information about the status and role of AI in ELT at present as well as in the future, this study aims to provide the facts and details about the range of AI that is in use at present in ELT.

The study is carried out relying on the data available online from popular websites and scholarly articles. Since the data proliferation nowadays from all walks of life is uncontrollably voluminous and since great amounts of data are authentic, the required data for the study was obtained from the textual analysis of various perspectives developed by different language institutes worldwide about AI integration in their English language courses together with the views and opinions of teachers, and experts in technology and language as they were presented in several online sources such as specific organizational websites and blogs relevant to English language studies. The study provides an overview of the status of AI integration at various institutes and a commentary on the disruptive nature of AI integration in several aspects of English education that can be categorized under the teaching processes and the teacher roles.

2. Literature Review

AI is understood to be bringing about revolutionary and phenomenal changes in the world in the coming years in all fields, which means that people will see a completely different world in the not-so-far-away future time. Bill Gates talked about the way computers loaded with AI-powered apps, and the agents that do all kinds of work for everyone in the future, will be used, and mentioned that people will converse with computers to find solutions to all kinds of queries or problems and the systems will choose the right applications or agents and provide solutions (Gates, 2023a). The range of tasks the AI agents can do varies from simple operations such as drafting an email or letter and sending it to the target address to writing complex programming codes to find critical business solutions. Bin and Mandal (2019) mentioned that the integration of IT into the English language curriculum and teaching eventually would lead to the application of AI in English teaching to enhance the effectiveness of teaching methods in use that need teachers to assess their students 'knowledge. When teachers are better able to assess their students 'knowledge, they can level up more suitable curriculum plans for their students. In the view of the European Union (n.d.), "AI can offer personalized learning experiences; it can enhance language assessment with automated grading and feedback and facilitate immersive language practice through chatbots and language processing tools."

The most happening challenges either in Computational Linguistics (CL) or Natural Language Processing (NLP) are at the core said to be speech recognition, natural-language understanding, and natural-language generation. Understandably, CL can be considered the foundation for NLP. Although CL and NLP are fundamentally different, they both work with similar tools such as AI, Machine Learning (ML), Deep Learning (DL), and cognitive computing, and it's the CL that works and supports creating NLP models (Yasar, Gillis & Bernstein, 2023). While advances in CL support the preservation of languages, analysis of historical documents, and the creation of dialogue systems such as Google Translate, the advances in NLP resulted in speech recognition and text-generative technologies such as Chatbots, Siri, Alexa, and Cortona (Yasar, Gillis & Bernstein, 2023).

In 1965 Gordon E. Moore, the co-founder of Intel, observed the exponential growth and development of the computational quality of computers, and since then Moor's Law has been thought to be a reference for the pace of technological innovations (Tardi, 2023). The later developments in IT confirmed that Moor's law was outdated as the growth of IT outpaced Moor's prediction models. Sundar Pichai, the Google CEO, mentioned that contrary to the predictions of Moor's law, which states the computational capacity of microchips doubles every two years, "today, the scale of the largest AI computations is doubling every six months (Pichai, 2023)." When the BERT (Bidirectional Encoder Representations from Transformers) model of NLP was introduced in 2018 to create contextualized, multilingual, and open-source language processing and prediction models, it was considered a breakthrough advancement in the neural network-based NLP models (Nayak, 2019).

For example, in the sentence "I accessed the bank account," a unidirectional contextual model would represent "bank" based on "I accessed the" but not "account." However, BERT represents "bank" using both its previous and next context — "I accessed the ... account" — starting from the very bottom of a deep neural network, making it deeply bidirectional (Jacob & Ming-Wei, 2018).

The later version of the NLP model called the Multitask Unified Model (MUM) was said to be 1000 times more powerful than BERT (BERT is now called Copilot). In this pace of advances in AI-powered NLP models, one can imagine the power of the latest models such as the Language Model for Dialogue Applications (LaMDA), Pathways Language Model (PaLM), Imagen, and MusicLM (Pichai, 2023). Another latest AI chatbot model called ChatGPT was released by OpenAI in 2022 and because of its powerful data-generating capability, it has become the most popular language-generating application that has become well-known even for technologically novice English language teachers. Since the introduction of the first generative pre-trained transformer (GPT-1) in 2022, the transformer-oriented technology kept advancing with 115

million parameters in GPT -1 and 1.5 billion parameters in GPT -2 to 175 billion parameters in GPT -3 and 1.76 trillion parameters GPT-4 (Marr, 2023). These transformers-based Large Language Models (LLMs) can yield unbelievable language-supporting, teaching, and learning applications in the future that can transform the terrain of ELT into unpredictable possibilities.

Fitria (2021) wrote about some AI applications that can be integrated into ELT. The applications include Google Translate, English ABLE, Text-to-Speech (TTS), English Able, Orai, English Learning Speech Assistant (ELSA), Chatbots, Duolingo, and Nexgen English Online Co. (NEO). Google Translate provides an immediate solution to understanding any text in any of the popular languages in any other required language. Gone are the days of robotic voices and limited applications (Staniszewski, 2023)." "The ability for Alexa to adapt her speaking style based on the context of a customer's request opens the possibility to deliver new and delightful experiences that were previously unthinkable (Gantenbein, 2020)." The subsidiary of Educational Testing Services (ETS), Edusoft, created a higher education English learning platform named English Discoveries which offers English language solutions through AI-powered interactive learning programs that are specifically designed to improve the writing and speaking skills of learners via distance and blended learning environments with communicative and synchronous teaching modes (Edusoft, 2022).

Jiang (2022) in her review of dominant forms of AI in the EFL context identified the "Automatic Evaluation Systems (AESs), Neural Machine Translation (NMT) Tools, Intelligent Tutoring Systems (ITSs), AI Chatting Robots, Intelligent Virtual Environment (IVE), and Affective Computing (AC) in ITSs." In their exploration of teachers' opinions on AI integration into ELT, Sumakul, Hamied, and Sukyadi (2022) discussed the AI applications called Plot Generator and ELSA. In their analysis of teachers' opinions, they understood the disruptive nature of AI technology in ELT with the possibility of replacing a human teacher with an AI device or application. Han (2021) discussed the use of AI chatbots equipped with AI assistants, specifically Amazon Echo (Echo Dot) and Google Home in EFL classes and he found that the use of these chatbots can improve learners' English-speaking skills by providing a native-like English-speaking environment. One great advantage of talking to chatbots with AI assistants is that it takes care of the Affective Filter mechanism, as hypothesized by Stephen Krashen (Higgs, 1985). Huang and Renandya (2020) in their study on the effectiveness of the locally designed Chinese automated writing evaluation system (AWE) 'Pigai' found that despite obtaining some additional feedback on students' writing quality there was no significant quality improvement in their revised writing texts due to the AWE intervention when compared to the quality of the writing assignments of the control groups that were not provided with the AWE intervention. Employing a value-based adaption model (VAM), Du and Gao (2022) identified four important factors "usefulness, enjoyment, technicality, and effort," that determine teachers' choice of AI integration in EFL. AbdAlgane and Jabir Othman (2023) wrote about the various benefits of "word tune" when it is integrated into teaching writing. Besides, 'word tune,' they also mentioned the relevance of CALL, Syntax-based Machine Learning (MT), Phrase-based MT, Word Alignment Technology, Language Modelling Technology, and AES in understanding the present AI integration in ELT. Looking at the other side of the coin McMinn (2023) mentions that "the evolving AI landscape in education calls for a unified framework encompassing learning dynamics, ethics, innovation, and societal impact, grounded in theoretically sound and practical principles. To integrate AI into education, universities, faculty, and students must follow clear principles."

2.1. Advantages of AI in ELT

Providing a brief account of a way in which English language teachers can make use of the Internet, Krajka (2024) suggests creating supplementary practice materials suitable to the specific subject specialization of their students, which can be labeled as English for Specific purposes (ESP). In teaching ESP, teachers can create their own course materials supplementary to the prescribed general English course texts. For example, an English teacher teaching English to archeology major students can design their course extensions to the general English course unit entitled 'Meeting People (people)' with a web-based course that can be named 'Meeting Archeology Experts. Similarly for a unit like 'Money Matters (money),' a teacher can create an extended web-based practice course material with the name 'Financing the Expedition of an Archeological Tour', etc. (Krajka, 2024). Ameri-Golestan (2023) has mentioned that AI can be considered a great source to customize English learning content aptly suitable to the level of the learners without the risk of the learner being overwhelmed by the content.

Harris (2023) enlists various activity types in which teachers and students can use text-based, image-generator-based, or other non-text-based ChatGPT apps for creating content for teaching and learning. Sal Khan, the founder of the world's most popular online tutoring academy, while explaining the power of AI, especially the ChatGPT-4 technology, in education, mentions various functions that teachers can do using the AI apps (Khan, 2023). The greatest advantage of AI in education, according to Sal Khan, is the emergence of the right solution for the Sigma2 problem as mentioned by Benjamin Bloom in 1984, which was to find methods of group interaction as effective as one-to-one tutoring. Further,

AI can streamline and customize specific curricula and provide a road map to the desired curriculum (Neendoor, 2023b).

Clever (2023) found that more than 50% of ELT teachers find that AI poses a great challenge to their teaching position with the possibility of replacing them eventually. Ascione (2023) also came up with similar results in their survey of about 1500 teachers all over the USA. TeachingEnglish (n.d.) mentioned that even though the modality of teaching and learning could see incredibly monumental shifts, teachers would not lose their jobs to robots, but for every loss of a job of a teacher, a new job will be created that suits to the new roles of a teacher. Bill Gates predicted and reiterated that "AI is going to revolutionize teaching & and learning in the same way that it has huge implications for the delivery of healthcare services, but it will never replace teachers (Baker, 2023; Jo Krousso, 2023; Woolley-Wilson, 2023).".

3. Research Methodology: qualitative literature review method

As of today, it is understood to be the fact that it is still indeterminate about the range of AI applications that are in use in ELT, and many teachers are said to be skeptical about the various AI applications that are more suitable for integrating into ELT apart from the scope of their skills in technology to utilize the available AI applications online to improvise their present ELT methods and make their classes more effective. Given the considered fact about the non-availability of the range of AI applications in real-time use by teachers in their ELT classes, and the non-availability of much-researched content on the use of AI apps in ELT, this study assumes that most of the teachers use the AI-powered apps as they were proclaimed to be useful and are used by the most popular educational websites and English teaching organizations available online.

The vagueness of the context of the study prompted the researcher to resort to the research approach that is known as the 'literature review methodology.' Because of the similarity of the research methodologies adopted by scholars in many other fields such as business and medical sciences, the literature review methodology was adopted and adapted to be suitable to the context of this study. Drawing on Snyder (2019), the literature review methodology can be defined as a research process that collects data from the research works already done and available as well as the factual content about the innovations relevant to the topic and available. Since the data available relevant to the present study is mostly of the qualitative category, the research approach is called the 'qualitative literature review research methodology.

As explained by Snyder (2019) the literature review research methodology can be a combination of systematic literature review, semi-systematic literature review, and integrative literature review. A systematic literature review implies the identification of pieces of evidence relevant to the study questions empirically, and the collection and analysis of the relevant data from the identified sources critically either qualitatively or quantitatively to synthesize the findings that can be used for finding the size and consistency of an effect that can be used for further assumptions. A semi-systematic review supports scholars in developing an alternative interpretation of the concepts identified and understood in the relevant previous works and provides the state of knowledge in the field taken into concern. On the other hand, an integrative literature review enables researchers to develop new perspectives and frameworks by synthesizing the relevant components identified in the studies from various fields.

Since the present study at its core is comparatively new and despite the availability of volumes of data the conclusions and inferences are not so definitive, this study combines the three review styles in the process to reach possibly a definitive conclusion from the perspective of 'socio-materiality' concept.

3.1. Theoretical foundation

From the socio-materialistic perspective technology can be defined as "a collection of enduring physical and/or digital materials that dynamically afford individual and/or collective goal-directed action. In other words, technology refers to any tool that provides people and organizations with capabilities that they would not have otherwise possessed, and that they perceive as instrumental to goal achievement (Landers and Marin, 2021)." On the other hand, the concept of 'affordances' strengthens the claims of socio-materiality in the way that the features of technology are perceived differently by different people depending on their understanding of technology and their perception of the uses of specific technology. This would mean that all the features of a technological application may not be the useful affordances of a user, and on the contrary, all the affordances of a technological application by a user are all the features of technology. To put it in brief, the usefulness of a technological application is dependent on the resourcefulness of the user, which in turn is oriented by their understanding and perception of the technology. Having said so, it can be concluded that technology and social context are intertwined, and they both keep influencing each other, which means technology prompts the social processes to advance in specific ways, and social advances prompt technology to gain more innovative ways.

4. Data Analysis and Findings

Graesser's definition of intelligent tutoring systems (ITS) says that "Intelligent Tutoring Systems (ITS) are computerized learning environments …well-specified computationally (in Rossi & Fedeli, 2012. p. 17)." From the definition of Graesser, it can be understood that AI systems that can be integrated into education can be broadly named ITSysterms, which can be further developed by incorporating several AI-powered applications into a single whole unit that could serve the purposes of both teachers and students.

While most of the data collected and analyzed revealed several similarities in the categories identified and the relevant components gathered, it's understood to be ideal to list the generalized categories relevant to the integration of AI in ELT. When inquired about the various uses English Language teachers and learners can have with AI integration in English language teaching and learning with the AI-powered Generative Pre-trained Transformer tools such as ChatGPT, the websites provided the general categories of various ways that English language teachers can use AI tools in their classes, which can be summarized into the following categories:

"Automated assessment, Personalized learning, Language analysis, Language practice, Vocabulary building, Listening practice, Language Assessment, Language Tutoring, Language Translation, Interactive Learning, Speech Recognition, Automated Writing Assistance, Virtual Reality (VR) and Augmented Reality (AR), Data Analytics for Performance Monitoring, Online Collaboration and Discussion (https://chat.openai.com)."

On the other hand, the various benefits of AI integration in English language teaching are gathered from the 44 articles selected from a pool of about 200 articles that were sorted out with the key phrases such as 'AI in English teaching at present', 'the status of AI in English teaching,' 'AI integration in ELT,' etc., from various available databases such as google search, scholar google, Academia, research gate, elicit.org and so on. The identified descriptions of the benefits are provided in the following table with lists coded into broad general categories in light of the categories provided by the AI tools ChatGPT, Pi, and Speak & improve.

Table 1 General categories of benefits of AI that encompass several specific purposes

	Coded General Categories of Intelligent Tutoring Systems or Adaptive Learning Systems.	The benefits That Can Be Aligned With the coded Categories of Intelligent Tutoring Components.
1	Automated assessment (41, 94%)	Language assessment, automated grading, learner self-assessment, formative assessment, adaptive assessment, adaptive sequencing
2	Personalized learning (44, 100%)	Adaptive education, individualized instruction, immersive experiences and practice, differentiated learning, learner autonomy, Data analytics for performance monitoring
3	Language analysis (38, 87%)	Predictive Analytics, intercultural competence, analysing students' language usage, feedback on grammar, vocabulary, critical thinking and pronunciation.
4	Language practice (24, 55%)	Providing listening exercises with different accents, improve learners' listening skills, gamification, Learner engagement, Learner engagement, Increases Learner Motivation,
5	Language Tutoring (34, 78%)	Virtual tutors or chatbots, conversational partners, practicing conversations, grammar, and vocabulary, instantaneous feedback, error correction, additional explanations. intelligent Content Creation, intercultural competence, inclusive and learner-centred ELT environments,
6	Language Translation (42, 95%)	Understanding and translating texts between different languages, enabling learners to grasp the meaning of complex texts.
8	Virtual Reality (VR) and Augmented Reality (AR) (36, 82%)	intelligent Content Creation, learners' accessibility to learning content, inclusive and learner-centred ELT environments,
9	Speech Recognition (42, 95%)	improve pronunciation and speaking skills, real-time feedback on accent, intonation, and fluency, practice and refine their oral communication.

| 10	Data Analytics for Performance Monitoring (37, 84%)	track students' progress, identify areas of improvement, tailor instructional strategies, data driven approach, more targeted and efficient teaching process, intelligent career guidance
11	Online Collaboration and Discussion (30, 69%)	global awareness, Increased Student Engagement, Collaborative and Interactive Learning.
12	Challenges in AI integration (44, 100%)	Lack of Infrastructure, limited Teacher Training, Privacy and Security Concerns, Ethical considerations and challenges of AI integration in ELT, cultural sensitivity, risks in plagiarism detection, academic integrity in scholarly publications, biases in training AI machines.
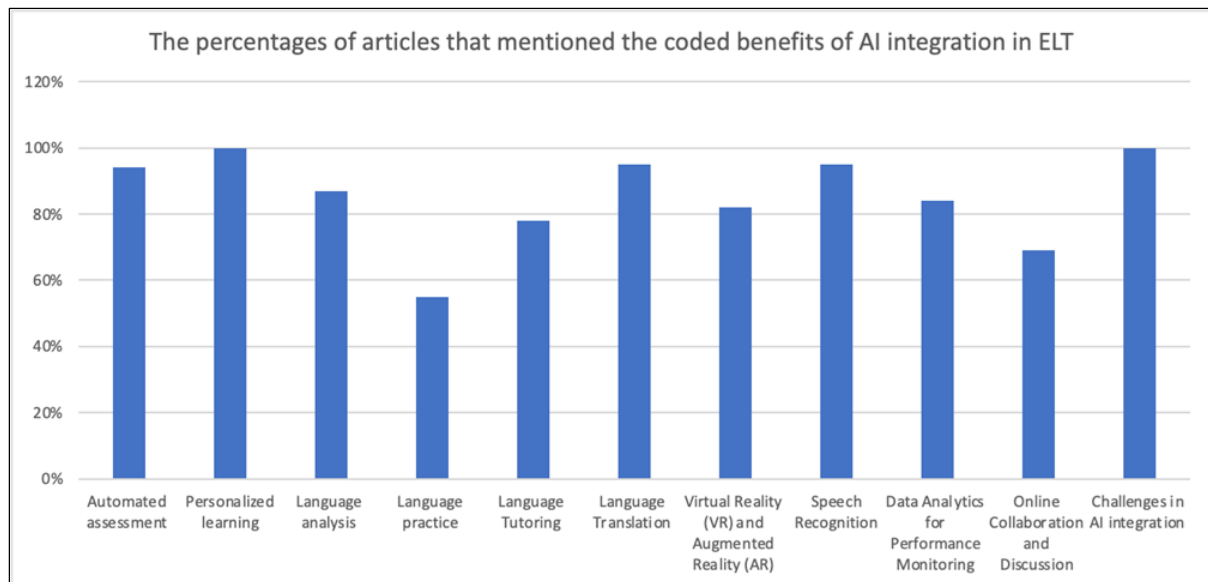
Figure 1 Percentage of articles with the coded benefits.

4.1. Large Language Models (LLMs)

A great volume of data confirms that LLMs are going to revolutionize English teaching in a quite short period in the coming years. Having the AI foundation of Generative Pre-Trained Transformer (GPT), the LLMs can facilitate teachers and learners in accomplishing several academic functions such as "Summarize and level texts for learners, Automatically correct grammar and sentence mechanics, Compose narrative writing prompts, Create presentation notes, Generate lesson ideas and Level texts for testing or reading practices (Bonner, Lege & Frazier, 2023)." Examples of LLMs include GPT-3 (Generative Pre-trained Transformer 3), BERT (Bidirectional Encoder Representations from Transformers), ResNet (Residual Neural Network), AlphaZero, TransformerXL, VGGNet, GPT-2, InceptionNet, etc. Since LLMs are going to evolve into more human-like by simulating the human brain neural network model, which is called Artificial Neural Networks (ANN) future LLMs can provide English language teachers and learners with more advanced all-in-one systems that can incorporate all the needed features for a teacher that can be used for teaching speaking, writing, video creations, lesson plan generation, assessment and so on.

Delgado, de Azevedo Fay, Sebastian & Silva (2020) talk about the AI tool 'Google Expedition 'for creating Virtually real environments for educational purposes, specifically for personalized and immersive educational practices and to promote learner autonomy. Delgado et al. (2020) mentioned the necessity to prepare the new generations of students worldwide to get used to the AI-powered tools that will become a part of all job activities in every field shortly. On the other hand, Kasneci et al. (2023) commented on the likely biases in training AI machines with data that favors some groups and marginalizes the interests of several ill-represented groups and communities of people in the world. Muñoz-Basols, Neville, Lafford, and Godev (2023) identified the advantages of integrating machine translation apps such as Google "Translate, ITranslate, DeepL, or Readlang" into ELT in building and developing intercultural communication competence and plurilingual literacies. Pokrivcakova (2019) talks about the availability of three variants of AI tools that can be identified as learner-facing, teacher-facing, and system-facing AI tools. Although the system-facing AI tools encompass a broader range of tools such as the AI-powered LMSs that can be used and administered by higher admin

operators for obtaining the overall data related to the students on various fronts, the learner-facing and teacher-facing AI tools can be used for integrating into ELT curriculum and teaching. It can be noted that Woo and Choi (2021 identified that most of the studies related to AI integration in ELT are done with participants at their beginner level of English proficiency.

4.2. Benefits Expressed in Most of the Studies

Given the rapid evolution of AI leading to the emergence of new AI tools daily with numerous capabilities that English language teachers can choose from creatively, it seems impossible to list all the specific tools so this study confines to provide some general benefits mentioned in most of the studies considered for this study. Anis (2013) mentioned individualized instruction, accessibility, and differentiated learning experiences that become a reality with AI and could ultimately transform and advance inclusive ELT pedagogy. Anis (2013) holds that the advances in NLP, ML, and Adaptive Learning Systems can be geared to customize instruction to learners of various learning styles, and so AL is looked at as a mechanism to address the challenges in the heterogeneity or diversity of the students in ELT classes.

Intelligent Adaptive Systems (IAS), as identified by Pugliese (2016), deliver countless benefits to teachers of ELT enabling them to use their time efficiently on student outcomes. Harnessing the advantages of volumes of real-time data the IASs work based on ML, advanced algorithms, rules, and decision trees. Numerous functions of IASs include automated student assessment and prediction analytics, customized or differentiated or personalized learning and teaching content delivery, and inclusive instructional models that address the issues related to varying students' prior knowledge levels, social backdrops, learner pacing requirements, learning styles and times, learner lifestyles, and so on. However, Pugliese (2016) holds that as these intelligent systems are in their budding stage and as it takes time to fully emerge, integration of these systems into ELT teaching may not give the desired and intended results. In tune with the opinions of several studies on the present status of AI integration in ELT, Klimova et al. (2023) found that as of now AI-powered tools are mostly used by learners in informal ways for practicing language skills like vocabulary and pronunciation. Similarly, even though most teachers are aware of the availability and usefulness of AI tools in ELT, they are not completely convinced about the various ways of integrating the technology into their teaching process. However, Koraishi (2023) has demonstrated various ways ChatGpt4 can be used as a teacher's resource in developing personalized materials. Several studies recommended the efficient use of AI in enhancing learning and teaching experiences without being hysterical about the consequences that usually result in positive outcomes (Kostka and Toncelli, 2023).

HelpMeTeach is an OpenAI-powered educational organization that serves as a generative AI platform for teachers (HelpMeTeach, n.d.). The organization claims to be functioning with over 75 AI-powered applications meant for teachers for various purposes of their teaching. TEFL-Barcelona (2023) lists about ten major tools in use in ELT viz. Text-to-speech (TTS) Tools, Chatbots for Language Practice, Video Captioning and Subtitling Tools, Speech Evaluation and Feedback Tools, Grammar and vocabulary checkers, Language Translation Tools, Speech-to-Text (STT) Tools, Adaptive Learning Platforms, Virtual Reality (VR) for Immersive Language Learning, Content Creation Tools for Audio and Video. Kirova (2023) mentions the support of AI tools in transforming ELT methods in ways of personalized instruction, language practice and reinforcement, enhanced resource accessibility, virtual tutoring and language exchange, data-driven instruction, and collaborative teaching. According to Explorance (n.d.), MLY is an AI-powered tool that uses large amounts of unstructured data to provide deeper insights into the requirements, opinions, and beliefs of students and teachers, which can be used in making much more accurate decisions in building aptly suitable teaching and learning models. Stannard (2023) provides the teachers with three great apps viz. BlockadeLabs for 3D video-making activity with a brief description of a scenario, MemeCam for creating memes for any pictures uploaded into the app features, and Steve AI for creating videos based on the scene prompts given to the generative AI. Gupta (2023) demonstrated the AI bot "Speak & Improve," which is a research project and not yet an official product being developed by "Cambridge English in association with English Language iTutoring Ltd., the company that created Write & Improve."

Cohen (2023) differentiates AI tools for students into three categories viz. AI-powered LMS, AI-powered tutoring tools, and AI-powered language learning tools. Some of the AI tools mentioned by Cohens include Grammarly, Notion, Syntea, Gradescope, Chat-GPT, Tutor.ai, Copyscape, Otter.ai, DALL-E, and Mendeley. Valledor et al. (2023) understood that a blended language teaching approach that combines both traditional teacher-led teaching methods and AI applications in support of teachers would be the right teaching approach compared to completely machine-based teaching.

4.3. Challenges Ahead with AI Integration in ELT

Although all the studies mentioned several concerns about the use of AI in ELT, it seems that most of the studies expressed the likely possibility of abusing the data related to the privacy of the users of AI apps and the concerns for the privacy and security of the data seems to be the primary concern. Further, several concerns about the

Implementation costs and the affordability of institutions all over the world were raised. Concerns about the affordability of several institutes and economically underdeveloped countries in providing the infrastructure required for integrating AI in various ways may lead to unequal propagation of educational innovations that eventually result in the marginalization of those institutes and countries. In addition, concerns related to faculty training and acceptance were mentioned by the University of Bridgeport (2023b). Griffin (2017) brought forth the story of the bots Bob and Alice created by Facebook and their fate of being shut suddenly because the bots developed and started talking in a different language that is understood only by the bots leading to concerns about AI overtaking human beings going viral. However, the later inquiries confirmed that the bots were shut down due to some technical insufficiencies in accomplishing the desired tasks. While listing out the principles of using AI for Higher Education from both students' and faculty perspectives McMinn (2023), pointed to the necessity of fostering ethical use of AI that is legally compliant and sustainable. Additionally, as most of the studies expressed "there are concerns that AI could replace teachers, leading to a loss of human interaction and the inability to provide emotional support to students (Ayala-Pazmiño and Alvarado-Lucas, 2023)."

5. Conclusion

It is understood, as of now, that AI technology is in its budding stage and is evolving much faster than anyone's imagination. While a few of the studies mentioned the use of specific AI tools in specific institutions, almost all the studies discussed the general potentiality of AI tools in supplementing teaching-learning in English education leaving the choice of AI tools to the teachers and learners. Despite the many concerns expressed in the literature about the likely proliferation of AI in ELT to the extent of jeopardizing the teachers' jobs, most of the scholarly articles hold that AI could disrupt only the nature of the jobs and the skills required for the jobs, but not the jobs. They hold that the teachers need to keep upgrading their skills or else the people who can manage technology well could take over the jobs in the field. On the other hand, Fryer, Coniam, Carpenter, and Lăpușneanu (2020) from the Educational University of Hong Kong could see the possibility that AI-powered bots can be perfect learning partners for English or any other languages, owing to the pace of developments in the LLMs, which is evident in the bots that are already established for performing many of the communicative activities in the business operations of the major multinational giants such as Apple, Amazon, Google, and Microsoft. As commented by Kasneci et al. (2023), most of the studies hold that despite the comprehensiveness of the responses generated by LLMs to learner queries, they aren't an equal match of human teacher responses to learner queries, which indicates that the LLMs aren't so fully developed to provide feedback as efficient as human teachers.

Moreover, as expressed by Kostka and Toncelli (2023), most of the studies, as of now, stick to the opinion that a language is a communication tool for developing, improving, and strengthening social contacts and relations of people for their well-being. It's doubtful whether such relationships could be sustained in the future in the wake of faster advancements in AI that could replace such communication processes which are indispensable for societies to thrive. The studies also embrace the necessity to adopt and adapt AI to improve the teaching and learning processes and make them "engaging, interesting, and innovative (Kostka and Toncelli, 2023)." Having observed the impact of AI on ELT from the socio-materiality perspective, the essence of the expressions in most of the studies can be briefed by saying that the changes in social norms in the evolutionary process can make it likely that AI can be called to support ELT in multiple ways such as planning lessons, developing teaching-learning materials, creating virtual environments for experiencing the real-time contexts, etc., instantly. However, the guidance required for learners to understand the value of the available resources, the motivation to learn languages, and the ways the resources need to be made useful in real-time situations can be possible only by human teachers.

Considering the arguments observed in the study, it can be assumed that AI is disruptive to the traditional modes of the work patterns of teachers in ELT, but not to their nature of work or the positions they hold as the most enlightening spirits in the world forever. Nevertheless, in the wake of advances in the translation capabilities of bots that can always be carried on one's shirt buttons, one can see the possibility that there wouldn't be a necessity anymore for people to learn a language for their day-to-day communication as they can communicate through the translation bot. However, the bots need language experts for their upgradations, and the language experts can be produced only through language education that needs teachers to educate the prospective language experts. Even though AI-powered tools can support personalizing learning by facilitating targeted skill practice, gamification, and continuous interaction any time anywhere, the holistic development of learners still needs the support of human teachers. Holistic development implies the development of students in terms of skills such as critical thinking capabilities, understanding cultural nuances emotional intelligence, sustaining encouragement and motivation to learn, and so on.

Drawing upon the holistic development perspective, the inferences of this study are that AI is disruptive to the existent teaching-learning processes of languages, but not to teachers as the primary learning resources. Teachers are always

needed for motivational and emotional support as well as for guidance required for the right approaches to becoming experts in specific languages, and their positions are revered forever despite the phenomenal changes in their roles. Further, from the socio-materialistic perspective, it's the way that teachers understand AI that makes them use AI in creative ways. By and large, human teachers and AI tools or any other technological innovations always remain complementary to each other and the ideal mode of teaching and learning hopefully remains a blend of both, thus the blended teaching-learning approach.

References

[1]   AbdAlgane, M., & Jabir Othman, K. A. (2023). Utilizing artificial intelligence technologies in Saudi EFL tertiary level classrooms. Journal of Intercultural Communication, 23(1), PP: 92–99. https://doi.org/10.36923/jicc.v23i1.124 Available at SSRN: https://ssrn.com/abstract=4565768

[2]   Ameri-Golestan, A. (2023, February 28). Exploring the possibilities of artificial intelligence in language learning: How AI is transforming ESL/EFL Education. LinkedIn. https://www.linkedin.com/pulse/exploring-possibilities-artificial-intelligence-how-ameri-golestan/

[3]   Anis, M. (2023). Leveraging Artificial Intelligence for Inclusive English Language Teaching: Strategies and Implications for Learner Diversity. Journal of Multidisciplinary Educational Research, 12(6). DOI: http://ijmer.in.doi./2023/12.06.89 Available at http://ijmer.s3.amazonaws.com/pdf/volume12/volume12-issue6(5)/9.pdf

[4]   Ascione, L. (2023, December 12). Half of teachers expect AI to make their jobs more challenging. eSchool News. https://www.eschoolnews.com/digital-learning/2023/07/06/teachers-ai-jobs-challenging/

[5]   Ayala-Pazmiño, M., & Alvarado-Lucas, K., (2023). Integrating Artificial Intelligence into English Language Education in Ecuador: A Pathway to Improved Learning Outcomes. 593 Digital Publisher CEIT, 8(3-1), pp.679-687, https://doi.org/10.33386/593dp.2023.3-1.1862 . Available at https://www.593dp.com/index.php/593_Digital_Publisher/article/view/1862?articlesBySameAuthorPage=2

[6]   Baker, A. (2023, May 9). "it's really about the blend": Bill Gates on AI in the classroom. https://thepienews.com/news/its-really-about-the-blend-bill-gates-on-ai-in-the-classroom/

[7]   Bin, Y., & Mandal, D. (2019). English teaching practice based on artificial intelligence technology. Journal of Intelligent & Fuzzy Systems, 37(3), 3381-3391.

[8]   Bonner, E., Lege, R., & Frazier, E. (2023). Large Language Modek-Based Artificial Intelligence in the Language Classroom: Practical Ideas for Teaching. Teaching English with Technology, 23(1). https://doi.org/10.56297/BKAM1691/WIEO1749. Available at https://files.eric.ed.gov/fulltext/EJ1383526.pdf

[9]   Clever. (2023, June 21). Half of the teachers surveyed believe AI will make their jobs more challenging. PR Newswire: press release distribution, targeting, monitoring, and marketing. https://www.prnewswire.com/news-releases/half-of-teachers-surveyed-believe-ai-will-make-their-jobs-more-challenging-301856158.html

[10]   Cohen, K. (2023, November 6). The best AI tools for students: IU International. IU International University of Applied Sciences. https://www.iu.org/blog/ai-and-education/best-ai-tools-for-students/

[11]   Delgado, H. O. K., de Azevedo Fay, A., Sebastiany, M. J., & Silva, A. D. C. (2020). Artificial intelligence adaptive learning tools: the teaching of English in focus. BELT-Brazilian English Language Teaching Journal, 11(2), e38749-e38749, 1-9. http://dx.doi.org/10.15448/2178-3640.2020.2.38749. Available at https://revistaseletronicas.pucrs.br/index.php/belt/article/view/38749

[12]   Du, Y., & Gao, H. (2022). Determinants affecting teachers' adoption of AI-based applications in EFL context: An analysis of analytic hierarchy process. Education and Information Technologies, 27(7), 9357-9384. DOI:10.1007/s10639-022-11001-y Available at https://www.proquest.com/docview/2708875202?pq-origsite=gscholar&fromopenview=true&sourcetype=Scholarly Journals

[13]   Edusoft. (2022, February 1). English Discoveries for Higher Education. https://edusoftlearning.com/higher-education/

[14]   European Union. (n.d.). Artificial Intelligence (AI) and Language Teaching: Challenges and Possibilities. https://academy.europa.eu/courses/artificial-intelligence-ai-and-language-teaching-challenges-and-possibilities#:~:text=AI%20can%20offer%20personalized%20learning,chatbots%20and%20language%20processing%20tools.

[15] Explorance. (n.d.). Mly: The Only AI Platform To Capture The Authentic Voice Of Your People. https://explorance.com/products/mly/

[16] Fitria, T. N. (2021). The use of technology based on artificial intelligence in English teaching and learning. ELT Echo: The Journal of English Language Teaching in Foreign Language Context, 6(2), 213-223. DOI: 10.24235/eltecho.v%vi%i.9299. Available at https://www.researchgate.net/profile/Tira-Nur-Fitria/publication/ 358746284_The_Use_Technology_Based_on_Artificial_Intelligence_in_English_Teaching_and_Learning/links/62 138758eb735c508ae75db3/The-Use-Technology-Based-on-Artificial-Intelligence-in-English-Teaching-and-Learning.pdf

[17] Fryer, L. K., Coniam, D., Carpenter, R., & Lăpuşneanu, D. (2020). Bots for language learning now: Current and future directions. Language Learning & Technology, 24(2), 8–22. Available at https://scholarspace.manoa.hawaii.edu/server/api/core/bitstreams/950396a1-e7a1-4eac-bd27-c3d194ce77e2/content

[18] Gantenbein, D. (2020, April 23). Advances in text-to-speech technologies help computers find their voice. Amazon Science. https://www.amazon.science/latest-news/advances-in-text-to-speech-technologies-help-computers-find-their-voice

[19] Gates, B. (2023a, November 9). Ai is about to completely change how you use computers. gatesnotes.com. https://www.gatesnotes.com/AI-agents

[20] Griffin, A. (2017, July 31). Facebook robots shut down after they talk to each other in language only they understand. The Independent. https://www.independent.co.uk/life-style/facebook-artificial-intelligence-ai-chatbot-new-language-research-openai-google-a7869706.html

[21] Gupta. S. (2023). This AI robot talks to you in English - your free English-speaking partner [Video]. YouTube. https://www.youtube.com/watch?v=GHEYP76VYn4

[22] Han, D. (2021). An Analysis of Korean EFL Learners' Experience on English Classes Using AI Chatbot. Robotics & AI Ethics, 6(3), 1-9. Available at https://j-institute.org/wp-content/uploads/2022/02/Robotics-AI-Ethics_202163.pdf

[23] Harris, N. (2023, October 3). Integrating AI into ELT | Neil Harris [Video]. YouTube. https://www.youtube.com/watch?v=G-nTVxZ8sPo.

[24] HelpMeTeach. (n.d.). The best AI tool for teachers. https://helpmeteach.ai/?gclid=EAIaIQobChMI8Kuhpq7dgwMVu5NoCR0n8w1hEAAYAiAAEgK1BPD_BwE

[25] Higgs, T. V. (1985). The input hypothesis: An inside look. Foreign Language Annals, 18(3), 197-203. Available at https://web.pdx.edu/~fischerw/~fischer/courses/advanced/methods_docs/pdf_doc/wbf_collection/0201_02 50/0229_FLA-85_Higgs_Kr.PDF

[26] Huang, S., & Renandya, W. A. (2020). Exploring the integration of automated feedback among lower-proficiency EFL learners. Innovation in language learning and teaching, 14(1), 15-26. Available at https://:www.researchgate.netpublication325021230_Exploring_the_integration_of_automated_feedback_amo ng_lower-proficiency_EFL_learners

[27] Jacob, D., & Ming-Wei, C. (2018, November 2). Open sourcing Bert: State-of-the-art pre-training for Natural Language Processing. – Google Research Blog. https://blog.research.google/2018/11/open-sourcing-bert-state-of-art-pre.html

[28] Jiang, R. (2022). How does artificial intelligence empower EFL teaching and learning nowadays? A review of artificial intelligence in the EFL context. Frontiers in Psychology, 13, 1049401.

[29] Jo Krousso. (2023, August 11). AI: Viva the revolution. RSS 20. https://thepienews.com/the-view-from/ai-viva-the-revolution/

[30] Kasneci, E., Seßler, K., Küchemann, S., Bannert, M., Dementieva, D., Fischer, F., ... & Kasneci, G. (2023). ChatGPT for good? On opportunities and challenges of large language models for education. Learning and individual differences, 103, 102274. doi: https://doi.org/10.1016/j.lindif.2023.102274. Available at https://www.sciencedirect.com/science/article/abs/pii/S1041608023000195

[31] Khan, S. (2023, April 23). Creative destruction... GPT-4 meets Sal Khan | ASU+GSV 2023 [Video]. YouTube. https://www.youtube.com/watch?v=A7REVn9gzgs

[32] Kirova, A. (2023, May 21). Leveraging AI technology to transform English language teaching. LinkedIn. https://www.linkedin.com/pulse/leveraging-ai-technology-transform-english-language-teaching-kirova/

[33] Klimova, B., Pikhart, M., Polakova, P., Cerna, M., Yayilgan, S. Y., & Shaikh, S. (2023). A Systematic Review on the Use of Emerging Technologies in Teaching English as an Applied Language at the University Level. Systems, 11(1), 42. doi.org/10.3390/systems11010042. Available at https://www.mdpi.com/2079-8954/11/1/42

[34] Koraishi, O. (2023). Teaching English in the Age of AI: Embracing ChatGPT to Optimize EFL Materials and Assessment. Language Education & Technology (LET Journal), 3(1), 55-72. Available at https://langedutech.com/letjournal/index.php/let/article/view/48

[35] Kostka, I., & Toncelli, R. (2023). Exploring Applications of ChatGPT to English Language Teaching: Opportunities, Challenges, and Recommendations. TESL-EJ, 27(3). https://doi.org/10.55593/ej.27107int. Available at http://tesl-ej.org/pdf/ej107/int.pdf

[36] Krajka, J. (2024). Creating Internet-Based Lessons - Towards Teacher Autonomy for a Coursebook. IATEFL CALL Review: The Journal of the Computer SIG, (ISSN: 1026-428), 25–32. https://www.academia.edu/10619909/Creating_Internet_based_lessons?email_work_card=view-paper

[37] Landers, R. N., & Marin, S. (2021). Theory and technology in organizational psychology: A review of technology integration paradigms and their effects on the validity of theory. Annual Review of Organizational Psychology and Organizational Behavior, 8, 235-258. https://doi.org/10.1146/annurev-orgpsych-012420- 060843 Available at https://www.annualreviews.org/doi/pdf/10.1146/annurev-orgpsych-012420-060843

[38] Laskowski, N., & Tucci, L. (2023, November 13). What is artificial intelligence and how does AI work?: Definition from TechTarget. Enterprise AI. https://www.techtarget.com/searchenterpriseai/definition/AI-Artificial-Intelligence

[39] Marr, B. (2023, May 19). A short history of ChatGPT: How we got to where we are Today. Forbes. https://www.forbes.com/sites/bernardmarr/2023/05/19/a-short-history-of-chatgpt-how-we-got-to-where-we-are-today/?sh=79afb7d9674f

[40] McMinn, S. (2023, August 31). Shaping the future of education: Principles and practices for AI integration in teaching and learning. LinkedIn. https://www.linkedin.com/pulse/shaping-future-education-principles-practices-ai-teaching-sean-mcminn/

[41] Moura, E. O. D., & Bispo, M. D. S. (2020). Sociomateriality: Theories, methodology, and practice. Canadian Journal of Administrative Sciences/Revue Canadienne des Sciences de l'Administration, 37(3), 350-365. DOI: 10.1002/cjas.1548. Available at https://onlinelibrary.wiley.com/doi/epdf/10.1002/cjas.1548

[42] Muñoz-Basols, J., Neville, C., Lafford, B. A., & Godev, C. (2023). Potentialities of Applied Translation for Language Learning in the Era of Artificial Intelligence. Hispania, 106(2), 171-194. DOI:https://doi.org/10.1353/hpn.2023.a899427. Available at https://muse.jhu.edu/article/899427/pdf

[43] Nayak, P. (2019, October 25). Understanding searches better than ever before. Google. https://blog.google/products/search/search-language-understanding-bert/

[44] Neendoor, S. (2023a, July 2). Transforming higher education: How AI is changing the education industry? Hurix Digital. https://www.hurix.com/transforming-higher-education-how-ai-is-changing-the-education-industry/

[45] Neendoor , S. (2023b, December 13). AI in education: Five key steps to integrate AI into your curriculum. Hurix Digital. https://www.hurix.com/ai-in-education-5-steps-to-integrate-ai-into-your-curriculum/

[46] Pichai, S. (2023, February 6). An important next step on our AI journey. Google. https://blog.google/technology/ai/bard-google-ai-search-updates/

[47] Pokrivcakova, S. (2019). Preparing teachers for the application of AI-powered technologies in foreign language education. Journal of Language and Cultural Education, 7(3), 135-153. DOI: 10.2478/jolace-2019-0025 Available at https://intapi.sciendo.com/pdf/10.2478/jolace-2019-0025

[48] Pugliese, L. (2016, October 17). Adaptive Learning Systems: Surviving the storm. EDUCAUSE Review. https://er.educause.edu/articles/2016/10/adaptive-learning-systems-surviving-the-storm

[49] Rossi, P. G., & Fedeli, L. (2012). Intelligent Tutoring System: a Short History and New Challenges. In Intelligent Tutoring Systems: an Overview (pp. 13-56). Pensa MultiMedia Editore. Available at https://www.academia.edu/2320065/Intelligent_Tutoring_Systems_a_short_history_and_new_challenges?email_work_card=title

[50] Simplilearn. (2019, April 30). What is AI? | Artificial Intelligence | What is Artificial Intelligence? | Ai in 5 Mins |Simplilearn [Video]. YouTube. https://www.youtube.com/watch?v=ad79nYk2keg

[51] Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. Journal of Business Research, 104, 333-339. https://doi.org/10.1016/j.jbusres.2019.07.039. Available at https://www.sciencedirect.com/science/article/pii/S0148296319304564

[52] Staniszewski, M. (2023, May 1). What is text-to-speech? A deep dive into AI voices and how to create them. ElevenLabs Blog. https://elevenlabs.io/blog/what-is-text-to-speech/

[53] Stannard , R. (2023, May 3). 3 great AI apps for English teachers to use #ai #artificialintelligence [Video]. YouTube. https://www.youtube.com/watch?v=GyHHJh6Y11I

[54] Sumakul, D. T. Y., Hamied, F. A., & Sukyadi, D. (2022). Artificial intelligence in EFL classrooms: Friend or foe? LEARN Journal: Language Education and Acquisition Research Network, 15(1), 232-256.

[55] Tardi, C. (2023, March 22). What is Moore's law and is it still true? Investopedia. https://www.investopedia.com/terms/m/mooreslaw.asp

[56] TeachingEnglish. (n.d.). Will I lose my job to a robot? https://www.teachingenglish.org.uk/will-i-lose-my-job-robot

[57] TEFL-Barcelona.(2023, May 22). 10 powerful AI tools for Language Teachers. TEFL Barcelona - TEFL Spain. https://teflbarcelona.net/10-powerful-ai-tools-for-language-teachers/

[58] University of Bridgeport. (2023a, October 24). How is AI used in higher education?: University of Bridgeport. University of Bridgeport News. https://www.bridgeport.edu/news/how-is-ai-technology-used-in-higher-education/

[59] University of Bridgeport. (2023b, November 27). AI integration in Higher Education: University of Bridgeport. University of Bridgeport News. https://www.bridgeport.edu/news/power-of-ai-integration-in-higher-education/

[60] Valledor, A., Olmedo, A., Hellín, C. J., Tayebi, A., Otón-Tortosa, S., & Gómez, J. (2023). The Eclectic Approach in English Language Teaching Applications: A Qualitative Synthesis of the Literature. Sustainability, 15(15), 11978. https://doi.org/10.3390/ su151511978. Available at https://www.mdpi.com/2071-1050/15/15/11978

[61] Woo, J. H., & Choi, H. (2021). Systematic review for AI-based language learning tools. Journal of Digital Contents. DOI:10.9728/dcs.2021.22.11.1783. Available at https://arxiv.org/pdf/2111.04455.pdf

[62] Woolley-Wilson, J. (2023, April 19). Stage X a conversation with Bill Gates and Jessie Woolley-Wilson | ASU+GSV 2023 [Video]. YouTube. https://www.youtube.com/watch?v=HMJdudwHZQ8.

[63] Yasar, K., Gillis, A. S., & Bernstein, C. (2023, June 30). What is computational linguistics? definition and career info: TechTarget. Enterprise AI. https://www.techtarget.com/searchenterpriseai/definition/computational-linguistics-CL