifted students' comments and questions [6] consequently, it is essential to know how they think and understand their specific divergent characteristics [13]. This is a specific example where GenAI can be an appropriate tool, as the divergent thinking of gifted students allows them to evaluate and even confront AI-generated content to determine the relevance of the information, identify biases, and recognize inconsistencies when comparing responses given by different AI transformers [26]. That is why the implementation of AI chatbots, for example, can be beneficial in gifted education due to their multimodal use and outcomes, as the information can be presented as text, an image, or audio. This multifaceted point of view aligns with gifted students' divergent way of thinking [16].

Therefore, this systematic review will attempt to identify which AI and how it is being used in the EL and EFL classrooms for gifted students, to determine the biases and challenges encountered, and lastly, examine the role of the teacher and the application of AI in the gifted EFL and EL classroom.

Objectives

The main purpose of this systematic review is to identify and analyze current studies on the use of AI to teach gifted students EL and EFL. For this study, both EFL (English as a Foreign Language) and EL (English Language) [22,27] applied to Second Language Learning will be considered for this review. This study will analyze published research to determine which AI is being used, the potential benefits and possible drawbacks of AI integration in EFL and EL classrooms for gifted students, and the part teachers play in transforming this educational paradigm. After reviewing the studies in the field, few studies were found focusing on the use of AI to teach EFL and EL to gifted students. Therefore, the main objective established for this systematic review leads to the following research questions:

RQ1: What are the types of AI being used in the EFL/EL gifted classroom?

RQ2: What are the benefits and drawbacks of implementing AI to teach gifted students?

RQ3: What is the role of the teachers who use AI to teach gifted students?

2. Materials and Methods

This is a systematic review on the impact of using AI to teach gifted learners EFL and EL. This systematic review is carried out through the Preferred Reporting Items for Systematic Reviews and Meta-Analysis approach 2020 (PRISMA), based on a 27-item checklist regarding methods, results, discussion, funding, and a four-phase flow diagram (Identification, screening, eligibility, and studies included).

2.1. Research Strategy

The review process involved searching multiple databases, including Scopus, Web of Science, and Google Scholar, to identify relevant articles within the study's scope. These databases provide sophisticated search capabilities and filtering options that facilitate

efficient discrimination among numerous publications, ensuring high-quality and relevant literature results on the subject of interest.

The search used is as follows: ("gifted" OR "talented" OR "GTS" OR "high intellectual ability") AND ("stud*" OR "educ*") AND ("artificial intelligence" OR "AI" OR "machine learning"). This search was applied to the period between 2020 and 2025, as AI is a current topic with rapidly evolving technology. Furthermore, "EL" and "EFL" were chosen as the subject area of the specific database. Finally, English was selected as the primary language for the research, deliberately excluding books, conferences, and articles published on websites or blogs.

2.2. Data Collection Process

A total of 11 studies have been analyzed for this systematic review. The result summary is shown in Figure 1, where the detailed process of the different stages carried out to identify the most important data of each phase is presented in a PRISMA flow diagram [28].

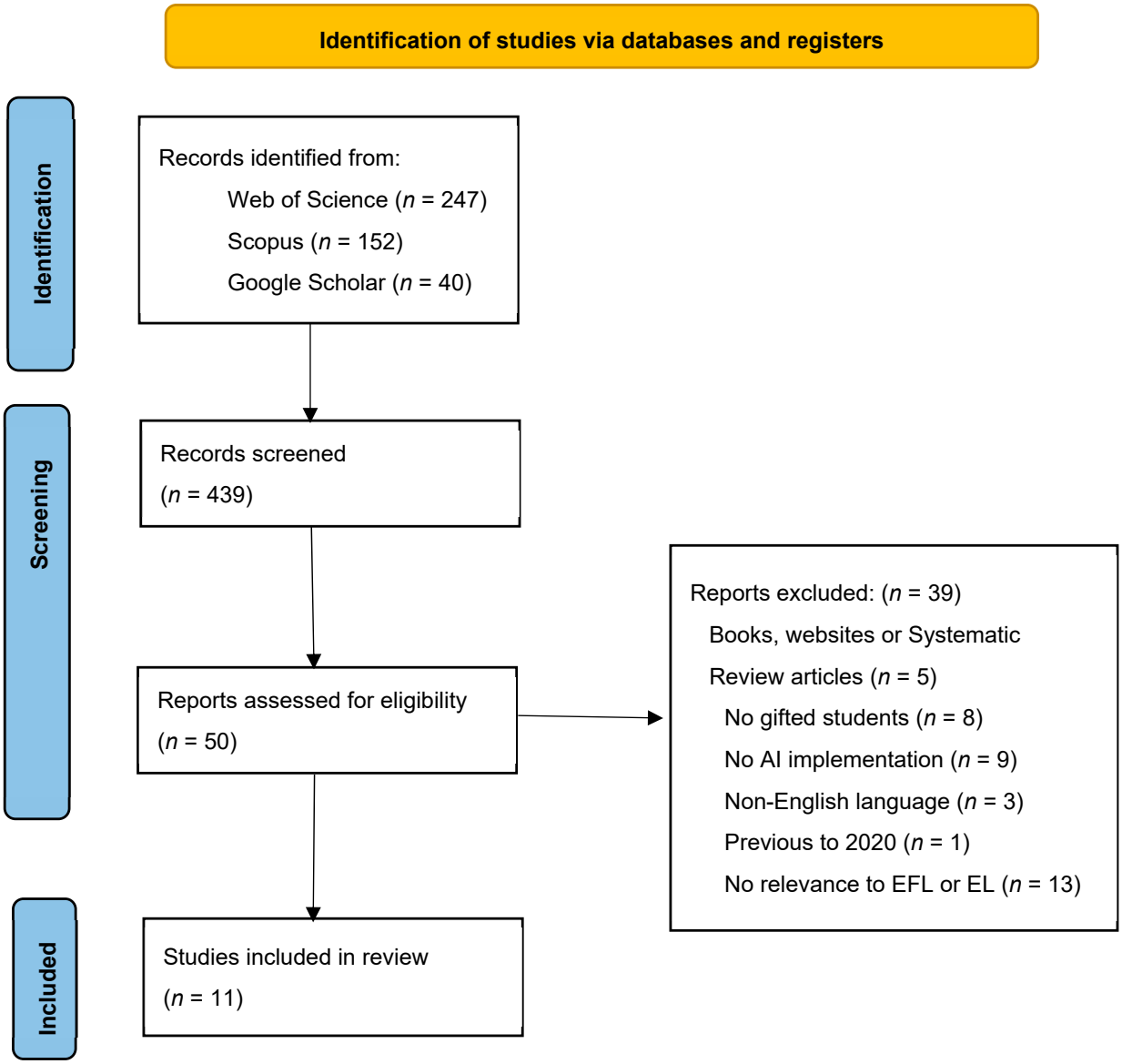

Figure 1. Research on the use of AI used in the EFL/EL classroom for gifted students.

3. Results

After identifying 439 studies, a total of 428 studies were eliminated as they did not satisfy the research parameters. Finally, 11 studies were selected, in which the main topic is the use of AI to teach gifted students, specifically for EFL and EL. Table 1 presents a detailed description of the final result from the previous flow diagram.

Table 1. Studies included in the systematic review of the application of AI in the gifted EFL and EL classroom.

Authors and Year	Description/Summary	Method/Sample	AI Named
Yüreğilli Göksu, D.; Göksu, S., 2024 [12]	Teachers' literacy and attitudes towards the use of AI with gifted students, considering their gender, age, years of experience in the profession, tenure at the school where the study takes place, and teaching different subjects, such as Foreign Language.	Quantitative study 107 science and art center (BİLSEM) teachers were selected by the convenience sampling method. 41% of the teachers were male and 59% were female.	General AI
Dumas, D.; Acar, S.; Berthiaume, K.; Organisciak, P.; Eby, D.; Grajzel, K.; Vlaamster, T.; Newman, M.; Carrera, M., 2023 [27]	Creativity and time response by English Learners and gifted students.	Quantitative study 387 elementary students in grades 3, 4, and 5. 60 students (in total) were identified as gifted students (15.5%).	Online freeware Open Creativity Scoring text-mining (OCS), adaptive LASSO model, and Global Vectors for Word Representation (GloVe)
Yang, Z.-Q.; Cao, J.; Li, X.; Wang, K.; Zheng, X.; Poon, K. C. F.; Lai, D., 2024 [11]	AI implementation in the educational system in order to create personalized education plans, English learning situations to develop higher listening and speaking skills, and to predict and identify gifted students.	Qualitative study 8 local schools (3 primary schools and 5 secondary schools) implementation of the DMP_AI system. After that implementation, 33 users were surveyed about their experience using the system.	Data Management Platform_AI (DMP_AI), an innovative AI-aided system that uses data mining, Natural Language Processing (NLP), Machine Learning, and learning analytics.
Moon, W.; Bomsol, K.; Kim, B.; Kim, J., 2024 [29]	Deep learning principles literacy is taught using activities designed in English.	Mixed-method study 50 elementary school teachers and 20 students in the 5th and 6th grades of an elementary information gifted course.	Machine learning for kids, Google's Teachable Machine, Korea's Entry, China's Mblock, and Scratch.
Chang, J.; Park, J.; Park, J., 2023 [16]	How to use AI chatbots pedagogically in Gifted Education to learn sentence structure and vocabulary, and to foster gifted students' speaking skills.	Mixed-method study 18 gifted students: eleven 5th graders and seven 6th graders. 15 students were male and 3 were female.	Chat GPT, DialoGPT, Replika AI, Jasper Chat AI, InquiryBot AI, Google Dialogflow, Kakao I Open builder, general voice-based virtual agents, such as Siri from Apple, Alexa from Amazon, and Assistant from Google, and text-based chatbots, such as Facebook Messenger bot, Lex from Amazon, and Skype bots.
Guilbault, K.; Wang, Y.; Mccormick, K., 2025 [14]	How a secondary teacher can enhance gifted students' academic performance and EFL understanding by personalizing their education with the use of AI.	Descriptive study 3 secondary gifted students (2 female and 1 male) do a case study to follow a tailored educational path adapted through the use of AI.	ChatGPT, Copilot, Gemini, Claude 3.5 Sonnet, ChatGPT4, Goblin Tools, Hello History, Knowji, Magic School AI, and Synthesia.

Table 1. *Cont.*

Authors and Year	Description/Summary	Method/Sample	AI Named
Acar, S.; 2023 [30]	How AI developments can support educational practices of differentiation, enrichment, identification of gifted students, and their creativity in writing essays.	Descriptive study No sample studied.	General AI
Siegle, D. 2023 [10]	Benefits and possible challenges when implementing AI in Gifted Education to generate creative content, such as poems, stories, essays, songs, and storytelling skills development.	Descriptive study No sample studied.	ChatGPT, DALL-E, and Bing AI.
Siegle, D. 2024 [8]	Provide AI Models that foster gifted student learning and subject acceleration, such as English language reading.	Descriptive study No sample studied.	Magic School AI, Curipod AI, Class Companion AI, the Khan Academy AI (specifically: Khanmigo AI), OpenAI (specifically: ChatGPT 4), Perplexity, Renzulli Learning AI, Beghetto's AI bot built on OpenAI, Goblin tools, Adobe's Photoshop AI, and Google's Slides supported with Gemini.
Siegle, D., 2025 [26]	Show that teaching gifted students to craft an optimal prompt is crucial to develop their critical thinking and stimulate their higher-order thinking skills.	Descriptive study No sample studied.	ChatGPT and ChatGPT 4.
David, A.; Kiose, V.; Maikou, A.; Tzelepi, E.; Stathopoulou, A., 2023 [31]	AI implementation for Gifted Education through digital storytelling.	Descriptive study No sample studied.	Khan Academy, LEGO 2, ELEKIT3, and general AI.

Although only a limited number of studies were found, they provided a sizeable amount of information. It is important to note that six of the studies are descriptive and offer theoretical and practical applications of AI in the EFL and EL gifted classroom. Two of the studies present mixed methods on more specific cases and provide both descriptive information and results on the use of AI using survey methods. The last three studies are quantitative and present verified data using statistical models.

In total, 45 AI models including GenAI and Machine Learning were identified in response to the first research question on the types of AI that are being used to teach gifted students in the EFL and EL classrooms. From this total of 45 results, 31.11% are related to AI use for EL, whereas 68.89% are related to AI use for EFL (Table 2).

OpenAI, which is an AI company whose mission is to promote the use of AI worldwide, is the most frequently named platform, and it appears nine times in the 11 articles studied. In the case of the other AIs named to specifically improve EFL, Machine Learning and text and voice-based chatbots are the second most mentioned.

Table 2. GenAI Models that can be applied in gifted classrooms for EFL and EL.

GenAI Models	Description and AI Use in EFL and EL Classroom
ChatGPT Copilot Gemini Claude 3.5 Sonnet ChatGPT 4 Bing AI Curipod AI Khanmigo AI Perplexity AI Google's Slides supported by Gemini Facebook Messenger bot Lex from Amazon Skype bot	Text-based chatbots and apps that can be used to: - generate lists of vocabulary to help gifted EFL students to create better and more specific prompts. - improve reading and writing skills, maintaining natural conversations to generate creative content and compositions. - Provide gifted students with relevant information, suggestions, and even inspiration for any topic or English task. - Engage gifted students by fostering constructive criticism and guidance to support gifted students. - Some of them can even be used to scaffold contents for gifted students.
Goblin Tools Renzulli Learning AI Beghetto's AI bot built on OpenAI DialoGPT	They are interest-based learning applications that help teachers personalize content for gifted students.
Hello History	It can be used to enhance listening and writing skills, since the student will be able to interact with historical characters in real-time.
Knowji	It helps gifted EFL learners to acquire new vocabulary in an interactive and adaptive way.
Magic School AI	It personalizes education for gifted students and fosters active learning.
Synthesia DALL-E Adobe's Photoshop AI	These are video and image generator tools that can be used to improve writing skills, since gifted students can write a description to generate the images.
Machine learning for kids Scratch Entry Mblock	These are tools to practice how to program and train an AI Model, such as language translators and chatbots.
Google's Teachable Machine	Gifted students will be able to train an AI Model to classify images, poses, and sounds.
Online freeware Open Creativity Scoring text-mining (OCS)	This is a predictive AI Model that can be used by teachers.
Global Vectors for Word Representation (GloVe)	This is an unsupervised learning algorithm used for Natural Language Processing.
Class Companion AI	This is an AI tutor that gives instant feedback to gifted students.
Replika AI Jasper Chat AI Siri from Apple Alexa from Amazon Assistant from Google	They are conversational chatbot AI partners.
InquiryBot AI	It is a Content and Language Integrated Language (CLIL) application.
Google Dialogflow	It is an AI platform to create chatbots using Natural Language Processing.
Kakao I Open builder	It is an AI platform to develop inquiry bots.
Machine Learning	An AI predictive tool. It can also be used to personalize gifted students' instruction and adapt content to their divergent thinking.
LEGO 2 AI ELEKIT3 AI	These are robotics trainers. They create new possibilities for gifted students to develop their self-expression and create technological instructions to expand their skills.

The second research question focuses on two different variables: the benefits and drawbacks of applying AI in the gifted student EFL and EL classrooms. In the articles

studied in this systematic review, there are more benefits (18) than drawbacks (14). However, these benefits and drawbacks can be grouped into two evenly divided categories (Table 3).

Table 3. Categories for the benefits and drawbacks of applying AI in the gifted student EFL and EL classroom.

	Categories	Author(s) and Year
Benefits	Tailored teaching and enriched learning experiences.	Acar, 2023 [30] Yang et al., 2024 [11] Guilbault et al., 2025 [14]
	Creativity and critical thinking development.	Siegle, 2023 [10] Dumas et al., 2024 [27] Guilbault, 2025 [14]
	AI is perceived as a digital mentor to encourage gifted students.	Siegle, 2024 [8] Guilbault et al., 2025 [14]
	AI is used as a predictive tool.	Yang et al., 2024 [11]
	AI universal accessibility to new and challenging knowledge	David et al., 2023 [31] Siegle, D., 2023 [10]
Drawbacks	AI biases and ethics	Chang, 2023 [16] Siegle, 2023 [10] Moon et al., 2024 [29] Yang et al., 2024 [11] Guilbault, 2025 [14]
	AI implementation in educational institutions	Acar, 2023 [30] Chang et al., 2023 [16]
	AI addiction and misuse	Siegle, 2023 [10]
	AI safety and privacy	Siegle, 2023 [10] Guilbault, K., 2025 [14] Siegle, 2025 [26]
	AI illiteracy	Chang et al., 2023 [16] Yüreğilli Göksu et al., 2024 [12] Siegle, 2025 [26]

The research shows that in response to the third question regarding the role of the teacher, the data can be divided into three different categories: (a) the teacher as a mentor and supporter of gifted students, (b) the need for AI literacy to teach gifted students, and (c) Teacher assessment vs. AI assessment. These results will be further discussed in the following section, as the analysis of the data has been used to establish categories that are important for determining exactly what is in the data. Categorization was chosen over a thematic analysis as it permits not only a description of the different characteristics of the category, but also the comparison and contrast of the categories identified [32].

4. Discussion

The purpose of this systematic review was to identify and analyze existing studies on the use of AI to teach gifted students EFL and EL. The aim was to identify which AI is being used, the potential benefits and possible drawbacks, and the part teachers play in transforming this educational paradigm. The following detailed discussion of the results will present a more detailed analysis that is necessary to answer the research questions posed in this systematic review.

4.1. Identification of GenAI Models to Promote EFL and EL Education in the Gifted Classroom

The data collected not only identifies the most frequently used GenAI Models but also gives examples of specific applications to support EFL and EL education in the gifted classroom. The results show that the GenAI Model named the most is ChatGPT, both in the basic and free versions, and ChatGPT 4 in the pro version. Consequently, GenAI is a useful tool to enrich the curriculum for gifted students, as it can be used to create extension activities, foster project-based learning, and pose challenging questions to promote critical thinking and creativity in gifted students [14]. Additionally, AI can help gifted students find facts, images, articles, podcasts, and videos related to their interests. By way of example, these videos and podcasts can be used to improve their oral comprehension skills [10]. AI also enhances information accessibility and supports gifted students' learning processes [33]. AI can offer gifted and talented students significant information, recommendations, feedback, and inspiration for any topic or task they are working on. For instance, this information may serve as an inspiration for gifted students to write their own essay or narration in English [10].

4.1.1. Benefits of AI Application

There are 18 benefits of AI use that have been identified to teach gifted students EFL and EL that can be grouped into 5 categories. The first category, *Tailored teaching and enriched learning experiences*, addresses the issue of how the talents of gifted students are often overlooked in the traditional education system. Artificial intelligence is an asset to create tailored content thanks to its data-driven approach, which enables educators to better understand and respond to the unique talents of their students, ensuring a more personalized and effective educational experience [11]. By utilizing AI algorithms, teachers can customize and enrich activities to offer students personalized and meaningful challenges that align with their skills and interests [33]. Moreover, research shows how artificial intelligence can tailor educational interventions for gifted students' individual abilities, providing personalized feedback that not every teacher would be able to offer [11,14,30,33–35]. As examples, the research shows that Machine Learning, which can be used to modify texts, can facilitate differentiated reading activities [36] and how Machine Learning techniques have been used to tailor learning paths in e-learning environments [37]. Taking these findings into account, ML educational intervention is appropriate to teach EFL and EL to gifted students, as this possibility for personalization makes gifted students feel confident and supported [14].

The second category, *Creativity and critical thinking development*, highlights how AI has already introduced effective assessment tools and holds promise in fostering creativity. AI creates opportunities to improve gifted students' educational experiences, cultivate their creative talents, and equip them for a future where innovation and creativity are essential skills by offering immediate feedback on creative activities, considering each student's personal interests, talents, strengths, and previous achievements as well as enabling personalized learning in enrichment programs [38].

Transformers can be used to improve creativity and divergent thinking, and DALL-E is one example. This platform uses deep learning skills to produce realistic and artistic results, creating one-of-a-kind images that did not exist before it was requested because DALL-E acts like a magical paintbrush that transforms words into visual creations [10]. AI implementation in the gifted classroom can also help students develop their critical thinking skills. Gifted students can use AI tools, for example, to create reflective journals which allow them to scaffold and process the information they receive from a GenAI and recognize their progress and achievements [14], which in turn develops their metacognition.

The third category, *AI seen as a digital mentor which encourages gifted students*, illustrates the importance of motivation, one of the essential variables, in gifted education. A benefit of AI use in gifted education is that it can ensure the engagement of gifted students and provide a challenging learning pace suited to their abilities [8,14,39]. GenAI can, for instance, be seen as a digital mentor for gifted students and connect with their advanced learning needs. One example of how it can be used is digital conversations with ancient kings or scientists who can talk with gifted students discussing their historical or scientific interests. Another example is ChatGPT, that can be used as a tool to break tasks into manageable goals for gifted students by creating step-by-step assignments to encourage them to follow up on their own knowledge [14]. Gifted students can engage in conversations with different transformers, such as ChatGPT or Gemini, and envision an unlimited range of possible applications. These AI transformers can propose English learning actions, including generating stories, essays, jokes, songs, poems, and computer code for gifted students, helping them to develop their creativity, as these actions will be based on the students' input. Additionally, artificial intelligence provides gifted students with constructive criticism and guidance to help them improve their writing skills by exploring new insights, points of view, and possibilities in an enjoyable and captivating way [10].

In addition, AI and chatbots are seen as tools that can support gifted students' performance by being more proactive, offering challenging learning experiences, and reducing teachers' workloads [14,40–42]. To illustrate these points, a chatbot can serve as an effective teaching assistant by addressing students' individual questions and engaging with them. Moreover, it offers instant responses anytime and anywhere, providing timely feedback that enhances the learning experience in various ways [43]. The research shows that students feel less shy and more comfortable during language practice with chatbots than with a human partner [16,44]. Furthermore, educators can also utilize chatbots to address practical challenges that arise during lessons and to reshape the learning environment in a more personalized and proactive manner [30,45,46]

The fourth category pinpoints how *AI is used as a predictive tool*. Researchers in the educational field are starting to use Machine Learning to improve gifted students' learning outcomes [47]. The research shows that predictive results allow educators to identify gifted students who might require extra support or intervention. With these data, teachers can tailor intervention strategies to meet gifted students' individual needs, providing a more personalized learning experience for an individual gifted student. It has even been affirmed in the same study that AI can be used to identify gifted students to correctly intervene and promote their exceptional talents and support their special needs and interests, to foster their individual potential. This data-driven approach enables educators to better understand and respond to the unique talents of their students, ensuring a more personalized and effective educational experience [11]. Machine Learning can also be implemented to predict engagement levels among gifted students, and it can help develop interventions for low-engaged gifted students. It can even predict the emotions that gifted students feel, which is vitally important as students' emotions are linked to the process of carrying out learning tasks [48], and ML can help identify both positive and negative inclinations towards any activity carried out in the classroom.

The last category, *AI universal accessibility to new and challenging knowledge*, points out how AI use can favor synchronous and asynchronous learning. AI is a student-centered tool which can be utilized to implement flipped learning methodology when used at home [31]. This idea is reflected in the UNICEF Executive Summary on AI and Human Rights, which states that one of the benefits of applying AI is "enabling distance education for children in remote regions" [49] (p. 11). In gifted education, the use of AI can be adequately developed in a remote learning environment, albeit its efficiency is better when applied in the actual

classroom during face-to-face lessons [35]. Another advantage of the application of AI is the possibility of bridging the existing technological gap, since all students can rapidly access large amounts of information [50].

4.1.2. Drawbacks of AI Application

There are 14 drawbacks associated with AI applications that have been grouped into five categories. The first addresses *AI biases and ethics*, regarding concerns for potential biases that may arise from students' misuse. The question of ethics inevitable arises [11] when using AI in classrooms. Gifted students emphasize that AI must be man-made and under human control to be used ethically [33]. Educating students from a young age about the risks associated with AI is essential, as well as establishing clear guidelines to prevent unethical practices, like cheating [35]. For that reason, AI literacy is necessary for gifted students who should study the core competencies of these three different dimensions: AI concepts, AI applications, and AI ethics and security [29]. GenAI such as ChatGPT might be a threat to academic integrity, provoking, for example, problems of plagiarism [14].

When using Machine Learning, it is essential to ensure that the model is trained on a rigorously selected dataset that considers factors such as race, ethnicity, and socioeconomic status of gifted students. Failing to do so may contribute to the appearance of what is known as an 'excellence gap', since solely relying on the capabilities of ML may lead to biased or incomplete outcomes [47,51].

It is usually an asset to use Machine Learning for curricular differentiation and to propose curricular enrichment; nevertheless, there may be an interpretability bias. In the logistic regression, the coefficients are easily interpretable [47]. The possible misinformation that artificial intelligence may generate can contain not only explicit language, violent or discriminatory messages, or inappropriate images it can also generate inaccurate content [10]. This inaccurate information created by AI tools can unintentionally reinforce racial and socioeconomic biases as a result of these AI hallucinations, which generate incorrect or misleading information and present it as fact [52]. That is why it is essential to teach students about the concept of AI hallucinations, since they should challenge AI responses through their own critical thinking abilities [14]. Additionally, ChatGPT can fail to fully capture the specific dynamics of a classroom or the individualized academic and emotional needs of diverse students. However, one of the most important strengths of ChatGPT is that it is trainable [11].

Another drawback is directly related to chatbots, which often lack sophisticated natural language capabilities, making continuous interaction challenging. This limitation may lead to disengagement among gifted students, as the inability to communicate with AI in a human-like way can be frustrating and result in lower motivation [16]. Another issue refers to chatbots that struggle when differentiating between giving activities to students who are gifted or not [53].

There are disadvantages related to *educational institutions*, and one key issue is resistance to AI implementation [33]. It is also important to consider potential limitations within classrooms that may slow down the integration of AI technology [16]. The third drawback related to AI use in gifted education is closely related to *AI addiction and misuse*. [33]. Not only is it a possible danger for gifted students to become dependent on AI due to misuse, but the easy availability of responses can reduce creativity. However, it has been pointed out that using AI can help gifted students develop their creativity if AI is applied in a productive way [38]. In addition, there are dangers regarding *safety and privacy* as these platforms collect the personal information of students [10,14,26].

The last category refers to *AI illiteracy*. It is necessary for educators to learn to use these new technologies and improve their AI literacy [12,26]. In the near future, gifted

students will also be expected to have fundamental competencies, such as navigating chatbot platforms and composing prompts for AI interaction. These abilities often differ depending on their age and familiarity with technology in their daily lives. Consequently, educational chatbots should be designed to ensure ease of access and usability for both teachers and students within academic environments [16].

4.2. The Role of the Teacher

The last research question focuses on the role of the teacher. The teacher still plays an essential role in AI implementation in the classroom. Information given by some AI transformers can be incorrect, outdated, or produce inappropriate explicit content that the human teacher must double-check. One example is the use of Generative AI, which is eminently based on algorithms which provide algorithmic bias that the teacher should verify [14,35].

With the use of AI, Individualized Education Plans (IEPs) can be tailored to fit the special educational needs of gifted students. This falls into the first category identified, *where the teacher is a mentor and supporter of gifted students*. AI can help teachers design personalized and enriched learning plans for individual students [11,14,30]. Moreover, Personalized Intelligent Learning Systems (PILS) can provide information about gifted students' progress, strengths, and weaknesses, giving teachers essential details on areas to focus on while simultaneously developing students' talents and giftedness [35]. AI provides an ideal platform for gifted students to personalize their education, nurture their talents, and stay motivated by exploring topics that truly inspire them [33]. Gifted students are often deeply engaged in subjects they are passionate about, and both educators and parents should recognize the significant impact of interest and choice on academic achievement.

The teacher is seen as a mentor [14,38] and a supporter who guides gifted students in their individual learning paths [16], supporting gifted students in finding new worlds, developing their knowledge, and satisfying their pedagogical demands [54]. AI can even be utilized to know gifted students' vocational goals in life and exploit them [14], which is one of the professional standards established in the National Association for Gifted Children [55]. Considering the influence of artificial intelligence in decision-making, educators can guide students in comprehending the mechanisms behind these systems while encouraging them to critically assess the implications and reliability of AI [12].

Research shows that effective questioning and prompt creation by teachers are essential for fostering the cognitive, creative, and personal growth of gifted students. Well-crafted questions encourage higher-order thinking, moving gifted students beyond simple recall to advanced analysis and critical thinking. By modelling effective prompting techniques, educators not only engage gifted students in deeper learning but also cultivate their ability to ask perceptive questions by themselves. AI can help teachers to enhance gifted students' understanding by fostering inquiry and exploration, allowing them to actively engage in the learning process, freely ask questions, and interact dynamically with technology [31] in order to satiate their constant curiosity to learn new knowledge [14]. This skill is particularly crucial in the age of artificial intelligence, where students must learn to critically engage with AI systems. Thoughtful questioning promoted by teachers fosters self-directed learning, builds resilience, and provides gifted students with tools to solve complex problems, ultimately reducing the risk of low progress [8].

Nevertheless, the role of the teacher remains crucial when we talk about students aged under 13, since in many countries they are not allowed to use AI directly. It is the teacher who must use the AI tool in order to maintain students' personal data privacy [14]. For instance, in Spain, the minimum age to interact in digital environments is 16 [56]. That is

why it is essential to count on the parents' consent under those ages to implement AI to maintain students' privacy at all levels [14].

The next category refers to *Teachers' AI literacy when teaching gifted students*. Literacy is generally considered to be the ability to write, speak, listen, and read; however, artificial intelligence literacy fosters individuals' understanding, explanation, and application of AI [29]. Consequently, teacher AI literacy is pivotal. Teachers should have AI training to teach students in a holistic way, helping them to develop their academic and psychosocial spheres to truly become their mentors [38]. Teachers' literacy remains decisive as their knowledge and attitudes towards AI are crucial for AI use in lessons [12]. Researchers have discovered that one of the most important competencies teachers should develop is AI and digital literacy, not only to feel confident, but also to demonstrate a positive attitude towards its application in the classroom. Educator perceptions of AI significantly impact its educational adoption; favorable views promote broader and more effective implementation, while negative attitudes can complicate integration into teaching instruction [12,57]. In addition, regarding teachers' AI literacy, it has been stated that artificial intelligence is able to enhance students' performance, offering them tailored learning opportunities and improving teachers' methodology, obviously, depending on the educators' literacy of artificial intelligence technologies [40]. However, the development of this potential depends on teachers' mastery of AI technologies. Lastly, 21st-century schools should have contemporary technological infrastructures to be able to expand opportunities for gifted students through the use of AI in their classrooms [31].

It has also been pointed out that educators' perspectives on AI directly impact its educational effectiveness. While favorable views enhance adoption and productive implementation, skepticism creates barriers to integration. Providing solid training and support systems that cultivate a positive inclination towards AI technology is crucial for maximizing its educational potential [12]. Nevertheless, it is not only important to consider the teachers' attitude towards the use of AI in the classroom, but also their attitude towards gifted students themselves in order to develop a suitable learning program in the gifted classroom [58]. A study on gifted education carried out in 21 nations pointed out that only nine nations (Austria, Germany, Spain, Hungary, Luxembourg, the Netherlands, Romania, Slovenia, and the United Kingdom) provided teacher preparation programs to work with gifted students [59]. Therefore, teachers well-trained in new technologies would be able to integrate AI into learning processes, providing their students with crucial skills for their future, as the teachers' digital literacy would foster a more flexible educational environment for their students, who in turn would continue to evolve technologically [60].

The last category identified refers to *Teacher assessment* vs. *AI assessment*. Even though there are many GenAI tools to grade students [14], the application of Machine Learning to evaluate students can dramatically decrease the biases in human teachers' assessments [47]. For instance, the variation of creativity assessment made by a human teacher and AI has been researched. Using the adaptive LASSO Machine Learning Model, it has been discovered that two of the variables that teachers disagreed about most were in the answers of English learners and the ones given by gifted students. These findings show less bias in human assessment [27] and helped to train teachers when it comes to assessing gifted students and EL/EFL learners' creativity. It has also been shown that AI is a useful tool to be used to assess gifted students in a formative way [61]. Despite these positive features, AI applications also generate uncertainty, such as teachers' concerns towards their implementation in their classrooms. Some teachers actually see AI integration as a threat to their jobs, and that vision can produce a negative attitude when it comes to AI use in the classroom [62]. In order to prevent this situation, it is necessary to establish a clear

understanding that artificial intelligence will be used to support teachers' work rather than replace them [12].

5. Conclusions

This systematic review has shown that there is a limited amount of research in the field, and further research is necessary to address the intersection of AI applications for gifted EFL and EL learners. While many studies exist on these three individual topics, locating scholarly work that simultaneously encompasses all three variables, EFL/EL, gifted students, and AI implementation, was difficult during the literature review process. This systematic review, despite its limited sample size, does provide valuable insights into the implementation of artificial intelligence for teaching EL and EFL to gifted students. The literature analyzed has offered information regarding not only the types of AI used in the classroom but also the advantages and limitations of AI integration in Gifted EFL and EL Education. The studies also provide answers concerning teachers' roles, teachers and gifted students' need for AI literacy, and current AI use in the gifted EFL and EL classroom.

Artificial Intelligence is markedly reshaping educational landscapes and talent development through its capacity for personalized learning experiences [8,14]. This review presents data that shows that the combination of thoughtful questioning techniques with effective prompt engineering strategies can help gifted students optimize AI benefits while cultivating critical thinking and creativity throughout their educational journey [26]. Furthermore, it has been proven that the use of AI chatbots in the gifted classroom can connect gifted students with innumerable online contents which can totally adapt to their high-level capacity and their interests [16]. In addition, the analysis concludes that both teachers and gifted students maintain positive attitudes towards AI utilization, though both educators and gifted students require increased technological literacy to achieve greater confidence in its application [29].

Despite identifying challenges in applying AI in gifted education for EFL and EL instruction, the analyzed studies point out its significance in changing the educational paradigm and emphasize how its implementation can foster the distinctive abilities and talents of gifted students. More benefits than drawbacks have been found, and the negative aspects about AI use in the gifted classroom must be studied further to continue improving the use of AI. It is true that new aspects about AI are still being discovered since it is an emerging discipline, and it must be stated that AI policy creation in the Education field remains an urgent matter in order to protect children's rights and privacy [14]. To conclude, it can be confirmed that the 21st-century gifted educational paradigm is gradually changing from a traditional teaching approach into a digital classroom [63], where the use of AI to teach EL and EFL for gifted students needs to be applied to strengthen gifted students' skills and capabilities [14].

Author Contributions: Conceptualization, C.G.-L., M.T.-C. and I.N.-S.; methodology, C.G.-L., M.T.-C. and I.N.-S.; investigation, C.G.-L.; writing—original draft preparation, C.G.-L. and M.T.-C.; supervision, M.T.-C. and I.N.-S.; writing—review and editing, C.G.-L. and M.T.-C. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not Applicable.

Informed Consent Statement: Not Applicable.

Data Availability Statement: No new data were created or analyzed in this study. Data sharing is not applicable to this article.

Conflicts of Interest: The authors declare no conflict of interest.

Abbreviations

The following abbreviations are used in this manuscript:

EFL	English as a Foreign Language
EL	English Language Teaching
AI	Artificial Intelligence
ICT	Information and Communication Technology
IEP	Individualized Education Plan
GenAI	Generative Artificial Intelligence
ML	Machine Learning
NLP	Natural Language Processing
PILS	Personalized Intelligent Learning Systems

References

1. National Association for Gifted Children, (NAGC). Redifining Giftedness for a New Century. 2019. Available online: https://thegiftedchild.weebly.com/uploads/2/3/9/1/23911245/redefining_giftedness_for_a_new_century.pdf (accessed on 4 June 2025).
2. Kontostavlou, E.Z.; Drigas, A. The Use of Information and Communications Technology (I.C.T.) in Gifted Students. *Int. J. Recent Contrib. Eng. Sci. IT* **2019**, *7*, 60–67. [CrossRef]
3. Marland, S.P. *Education of the Gifted and Talented—Volume 1: Report to the Congress of the United States by the U. S. Commissioner of Education*; Office of Education (DHEW): Washington, DC, USA, 1972.
4. Jiménez, C.; Murga, M.Á.; Gil, J.A.; Téllez, J.A.; Trillo, M.P. Hacia un modelo sociocultural explicativo del alto rendimiento y la alta capacidad: Ámbito académico y capacidades personales. *Educ. XX1* **2010**, *3*, 125–153. [CrossRef]
5. Hernández de la Torre, E.; Montaño, M.J.N. Responder Sin Exclusiones a las Necesidades Educativas de las Altas Capacidades. *REICE. Rev. Iberoam. Sobre Calid. Efic. Cambio Educ.* **2021**, *19*, 5–18. [CrossRef]
6. Monzó-Martínez, A.; García-Raga, L. Análisis de la respuesta educativa al alumnado de alta capacidad. *EDUCAR* **2024**, *60*, 535–552. [CrossRef]
7. Perales, R.G.; Fernández, C.J. Tendencias en la respuesta educativa al alumnado con alta capacidad intelectual. Marcos normativos y acciones contempladas en el decenio 2009/2010–2019/2020. *Rev. Electrónica Interuniv. Form. Profr.* **2022**, *25*, 111–126. [CrossRef]
8. Siegle, D. Using Artificial Intelligence (AI) Technology to Support the Three Legs of Talent Development. *Gift. Child Today* **2024**, *47*, 221–227. [CrossRef]
9. García-Perales, R.; Almeida, L.-S. An enrichment program for students with high intellectual ability: Positive effects on school adaptation. *Comun. Rev. Científica Comun. Educ.* **2019**, *27*, 39–48. [CrossRef]
10. Siegle, D. A Role for ChatGPT and AI in Gifted Education. *Gift. Child Today* **2023**, *46*, 211–219. [CrossRef]
11. Yang, Z.-Q.; Cao, J.; Li, X.; Wang, K.; Zheng, X.; Poon, K.C.F.; Lai, D. DMP_AI: An AI-Aided K-12 System for Teaching and Learning in Diverse Schools. In *Blended Learning. Intelligent Computing in Education*; Ma, W.W.K., Li, C., Fan, C.W., U, L.H., Lu, A., Eds.; Lecture Notes in Computer Science; Springer Nature Singapore: Singapore, 2024; Volume 14797, pp. 117–130. [CrossRef]
12. Yüreğilli Göksu, D.; Göksu, S. Determination of Artificial Intelligence Literacy and Attitudes towards Artificial Intelligence of Teachers Working with Gifted Students and Examining Them According to Some Variables. *ITALL* **2024**, *5*, 278–299. [CrossRef]
13. Lacambra, A.M.M.; Gracia, P.R.; Aguilera, E. Una propuesta de formación docente para responder a las altas capacidades en la escuela inclusiva. *Profr. Rev. Currículum Form. Profr.* **2019**, *23*, 265–284. [CrossRef]
14. Guilbault, K.; Wang, Y.; Mccormick, K. Using ChatGPT in the Secondary Gifted Classroom for Personalized Learning and Mentoring. *Gift. Child Today* **2025**, *48*, 93–103. [CrossRef]
15. López, S.P.; Vilar, M.M.; González-Sala, F. Intervenciones educativas en conducta prosocial y empatía en alumnado con altas capacidades. *Bordón. Rev. Pedagog.* **2022**, *74*, 141–157. [CrossRef]
16. Chang, J.; Park, J.; Park, J. Using an Artificial Intelligence Chatbot in Scientific Inquiry: Focusing on a Guided-Inquiry Activity Using Inquirybot. *Asia-Pac. Sci. Educ.* **2023**, *9*, 44–74. [CrossRef]
17. Lee, B.W.; Lee, J.H.-J. LXPER Index: A Curriculum-Specific Text Readability Assessment Model for EFL Students in Korea. *Int. J. Adv. Comput. Sci. Appl. (IJACSA)* **2020**, *11*, 1–8. [CrossRef]
18. Zhao, X. Leveraging Artificial Intelligence (AI) Technology for English Writing: Introducing Wordtune as a Digital Writing Assistant for EFL Writers. *RELC J.* **2022**, *54*, 003368822210940. [CrossRef]
19. Fathi, J.; Rahimi, M.; Derakhshan, A. Improving EFL Learners' Speaking Skills and Willingness to Communicate via Artificial Intelligence-Mediated Interactions. *System* **2024**, *121*, 103254. [CrossRef]

20. Tang, J.; Foley, J. A Case Study on the Effectiveness of Applying Content and Language Integrated Learning in an Artificial Intelligence English Reading Course. *AWEJ* **2022**, *13*, 236–253. [CrossRef]
21. Hu, N. English Listening and Speaking Ability Improvement Strategy from Artificial Intelligence Wireless Network. *Wirel. Netw.* **2024**, *31*, 1071–1080. [CrossRef]
22. Manasrah, M.; Alzobiani, I.; Alharthi, N.; Alelyani, N. Exploring Gifted Secondary School Students' Needs for English Learning in Saudi Arabia. *Arab. World Engl. J. (AWEJ)* **2023**, *14*, 89–104. [CrossRef]
23. Huang, W.; Hew, K.; Fryer, L. Chatbots for Language Learning-Are They Really Useful? A Systematic Review of Chatbot-Supported Language Learning. *J. Comput. Assist. Learn.* **2021**, *38*, 237–257. [CrossRef]
24. Schmidt, T.; Strasser, T. Artificial Intelligence in Foreign Language Learning and Teaching. *Anglistik* **2022**, *33*, 165–184. [CrossRef]
25. Dai, K.; Liu, Q. Leveraging Artificial Intelligence (AI) in English as a Foreign Language (EFL) Classes: Challenges and Opportunities in the Spotlight. *Comput. Hum. Behav.* **2024**, *159*, 108354. [CrossRef]
26. Siegle, D. Using AI Prompt Engineering to Improve Gifted Students' Questioning. *Gift. Child Today* **2025**, *48*, 68–72. [CrossRef]
27. Dumas, D.; Acar, S.; Berthiaume, K.; Organisciak, P.; Eby, D.; Grajzel, K.; Vlaamster, T.; Newman, M.; Carrera, M. What Makes Children's Responses to Creativity Assessments Difficult to Judge Reliably? *J. Creat. Behav.* **2023**, *57*, 419–438. [CrossRef]
28. Page, M.J.; McKenzie, J.E.; Bossuyt, P.M.; Boutron, I.; Hoffmann, T.C.; Mulrow, C.D.; Shamseer, L.; Tetzlaff, J.M.; Akl, E.A.; Brennan, S.E.; et al. The PRISMA 2020 Statement: An Updated Guideline for Reporting Systematic Reviews. *BMJ* **2021**, *372*, n71. [CrossRef] [PubMed]
29. Moon, W.; Bomsol, K.; Kim, B.; Kim, J. Development of Artificial Intelligence Education Programs Centered on Deep Learning Principles. *Nanotechnol. Percept.* **2024**, *20*, 62–79. [CrossRef]
30. Acar, S. Creativity Assessment, Research, and Practice in the Age of Artificial Intelligence. *Creat. Res. J.* **2023**, *37*, 1–7. [CrossRef]
31. David, A.; Kiose, V.; Maikou, A.; Tzelepi, E.; Stathopoulou, A. The Impact of ICTs (Robotics, VR, AI, Games) on Gifted Students' Education. *Eximia J.* **2023**, *8*, 31–50.
32. Morse, J. Confusing Categories and Themes. *Qual. Health Res.* **2008**, *18*, 727–728. [CrossRef]
33. Görgülü, D.; Törün, E. A Case Study on the Perception of Artificial Intelligence by Gifted Students in Turkey. *J. Digit. Educ. Technol.* **2025**, *5*, ep2502. [CrossRef]
34. Maseleno, A.; Sabani, N.; Huda, M.; Ahmad, R.; Jasmi, K.A.; Basiron, B. Demystifying Learning Analytics in Personalised Learning. *Int. J. Eng. Technol.* **2018**, *7*, 1124–1129. [CrossRef]
35. Krsmanovic, G.; Deek, F. AI Applications in Education for Working with Gifted Children: Future Uses and Psychosocial Effects. *Sixth International Scientific and Professional Conference: "Working with the Gifted: Methods and Programs", Mensa*; Novi Sad, Serbia, 2023. Available online: https://www.researchgate.net/publication/374381304_AI_Applications_in_Education_for_Working_with_Gifted_Children_Future_Uses_and_Psychosocial_Effects (accessed on 4 June 2025).
36. Park, Y.; Xu, Y.; Collins, P.; Farkas, G.; Warschauer, M. Scaffolding Learning of Language Structures with Visual-Syntactic Text Formatting. *Br. J. Educ. Technol.* **2019**, *50*, 1896–1912. [CrossRef]
37. Zhou, Y.; Huang, C.; Hu, Q.; Zhu, J.; Tang, Y. Personalized Learning Full-Path Recommendation Model Based on LSTM Neural Networks. *Inf. Sci.* **2018**, *444*, 135–152. [CrossRef]
38. Henriksen, D.; Woo, L.; Mishra, P. Unlocking Creativity: Dr. Anna Abraham on Interdisciplinarity, AI, and Human Innovation. *TechTrends* **2024**, *68*, 847–853. [CrossRef]
39. Davey, A.; Hasty, A. From School to Home: Using Artificial Intelligence in Everyday Learning. *Parent. High Potential* **2023**, *12*, 13–15.
40. Holmes, W.; Bialik, M.; Fadel, C. *Artificial Intelligence in Education. Promise and Implications for Teaching and Learning*; Center for Curriculum Redesign: Boston, MA, USA, 2019; ISBN 978-1-7942-9370-0.
41. Holotescu, C.; Holotescu, V. MOOCBuddy: A Chatbot for Personalized Learning with MOOCs. In Proceedings of the ROCHI—International Conference on Human-Computer Interaction, Iasi, Romania, 8–9 September 2016; Iftene, A., Vanderdonckt, J., Eds.; MATRIX ROM: Bucharest, Romania, 2016; ISSN 2501-9422.
42. Pereira, J. Leveraging Chatbots to Improve Self-Guided Learning through Conversational Quizzes. In *TEEM'16: 4th International Conference on Technological Ecosystems for Enhancing Multiculturality*; García-Peñalvo, F.J., Ed.; Association for Computing Machinery: Salamanca, Spain, 2016; pp. 911–918. [CrossRef]
43. Smutny, P.; Schreiberova, P. Chatbots for Learning: A Review of Educational Chatbots for the Facebook Messenger. *Comput. Educ.* **2020**, *151*, 103862. [CrossRef]
44. Fryer, L. Bots as Language Learning Tools. *Lang. Learn. Technol.* **2006**, *10*, 8–14. [CrossRef]
45. Gupta, S.; Chen, Y. Supporting Inclusive Learning Using Chatbots? A Chatbot- Led Interview Study. 2022. Available online: https://jise.org/Volume33/n1/JISE2022v33n1pp98-108.html (accessed on 4 June 2025).
46. Popenici, S.A.D.; Kerr, S. Exploring the Impact of Artificial Intelligence on Teaching and Learning in Higher Education. *Res. Pract. Technol. Enhanc. Learn.* **2017**, *12*, 22. [CrossRef]

47. Hodges, J.; Mohan, S. Machine Learning in Gifted Education: A Demonstration Using Neural Networks. *Gift. Child Q.* **2019**, *63*, 243–252. [CrossRef]
48. Öztüre Yavuz, G.; Akçapınar, G.; Çıralı Sarıca, H.; Koçak Usluel, Y. Investigating Features That Play a Role in Predicting Gifted Student Engagement Using Machine Learning: Video Log and Self-Report Data. *Educ. Inf. Technol.* **2024**, *29*, 16317–16343. [CrossRef]
49. UNICEF Innovation; Human Rights Center, UC Berkeley. *Memorandum on Artificial Intelligence and Child Rights*; UNICEF: Pyrmont New South Wales, 2019. Available online: https://www.unicef.org/innovation/media/10726/file/Executive%20Summary:%20Memor (accessed on 4 June 2025).
50. Onyebuchi, N.; Unachukwu, C.; Osawaru, B. Review of Ai in Education: Transforming Learning Environments in Africa. *Int. J. Appl. Res. Soc. Sci.* **2024**, *5*, 637–654. [CrossRef]
51. Alaca, Z. Excellence Gaps in Education: Expanding Opportunities for Talented Students. Plucker, J.A., & Peters, S.J. (2016). *Roeper Rev.* **2018**, *40*, 67–69. [CrossRef]
52. Herold, B. Why Schools Need to Talk About Racial Bias in AI-Powered Technologies. *Education Week*. 12 April 2022. Available online: https://www.edweek.org/technology/why-schools-need-to-talk-about-racial-bias-in-ai-powered-technologies/2022/04 (accessed on 4 June 2025).
53. Radeva, M. The Benefits and Risks of ChatGPT for Education | Teaching Innovation & Learning Enhancement Network. Available online: https://tile.psy.gla.ac.uk/2023/12/07/the-benefits-and-risks-of-chatgpt-for-education/ (accessed on 4 June 2025).
54. Galitskaya, V.; Batzaka, M.; Kasapoglou, E.; Drigas, A. Giftedness: A Three Way Approach and the Role of ICTs. *Tech. Soc. Sci. J.* **2022**, *30*, 238–251. [CrossRef]
55. Corwith, S.; Ash, J.; Cotabish, A.; Dailey, D.; Guilbault, K.; Johnsen, S.; Kessel, S.; Lee, C.-W.; Lurz, P.; Pratt, D.; et al. 2019 Pre-K-Grade 12 Gifted Programming Standards. Available online: https://cdn.ymaws.com/nagc.org/resource/resmgr/knowledge-center/nagc_2019_prek-grade_12_gift.pdf (accessed on 4 June 2025).
56. Ministerio de la Presidencia, Relaciones con las Cortes y Memoria Democrática. *Anteproyecto de Ley Orgánica para la Protección de las Personas Menores de Edad en los Entornos Digitales*; Gobierno de España: Madrid, Spain, 2024. Available online: https://www.mpr.gob.es/servicios/participacion/audienciapublica/Documents/VSGT%202024/2024-0921%20APLO%20menores%20entornos%20digitales/ANTEPROYECTO%20DE%20LEY%20ORG%C3%81NICA%20PARA%20LA%20PROTECCI%C3%93N%20DE%20LAS%20PERSONAS%20MENORES%20DE%20EDAD%20EN%20LOS%20ENTORNOS%20DIGITALES.pdf (accessed on 4 June 2025).
57. Park, S. The Effect of Pre-Service Teachers' Digital Literacy Attitude on Digital Literacy Competency. *Asia-Pac. J. Converg. Res. Interchange* **2023**, *9*, 561–570. [CrossRef]
58. Davis, G.A.; Rimm, S.B.; Siegle, D. *Education of the Gifted and Talented*, 6th ed.; Pearson New International Edition; Pearson Education Limited: Harlow, UK, 2014; ISBN 978-1-292-02192-8.
59. Mönks, F.J.; Pflüger, R.; Radboud Universiteit Nijmegen. *Gifted Education in 21 European Countries: Inventory and Perspective*; Radboud University Nijmegen: Nijmegen, The Netherlands, 2005. Available online: https://hdl.handle.net/2066/231189 (accessed on 4 June 2025).
60. Alarfaj, A.; Alrashidi, M. Revolutionizing Gifted Education: Enhancing Teachers' Digital Competence through Fourth Industrial Revolution Training. *Discov. Sustain.* **2025**, *6*, 159. [CrossRef]
61. Renzulli, J.S. Assessment for Learning: The Missing Element for Identifying High Potential in Low Income and Minority Groups. *Gift. Educ. Int.* **2021**, *37*, 199–208. [CrossRef]
62. Van der Spoel, I.; Noroozi, O.; Schuurink, E.; Van Ginkel, S. Teachers' Online Teaching Expectations and Experiences during the Covid19-Pandemic in the Netherlands. *Eur. J. Teach. Educ.* **2020**, *43*, 623–638. [CrossRef]
63. Bakar, A.Y.A. "Digital Classroom": An Innovative Teaching and Learning Technique for Gifted Learners Using ICT. *Creat. Educ.* **2016**, *7*, 55–61. [CrossRef]

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.