ISSN No:-2456-2165 https://doi.org/10.5281/zenodo.14831448

Impact of Artificial Intelligence on English Language Translation

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Publication Date: 2025/02/08

Abstract: In order to address issues like ethical dilemmas, cultural bias, and complex text interpretation, this study intends to investigate the revolutionary effects of artificial intelligence on English language translation, emphasizing its improvements in accuracy, accessibility, and real-time capabilities. The translation of English has been transformed by artificial intelligence (AI), which has improved accessibility, accuracy, and speed. AI-powered solutions like Google Translate and Deeply have greatly enhanced the quality of translations through sophisticated neural machine translation algorithms, allowing for a more nuanced comprehension of context, idioms, and cultural nuances. Additionally, AI enables real-time translation, promoting inclusion and removing linguistic barriers in international communication. Nonetheless, there are still issues, like as sporadic errors, trouble comprehending extremely complex or imaginative texts, and moral dilemmas like cultural bias and data privacy. Notwithstanding these drawbacks, linguists' and companies' workflows have been expedited by the use of AI in translation, opening the door for increased cross-cultural cooperation and establishing new benchmarks for language services.

The results demonstrate how AI may significantly increase the accessibility and accuracy of English translations. AI promotes effective, real-time communication and improves cross-cultural understanding worldwide, despite obstacles like cultural prejudice and complicated text management. By addressing issues of cultural bias and data privacy, policymakers can promote the creation of moral AI translation systems. Encouraging openness, inclusive algorithms, and interdisciplinary cooperation will guarantee fair access to AI-powered language services, promoting intercultural dialogue and understanding.

Keywords: *AI-Powered Language; Complicated Text; Cross-Cultural Cooperation; Cultural Bias; Revolutionary Effects.*

How to Cite: Raees Azam; Ghulam Murtaza (2025). Impact of Artificial Intelligence on English Language Translation. *International Journal of Innovative Science and Research Technology*, 10(1), 1893-1903. https://doi.org/10.5281/zenodo.14831448

I. INTRODUCTION

In educational environments, students often have feelings and reasoning difficulties that require all-encompassing support to improve their learning outcomes. Applications of feelings artificial intelligence (AI) that aim to affect students' feelings or offer feelings support have drawn more and more interest in the field of education. Students' academic performance is frequently hampered by foreign language anxiety when learning English as a second language (ESL) [1]. In order to enhance ESL teaching and learning, the incorporation of feelings AI applications has been studied more and more [2]. However, a comprehensive grasp of this subject is limited by scattered research. This work consolidates current knowledge and suggests future research and practice directions by conducting a systematic review of feelings AI in ESL education.

A. Using Artificial Intelligence in Education

Computer programs that mimic human intellect, including information acquisition, reasoning, and problem-solving, are referred to as artificial intelligence (AI) [3]. By analyzing enormous volumes of data to identify trends and provide predictions through machine learning and data mining techniques, artificial intelligence (AI) further enhances human intelligence. AI has attracted a lot of attention in the field of education, especially for intelligent tutoring systems that mimic human teaching methods and model student profiles to deliver tailored learning materials and feedback [4]. AI in education also makes use of learning analytics and educational data mining to evaluate performance data, spot any problems,

ISSN No:-2456-2165 https://doi.org/10.5281/zenodo.14831448

and boost administrative effectiveness. More research is being done on AI-based conversational agents to create dynamic and captivating educational environments.

B. Artificial Intelligence in Language Learning

With its cutting-edge resources to assist with writing, speaking, reading, vocabulary, grammar, and translation, artificial intelligence (AI) has become a game-changer in language education [5]. Through interactive exercises, AI applications give pupils a safe, stress-free environment in which to practice their language abilities. Students can improve their writing skills by using AI-assisted evaluation tools, which provide thorough feedback on components including grammar, syntax, and structure. AI-based reading aids, such those created by Hsiao and Chang (2023), adjust to the degree of skill of the user by offering context-sensitive meanings and simplified explanations of difficult terms.

In ESL instruction, conversational agents and chatbots have become more popular recently. They provide quick feedback and tasks including vocabulary drills, grammar exercises, and conversational practice. To enhance speech and pronunciation, these products use voice-based interactions. Chatbots improve performance and interest in language instruction by encouraging autonomous and interactive communication, lowering language learning anxiety, and promoting a sense of social presence [6].

C. Feelings Intelligence in ESL Instruction

Since feelings have a significant impact on concentrate, understanding, memory, and task performance, they are essential to teaching and learning. Particularly in the context of teaching foreign or second languages, anxiety has a significant influence and frequently impedes learning outcomes. Feelings and academic achievement have been found to be positively correlated in research, with anxiety related to learning a foreign language being a major component that negatively impacts language acquisition. Recent technological developments have raised awareness of feelings AI applications, which seek to improve learning results and offer feelings support [7]. In order to address learners' feelings needs—particularly anxiety—these programs make use of gestures, facial expressions, and sympathetic instructions, creating more individualized and encouraging learning environments. For instance, conversational agents and affective tutoring systems have been used in ESL instruction to lower anxiety through sympathetic involvement, enabling pupils to take part in language education short of worrying about being judged [8].

By looking at emotional knowledge consequences including pleasure, confidence, self-efficacy, and decreased anxiety, the feelings impact of AI applications has been investigated. Research has indicated that artificial intelligence (AI) technologies intended for reasoning tasks, like writing or reading, also improve students' feelings experiences. Digital writing tools that offer formative feedback, for example, not only enhance writing performance but also boost enjoyment and self-efficacy while reducing fear. These results demonstrate how feelings and cognition are intertwined and how treating one can affect the other. Feelings AI applications have the potential to revolutionize language teaching by fusing reasoning and feelings assistance, resulting in a more effective, sympathetic, and engaging learning environment.

D. Various Kinds of Research on Feelings Intelligence in ESL Instruction

Numerous study approaches, such as experimental, field, correlational, and technology development studies, are used in research on feelings AI in ESL instruction, and each one offers a distinct viewpoint. By contrasting experimental and control groups, experimental research examine how feelings AI affects learning results. For example, research has looked into how formative input from AI writing tools affects student performance. With a one-group design, field studies evaluate feelings experiences and learning outcomes without control groups. They frequently use surveys to gauge perceived abilities and satisfaction. In order to determine the elements influencing the uptake and efficacy of feelings AI in language instruction, correlational research look at the correlations between variables. Some research, for instance, examine how teachers and students feel about artificial intelligence (AI) or what factors influence how well students succeed in AI-assisted learning environments.

Research on technological advancement concentrates on creating and deploying AI systems that can identify learners' feelings states by utilizing cutting-edge methods like machine learning and deep learning. In order to identify feelings and provide individualized and sympathetic learning experiences, these systems frequently examine written feedback or physiological signs. These works lay the groundwork for incorporating feelings AI into language instruction by assessing technical achievement using datasets. When taken as a whole, these studies offer a thorough grasp of how feelings AI might improve ESL instruction by attending to both reasoning and affective needs in order to raise participation and learning results.

E. Current Evaluations

The full and positive impact of AI in language education has been evidenced in the bibliometric studies of automated assessment, appropriate error identification, IT, adaptive learning, CA, and affective state and feelings interfaces. However, data privacy and the digital divide or disparity, as well as the trustworthiness of AI systems, have not been resolved. Systematic evaluations have shown that AI can improve English language instruction, but feelings and body language are still understudied, suggesting that the topic is still developing. Current assessments emphasize on AI's reasoning benefits for language abilities, while feelings aspects of AI applications in education are neglected. A developing field,

ISSN No:-2456-2165 https://doi.org/10.5281/zenodo.14831448

feelings AI, may help students with their feelings requirements. There is no systematic synthesis of feelings AI research in ESL instruction, despite its growth. A comprehensive review is needed to give researchers and educators a complete understanding of the area due to this gap.

A comprehensive review is needed to map published studies and determine how feelings AI is supporting language teaching and learning. Additionally, studies on the behavioral, reasoning, and feelings effects of feelings AI on learning outcomes must be included. Understanding these effects can help instructors use feelings AI. Summarizing user impressions, technical usability, and support mechanisms can help ESL educators optimize feelings AI uptake and efficacy. This expanding field needs such insights to guide research and practice.

F. The Current Study

This paper reviews published research on feelings AI in ESL teaching, defined as AI applications that support and/or influence student learning feelings. The main goal is to answer Table 1's research questions.

Table 1. Questions for Research.

Questions for Research (QRs)		Concentrate
QR1:	**What** traits do research on feelings AI in ESL instruction generally share?	Year of publication, nation or area, type of study, educational attainment, form of instruction, and subject of study
QR2:	**Why** may ESL instruction benefit from feelings AI?	Features or capabilities of feelings AI programs utilized in ESL instruction
QR3:	**To what** extent does feelings AI aid ESL instruction?	Feelings AI's effects on ESL students' learning results
QR4:	**What** variables might influence how feelings AI affects ESL instruction?	Elements impacting the implementation or outcomes of feelings AI in ESL instruction

In response to QR1, studies were summarized based on the publication year, geographical location, type of study, education level, learning modality, and subject focus. Stake (1995) Ubiquity, Teachers' perceptions of what a tool is both app affordances and functions for ESL instruction feelings based on study findings QR2. To address QR3, findings involving feelings AI on ESL student learning outcome were reviewed and brought from experimental and field studies. In order to respond to QR4, correlational research were employed to examine the factors influencing Feelings AI adoption or perceived effectiveness in ESL education.

II. METHOD

A. Literature Search

To find relevant material, Scopus was searched for AI applications that support or affect ESL student learning feelings. Scopus was chosen for its large collection of high-quality, peer-reviewed scientific papers [9]. It was known from previous reviews and research that the search query was 'artificial intelligence', 'English language', 'education', 'feelings'. AND ("student OR educat* OR learner* OR tutor* OR teach* OR instruct* OR train*") AND This November 3, 2023 search produced 931 articles (table 2).

Table 2. Keywords and Subjects that were Part of the Literature Exploration.

(Topic)	(Keywords)
Artificial Intelligence	artificial intelligence, intelligent, deep learning, neural networks, machine learning, and agent*
Feelings	sentiment, affect*, facial expression, mood, and feelings
Education	Learner*, student*, tutor*, instruct*, teach*, train
The English language	Language, English, ESL, ESL, second language, foreign language

B. Criteria for Inclusion and Removal

The selection of articles for the review was guided by a set of established criteria. The search was restricted to articles written in English because the majority of exploration on English language instruction is in print in this linguistic. Conference papers and book chapters were not taken into consideration; only works in print in peer-reviewed theoretical journals were in order to maintain quality. Only publications published after 2001 were included in the review due to the paucity of research on feelings AI in language instruction before that year. Papers that just presented abstract ideas or literature reviews without offering specific research on AI uses in ESL instruction were not included.

ISSN No:-2456-2165 https://doi.org/10.5281/zenodo.14831448

The following criteria were met by the articles chosen for this systematic review: (1) they had to be published in English, (2) they had to be published in peer-reviewed academic journals, (3) they had to be published between 2001 and 2023, and (4) they had to look at AI presentations that provide feelings sustenance or have an feelings and affective impact on students' learning in ESL classes.

C. The Process of Screening and Choosing Articles

The PRISMA framework was used for the screening and selection of the articles. 387 papers were selected for additional review after initially meeting the first three inclusion criteria. These publications were then evaluated separately by two researchers using the fourth standard, yielding an arrangement constant of 0.89. 21 items remained for analysis after 366 articles were eliminated after disputes were settled. Two more authors then went over the remaining papers, eliminating four because of quality issues, like the lack of specific AI uses in teaching or learning methods or inadequate information for analysis. Lastly, three more articles that satisfied the inclusion requirements were found using both forward and backward searches. This review covered a total of 20 studies.

D. Framework for Coding

To classify, distinguish, and extract important findings from the chosen papers, they were coded. The coding back ground was created using previous assessments in fields including technology-enhanced learning [10], AI in education [11], and AI in language education. Data on general characteristics, AI affordances, and learning results were gathered for every trial. Aspects including the study's duration and location, type, educational background, learning styles, and topic matter were all included under the general characteristics. Reasoning, behavioral, and affective components were all included in the learning outcomes. The following is a deeper explanation of these elements: The country or territory in question This is the place where the research was carried out. The nation or region of the first author or corresponding author was used as a stand-in for the study site if it was not stated specifically.

Type of study: As indicated in Table 3, four categories of studies were identified: correlational studies, one group pretest posttest field, experimental control group posttest pretest design and technical development studies.

Table 3. Kinds of research.

Kinds of Research	An Explanation
Research that is experimental (with a control-group design)	The last objective requires the comparison of the learning outcomes of the experimental and control groups with the use of AI in an attempt to establish its effectiveness.
Field research (one-group design)	Assess learning accomplishments of learners typically by the use of pre and post assessment data or even post assessment data without a control group to determine a focus on the impact of implementing AI.
Studying correlations	Investigating the connections between elements or variables in language learning facilitated by AI.
Study of technological advancement	Creating and deploying an AI application utilizing particular AI methodologies (such as machine learning and deep learning) and evaluating the program's functionality.

➢ *Level of Education*

Education levels codes can include, elementary or primary school education, junior secondary education, senior secondary or high school education and tertiary education level that is college or University.

➢ *In Learning Mode*

Challenges associated with blended learning modes identified by [12] include; online or virtual learning mode as well as classroom learning mode. Classroom learning refers to a conventional training approach whereby trainees are trained physically within a class context. An approach of using some computer based learning platforms and other digital or virtual facilities is referred to as online or virtual learning. Blended learning therefore, has characteristics of online/virtual learning, classroom learning and co-curricular activities.

➢ *Subject of Learning*

While ESL learning objectives are divided into learning subjects, students study the utilization of spoken, heard,vocal, written, read, and grasped English without specific emphasis on any branch.

➢ *Affordance of AI*

As noted in earlier reviews and studies, AI applications have been widely used in language instruction. Personalized learning materials, one-on-one interactions via chatbots or conversational agents, and customized recommendations or feedback are just a few of the features that these apps provide to help with language instruction and learning [13]. Five essential features of AI applications were found among the 20 studies examined for this study. Human-like interactions are made possible, real-time individualized feedback or coaching is provided, visuals are translated into English, learning

ISSN No:-2456-2165 https://doi.org/10.5281/zenodo.14831448

materials and assignments are adjusted, and feelings states are detected and interpreted. Section 3.2 discusses more specifics.

➢ *Learning Objectives*

According to earlier research, student learning outcomes are typically categorized into three dimensions: reasoning, behavioral, and affective [14]. Academic achievement is related to reasoning outcomes, which include the growth of knowledge and abilities including language learning, self-control, and English speaking fluency. Observable behaviors, such as degrees of participation in learning activities, are the concentrate of behavioral outcomes. In contrast, the affective learning outcomes are normally assessed via questionnaires, and reflect attitudes (acceptance, satisfaction, and willingness to use English in various situations) and affective states (pleasure, self-esteem, confidence, and stress).

E. Inter-Coder Dependability

The three first writers deliberated the code background and the rest of the authors crosschecked it. Programmers independent coded, as part of the procedure. The inter-coder reliability of the following codes was calculated using Cohen's kappa; AI applications = 0.89, study kind = 0.91, education level = 0.98, learning subject = 0.96, country or area = 0.95 and the learning mode = 0.95. To ensure inter-observer reliability, any differences felt by the coders were resolved through refining upon.

III. RESULTS

A. What Traits do Research on Feelings AI in ESL Instruction Generally Share?

➢ *Type of Study*

Four categories were used to the 20 studies that were part of this review: Seven articles were classified as field research, two as correlational, six as experimental investigations, and five as technological development studies. In this case, six research [15] among the array of experimental research deployed control group design to determine the impact of the AI applications on the students' result. In addition, seven field studies [16] employed a one-group design to investigate feelings AI and the learning achievements in a particular subject: ESL without the use of a control.The possible factors that may influence the use and the result with in relation to the AI application for ESL instruction were analyzed in two studies which adopted the correlation co relational design [17]. The last five technical development studies were the design, implementation, test of AI applications for automatic feelings recognition, and analysis, particularly for ESL instruction.

➢ *Mode of Learning*

Of the studies, the majority implemented the operational or virtual learning (n=8) while the others implemented a combination of the two (blended learning-n=6) or teaching space learning only (n=1). The last six studies were categorized as 'N/A,' because they did not point to certain learning modalities.

➢ *Subject of Learning*

He majority of the research (N = 8) concentrated on speaking skills acquisition, while other studies addressed script, lexis, sentence structure, or general English proficiency. One study concentrated on acquiring grammar and vocabulary. The remaining six studies were classified as "N/A" since they did not identify any particular learning subjects.

B. Why may ESL Instruction Benefit from Feelings AI?

We looked at the affordances or functionalities of feelings AI applications in ESL instruction as documented in the reviewed literature in order to answer this question. Five major affordances were found in the 20 chosen studies, as indicated in Table 4. Enhancing both the reasoning and feelings components of student learning is the goal of the first three affordances: empowering human-like discussions, as long as tailored simultaneous response or coaching, and interpreting visuals into English writing. Reasoning learning is mostly supported by the fourth affordance, which entails creating customized learning tasks and content. Students' feelings requirements are specifically met by the last affordance, which is the ability to identify and analyze feelings.

Table 4. Five Affordances of AI.

The Affordance of AI	**Assistance for Students' Education**		**The Quantity of studies**
	The reasoning component	**Feelings aspect**	
Making human-like dialogue possible	Give prompt answers to questions and have logical discussions in natural language	Create gestures and facial expressions to control your emotions	7 (research in the field)
Giving individualized real-time guidance or feedback	Give personalized, in-the-moment comments or guidance through computer-based evaluation	Create recommendations based on sentiments and compassionate guidelines	3. One correlational research and two experimental investigations

ISSN No:-2456-2165 https://doi.org/10.5281/zenodo.14831448

The Affordance of AI	Assistance for Students' Education		The Quantity of studies
	The reasoning component	Feelings aspect	
Converting pictures into English text	Identify objects and photos and convert their content into English text	NO	3. (studies that are experimental)
Creating individualized learning assignments and materials	Offer individualized educational materials and flexible assignments	NO	Two (one experimental research and one study on technological advancement)
Identifying and evaluating emotions	NO	Recognize emotions and offer appropriate assistance.	5. (Studies of technological evolution)

- *Facilitating Human-Like Dialogue (7 Research).*

Information using technologies like chatbots and conversational agents are used commonly to enhance linguistic communication and writing skills. AI Chabot's agents were used to improve English communication in four research [19] [20] [21] [22]. These AI programs emanate direct encounters and individualized natural language and feedback of the many struggles that learners face [23]. Moreover, some conversational agents decrease student's anxiety during the learning process via the detected and transmitted facial expressions and gestures [24].

- *Delivering Individualized, Real-Time Guidance or Feedback (3 Studies).*

With the help of student results and looking at learner characteristics known in learner personas, AI technologies were used to help students and give or offer instant feedback or support. One of the papers selected for this review applied such AI applications in three papers. Using a digital writing assistant for formative feedback on grammar problems in writing academic texts in English, [25] investigating the effects of this tool, which also revealed positive effects on students' participation, fun, self-confidence, and state of stress. To provide the learners with suggestions on how to manage their feelings and reduce anxiety, [26] introduced system-generated micro-break prompts into an e-learning environment. This facilitated learners in choosing their feelings state, and the system in returning rest activities. In [27], an AI system was used to augment English speaking where the readers' texts were analyzed to identify mistakes in pronunciation; then, corrective advice was given.

- *Converting Pictures into Text in English (3 Studies).*

A familiar approach to teaching English vocabulary is using pictures as a teaching aid. As of the latest breakthroughs in the AI image-to-text recognition it is possible to identify material consisting of objects or images and generate English text (including but not limited to words, phrases, and sentences). Three samples which examined the effect of this technology for enhancing writing and vocab use are presented in this review. Through pictorial means of capturing the various items and their corresponding English names, the studies stated that the pupils were able to go up their word bank by [28]. In his/her work, [29] employed this technology in order to enhance students' writing skills: students have to capture different objects in natural settings, describe these objects by using the terms suggested by AI, and then write an essay about the environment represented in the picture.

- *Creating Individualized Learning Tasks and Materials (2 Studies).*

Due to this, adaptive and personalized learning systems like intelligent tutoring systems have been deployed to provide the learner with specific learning preference [30]. Three studies concerned the use of appropriate technology at the individual level in this review; two of them were related to artificial intelligence. To promote grammar and vocabulary acquisition for the students, [31] employed an intelligent tutoring system to proactively offer the necessary learning aids and self-regulated materials and tasks. Because of this, [32] developed an application that enables the identification of feelings state in speech and gives information which matches their cultural diversity.

- *Feelings Recognition and Analysis (5 Studies).*

It is crucial to recognize or evaluate students' feelings states in order to provide them with feelings support along their academic journey. This review included five studies [33] that concentrated on the technological developments of AI applications that can identify learners' feelings by processing feelings-related data, such as semantic analysis of students' written feedback and pulse signal analysis.

C. To What Extent does Feelings AI aid ESL Instruction?

As the affordances of AI tools participating in teaching and learning English as a second language differ, the impact of AI applications in ESL was also different. Table 5 summarizes the findings related to the impact of various affordances of AI as for behavioral, reasoning and affective aspects of students, which are resulted from the analyzed studies. Because of the decreasing emphasis on behavioral alterations, most of the studies including this review have focused on identifying the reasoning and affective impact.

ISSN No:-2456-2165 https://doi.org/10.5281/zenodo.14831448

Table 5. The Impact of AI Affordances on Student Learning.

The affordance of AI	Impacts on the Learning Outcomes of Students		
	Behavioral	**Reasoning**	**Impactful**
Making human-like dialogue possible	Unreported	Proficiency in speaking and vocabulary	Contentment, Acceptance, and Willingness to Speak English enthusiasm for studying English, pleasure, decreased anxiousness, Self-efficacy
Giving individualized real-time guidance or feedback	Participation	Reading, speaking, and listening comprehension in general English	Self-efficacy, pleasure, and contentment
Converting pictures into English text	Participation	Knowledge of vocabulary and proficiency in writing	Confidence, less anxiety, and satisfaction
Creating individualized learning assignments and materials	Unreported	Unreported	Satisfaction
Identifying and evaluating emotions	Unreported	Unreported	Unreported

➢ *Consequences of Making Human-Like Dialogue Possible.*

As pointed out earlier six research pointed considered the use of conversational bots based on artificial intelligence for the improvement of the English writing and speaking language. These studies observed positive change in affective learning outcomes, for instance, increased perceived course writing and speaking confidence, acceptances, and satisfaction with the AI tools, increased communication willingness in English, enhanced learning enjoyment, reduced anxiety, and interest in learning a recent study done on considering reasoning outcome, conversational agents developed by artificial intelligence enhance students' vocabulary and their speaking fluency [35].

➢ *Consequences of Giving Tailored, Real-Time Instructions or Feedback.*

Three out of the identified studies aimed at strength of mind how to encourage English speaking and writing and general learning in an online learning environment if facilitated by system-generated feedback or instructions. Studies indicate that these AI apps are effective in the modality of affective learning effect such as motivation, confidence, engagement, and satisfaction as espoused by the literature [36]. Also, the areas that concern general comprehension of the English language including spoken, understood, read and written [37]. , regarding to the AI support in ESL: [38] focused on the factors that differentiate students' learning performance in relation to pronunciation problems identification and correction. From the results, teaching presence and language enjoyment emerged as strong positive indicators of learning outcomes with teaching presence being negative while language enjoyment is positive.

➢ *Consequences of Converting Pictures into Words in English.*

According to research by [39], image-to-text recognition software improved pupils' vocabulary levels. Additionally, [40] emphasized how this technology might increase student happiness, which may directly improve their feelingsal experience. Similar to this, [41] noted that employing this AI tool improved students' writing abilities, boosted their self-esteem, and decreased their fear when speaking English.

➢ *Consequences of Creating Customized Learning Tasks and Materials.*

While Wang's (2023) did not explore the effect that this has on learning outcomes of the students, the research made an AI tool that can recommend content that is relevant to the speech feelings that the student has. However, [42] found that students rated teacher reasoning support as more helpful than feeling support in enhancing the learning experience when they used the AI-based system that offered differentiated learning experiences based on difference.

➢ *Consequences of Identifying and Evaluating Feelings.*

The technological advancement of AI apps that can identify or analyze student feelings was examined in five research. Instead of evaluating how these applications affected student learning outcomes, these research concentrated mostly on the advancement of the technology itself.

D. What Variables might Influence how Feeling Sal AI Affects ESL Instruction?

Two studies which investigated how those variables affected one another or how Cross ton's model applied to AI-based teaching of English as a Second Language or ESL, found out the following key elements influencing the adoption

ISSN No:-2456-2165 https://doi.org/10.5281/zenodo.14831448

and efficacy of feelings AI in ESL instruction. According to [43], instructors' inclination to embrace AI is significantly influenced by the efficacy and efficiency of AI technology. In their study of predictors of student progress in AI-supported English speaking, [44] concentrated on pronunciation problems. Their results showed that while teacher presence has a detrimental impact in this situation, enjoyment positively predicts learning outcomes.

IV. DISCUSSION

A. What Traits Do Research on Feelingsal AI in ESL Instruction Generally Share?

The results of this analysis show that, especially after 2022, there has been an increase in interest in the use of feelingsal AI in ESL instruction. The bulk of the studies in this review were carried out in China and other Asian countries, which reflects the growing demand for better ESL instruction in the region as well as the general trend of AI integration in education throughout Asia and government-driven digitalization initiatives in nations like China [45].

Regarding study design, the review included seven field studies and six experimental investigations, which are consistent with the prevalent research concentrate on assessing how feelings AI affects student learning results. Two correlational research and five studies on the technological advancement of feelingsal AI apps for ESL instruction were also included.

Concerning the participants' education level, the majority of the studies encompassed elementary, junior and senior secondary and college students implying growing use of technology supported foreign language acquisition at various levels of schooling. There was more work on learning modes in online, virtual, and blended settings than there was for conventional classrooms. This trend agrees with findings by [46] pointing out that integration of AI solutions in ESL teaching learning process is mostly incorporated in technologically enhanced learning environments.

Finally, regarding the selection of subjects in which learners are to learn more, more research was conducted on how to improve learning of English speaking, writing and vocabulary. This corresponds to the increasing interest in turn-taking chatbots based on artificial intelligence for speaking practice and image-to-text-translation for writing and vocabulary based on artificial intelligence.

B. Why May ESL Instruction Benefit from Feelings AI?

From 20 investigations identified in Section 3.2 of this review, five AI affordances were established. The most prevalent affordance for enabling human-like discussions for the users of English speaking and writing was to allow selections from. In previous surveys, attachment to conversational agents or chatbot driven with AI in learning foreign language has been highlighted. Taking natural language and immediate feedback every time a student feels lost in speaking, conversational agents eliminate speech anxiety and encourage more interactions.

Other adaptation techniques have also been adopted in ESL education including ‘’individualized real time feedback or instructions’’ and converting photos to English text. AI systems offer formative grammar input while positioning vocabulary acquisition as a means of translating photographs into English [47]. Most of these findings indicate the need for learner centered learning support and the need to use pictures in learning of vocabulary in ESL setting. The papers evaluated found that most feelings AI applications leveraged AI affordances for reasoning support. Some applications combined reasoning and feelings support, such as conversational agents that simulate gestures and facial expressions or feelings-based recommendations and empathetic feedback to help learners regulate their feelings. Notably, no study examined feelings assistance without reasoning support. This trend supports prior findings that feelings support from AI can increase motivation and affect, but it works best with reasoning support to improve performance.

C. To What Extent Does Feelings AI Aid ESL Instruction?

The first set of experiments in this review confirmed that the use of AI technologies can enhance ESL students' reasoning and affective learning. All these effects occur depending on the kind of affordance of the AI technology in question. Three of the investigated AI capabilities enhanced academic achievement and affective outcomes: natural human-like interactions, individualised, real-time feedback/instructions, and image to English text translation. Such consequences are as a result of the appliance of AI affordances for language learning gains. The AI-based human-like conversation reduces speech-related stress and prompts students to speak and write more effectively. Blended form of immediate feedback enhances the rates of problem solving, hence less instances of anxiety together with high levels of participation, satisfaction, as well as high self esteem. This is why image-to-English text translation with the use of AI helps student's expand their vocabulary and enhance their writing abilities and minimize their English language fears. AI programs that give reasoning assistance alone improve reasoning and affective learning results. Reasoning and affective processes are reciprocal. Complex activities can cause worry and dissatisfaction in students, which can hamper learning. However, supporting reasoning processes in such tasks might reduce negative feelings and improve task performance. These results confirm self-efficacy theory, which predicts that AI support can increase students' reasoning skills and positive feelings. These students appreciated reasoning assistance from teachers more than feelings support when AI tailored learning.

ISSN No:-2456-2165 https://doi.org/10.5281/zenodo.14831448

Last of all, although there was research on the impact of the conversational agents and chatbots in ESL education, most of the reported research works were field studies (one-group posttest-only design) that involved no comparison group or experimental study that compared outcome between students with and without conversational agents and chatbots.

D. What Variables Might Influence How Feelingsal AI Affects ESL Instruction?

As two correlational educations in this evaluation point out, it is critical to look at the factors that may affect the acceptance and efficacy of AI presentations in addition to evaluating their effects. Teachers' decisions to use AI into their teaching techniques are heavily influenced by the technology's efficacy and efficiency. While instructional presence may have a detrimental influence on learning outcomes when AI is employed to treat pronunciation errors, demonstrated that language enjoyment has a favorable impact on learning outcomes. These results highlight how crucial it is to design engaging, student-concentrated knowledge surroundings when incorporating AI presentations into ESL instruction.

V. LIMITATIONS

There are various restrictions on this education. First, the evaluation only included publications from the Scopus catalogue, which may have left out pertinent research that are not indexed in this database despite being well known for having a large collection of peer-reviewed literature. Second, there is currently a small amount of published research in the relatively young and developing field of feelingsal AI in ESL instruction, which was the concentrate of this review. Because of this, the findings' applicability may be limited by the small number of eligible publications. Third, this review mostly carried out qualitative analysis because of the small number of included studies; when additional papers in this subject become available, further quantitative research would be necessary.

Additionally, a number of problems were noted in the previous research. First, small sample sizes and particular study contexts limit the findings' generalizability. Second, there is insufficient evidence of real academic accomplishments to support conclusions based only on self-reported data. Lastly, elements other than the technology itself affect how well feelingsal AI applications work in ESL instruction. These elements must be investigated in future studies since they are crucial to the effective incorporation of AI in language instruction.

VI. CONCLUSION

This publication includes a meta-analysis of twenty investigations on feelings AI in ESL teaching. The full analysis includes a brief summary of the study as well as the main findings and contributions that follow: According to this review, there are five primary affordances of feelings AI in ESL education: Some of the relevant applications are conversational; (a) human-like conversation systems; (b) real-time feedback and/or instruction system; (c) image-to-English text translator; (d) learning system that generates personalized tasks and content; (e) feeling identifier and analyzer. Second, the findings indicate that of the first three of them, which provide reasoning and feelings support, are most commonly applied in AI apps about ESL education. These affordances have been discovered to enhance students' behavioral, reasoning and affective learning. Third, the paper emphasizes that in AI applications, feelingsal support is frequently coupled with reasoning assistance, as feelingsal support by itself is insufficient to facilitate student learning. On the other hand, it has been demonstrated that reasoning support alone improves both reasoning and affective learning outcomes. These results are consistent with how reasoning and affective processes interact closely in AI-assisted ESL instruction.

Fourth, more experimental research is required to thoroughly evaluate learning results between students who use and do not use conversational agents or chatbots, even though the effects of these apps have mostly been investigated through field investigations. Lastly, aspects affecting the uptake and efficacy of feelingsal AI in ESL instruction and learning need to receive further attention. For example, teachers' inclination to embrace AI technology can be influenced by its efficacy and efficiency, and successful AI integration in ESL instruction depends on encouraging students to enjoy language and student-centered methods.

The review's conclusions are intended to contribute to the body of knowledge regarding AI-assisted ESL instruction, providing scholars, educators, and policymakers with insightful information as they investigate AI's potential to improve language learning's reasoning and affective components.

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