The impact of AI-driven features of social media platforms on collaborative English language learning: An applied linguistics perspective

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🔲 **Aby John**

Faculty of Philology, RUDN University, Moscow, Russia.
Email: drabyjohnpk@gmail.com

ABSTRACT

The daily lives of university students are profoundly impacted by social media. It has a considerable influence over their thoughts and actions. Although AI-driven features of social media platforms have a pivotal role in developing the English language proficiency of ESL students in engineering programs, studies exploring this role are scarce. This study fills the research gap and explores the significance of AI-driven features of social media platforms in collaborative English language learning (CELL). The practical strategies that educators and policymakers can utilize to foster AI-mediated informal digital learning of English (AIIDLE) with the support of social media platforms and a collaborative language learning approach are also discussed in this study. The data for the study were collected from 355 ESL students in engineering programs across various universities in India using a structured questionnaire. The reliability and internal consistency of the questionnaire were evaluated using Cronbach's alpha. The collected data were analyzed using percentage analysis, KMO and Bartlett's test of Sphericity, standard deviation, arithmetic mean, and ANOVA. The results of the hypothesis testing revealed a positive relation between AI-enabled social media usage and CELL among ESL students. It is observed that the autonomy and agency provided by social media enable ESL students to reduce anxiety, engage in cognitive restructuring, self-reflection, and self-directed language learning.

Contribution/ Originality: This study focuses on AI-driven features of social media platforms and their impact on collaborative English language learning among ESL students in engineering programs. It underscores the significance of incorporating digital technology in language education and discusses how this practice helps in reducing anxiety, provides learner autonomy, and facilitates personalized and flexible learning experiences. It contributes to discussions surrounding digital language pedagogy and applied linguistics research.

1. INTRODUCTION

Social media (SM) platforms are characterized as online environments where users generate and share content, opinions, and experiences (Harris, Atkinson, Mink, & Porcellato, 2020). Broadly defined, social media are online channels that allow people to communicate with each other on a large scale. They rely on users creating and sharing content to create value and connect with others (Carr & Hayes, 2015). These platforms comprise various AI-enabled tools, including wikis, discussion forums, and blogging services (Aldahdouh, Nokelainen, & Korhonen, 2020). SM platforms have emerged as a significant innovation, extensively utilized globally for collaboration and communication (Albanna, Alalwan, & Al-Emran, 2022; Aldahdouh et al., 2020; Li, Guo, Qu, & Hao, 2022). Notably, SM plays a vital role in both professional and personal spheres (Chugh & Ruhi, 2018).

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 SM platforms can act as valuable language learning tools and facilitate linguistic enhancement. They provide numerous language learning opportunities and access to educational resources. The increasing reliance on AI-driven tools for language education and professional growth enhances the relevance of the current study. Although AI-driven features of SM platforms play a significant role in enhancing the English language proficiency of ESL students in engineering programs, research on this specific area is limited.

This study bridges the existing gap and examines the importance of AI-driven features of SM platforms in collaborative English language learning (CELL). It also sheds light on social media's inevitable role in providing opportunities to develop practical English language skills.

This research article also explores the practical strategies that educators and policymakers can utilize to foster AI-mediated informal digital learning of English (AIIDLE) with the support of SM platforms and collaborative language learning approaches. The study aims to answer the following research questions:

RQ1: Do AI-driven features of social media platforms impact CELL, and to what extent do they promote English language learning among ESL students in engineering programs in India?

RQ2: What practical strategies can educators and policymakers employ to promote AI-mediated informal digital learning of English (AIIDLE) utilizing social media platforms and collaborative language learning practices?

2. LITERATURE REVIEW

2.1. Theoretical Framework

This study is grounded on a robust theoretical framework to position the research within the broader academic discourse. It helps to understand how social media platforms impact CELL.

2.1.1. Social Learning Theory (SLT)

Social Learning Theory (Bandura, 1977) posits that learning occurs through observing and imitating others. It is relevant in using AI-driven features of social media platforms for CELL. It suggests that learners acquire language skills by observing, imitating, and interacting with others in online communities, social networks, and language exchange groups.

Through social media, learners can engage in observational learning, receive feedback, and develop their English language skills through reciprocal interactions with peers, tutors, and native speakers.

2.1.2. Technology Acceptance Model (TAM)

Technology Acceptance Model (Davis, 1986) is based on the assumption that the acceptance of a technology is determined by its usefulness and ease of use. When considering social media, TAM implies that the willingness of engineering students to learn the English language using social media will be influenced by their perceptions of the usefulness and usability of these platforms.

Teachers can use TAM to create CELL modules that leverage the perceived advantages, usability, and accessibility of social media platforms. It can be utilized to develop linguistic competencies and enhance the academic involvement of ESL students.

2.1.3. Self-Determination Theory (SDT)

According to Self-Determination Theory provided by Ryan and Deci (2000), human conduct is driven by three intrinsic psychological needs: autonomy, competence, and relatedness. This theory can be applied in CELL as it promotes the needs of autonomy, competence, and relatedness among learners. By fulfilling these needs, SM can contribute to intrinsic motivation, self-control, and a feeling of ownership, thereby leading to more effective learning of the English language experiences.

2.1.4. Uses and Gratifications Theory (UGT)

Katz, Blumler, and Gurevitch (1973) suggested the Uses and Gratifications theory. It states that people actively engage in the process of seeking media, including SM, to satisfy certain needs and gratifications. This theory is applicable in the utilization of SM platforms in CELL as it helps students meet their language practice, socialization, and cultural exchange needs. It also provides opportunities for self-expression, community building, and identity formation. Using AI-enhanced capabilities of SM, learners can practice English in real-world settings, receive feedback, and develop their language skills in an encouraging and collaborative virtual environment.

2.1.5. Cognitive-Behavioral Theory

Cognitive-Behavioral Theory (Beck, 1979) asserts that individuals' feelings, thoughts, and behaviors are interlinked. It is applicable in the context of using social media platforms for computer-assisted language learning (CALL). The theory states that learners' feelings, thoughts, and behaviors are interconnected, and the AI-driven features of social media platforms can be utilized to modify and challenge negative thought patterns, develop effective language learning strategies, and build confidence. Learners can engage in self-monitoring, cognitive restructuring, and self-regulation by using the features of AI-enabled social media platforms. This approach paves the way for reduced anxiety, improved language learning outcomes, and increased learner autonomy.

Collectively, these theoretical frameworks provide a sophisticated paradigm to examine the impact of AI-driven capabilities of the SM platforms on collaborative English language learning of ESL students in engineering programs in India.

2.2. SM Platforms and CELL: Existing Literature

Social networks can play an important role in developing the language proficiency of higher education students. (Boruzie, Kolog, Afful-Dazie, & Egala, 2024). These networks facilitate collaborative activities, social interaction, and a sense of community among users. Several researchers (Hsu, Barrett, & Liu, 2025; Junco, Heiberger, & Loken, 2011) have observed that social media platforms can encourage active participation and engagement within student communities. This section of the article reviews the existing literature on the impact of social media platforms on collaborative English language learning.

Song (2018) observes that collaborative learning is a teaching method where two or more individuals work together to attain a shared educational objective. Higher education institutions are widely incorporating emerging technologies such as robotics, learning management systems, social networking platforms, and virtual reality (Aldahdouh et al., 2020; Tan & Hsu, 2017) to facilitate learning. These developments, especially in the field of language education, are largely overlooked. They offer opportunities for new research (Ansari & Khan, 2020). Studies indicate that engaging in online communities has a positive impact on linguistic skills. Recent research states that online community participation can significantly improve linguistic abilities (Chen & Kent, 2020; Ekundayo, 2015). It is also observed that online community engagement can enhance creative writing skills and foster innovative expression and articulation (Grace, Kemp, Martin, & Parrila, 2013). A recent study found that several factors influence students' attitudes towards using social networks for CELL. For instance, Boruzie et al. (2024) notice that these factors include how enjoyable social networks are, how easy and useful they seem, what others think, and how satisfied the students are with the experience. To enhance language learning experiences and skills in collaborative work, students are using various social media platforms and digital tools (Batubara, Nur, Lubis, & Arianto, 2021).

Certain skills such as networking, collaboration, language skills, and leadership, cannot be effectively developed solely within the classroom through extracurricular activities (Boruzie et al., 2024). Studies highlight the capacity of social media platforms in facilitating communication, collaboration, academic engagement, interactive learning, and linguistic enhancement among students (Al-Qaysi et al., 2023). With the advent of social media, the realm of foreign language education has undergone a significant transformation. Research has shown that proper incorporation of

social media platforms into language teaching methodologies leads to highly promising and effective results. Xodabande (2017) observes that social media platforms are useful for instructing language-specific features. Studies suggest that social media platforms can be utilized as valuable tools in achieving linguistic proficiency and enhancing the language learning experience. According to Xue and Churchill (2019), social media applications offer numerous advantages for both learners and teachers. Platforms and applications such as HelloTalk, Tandem, LingUp, Memrise, etc., provide authentic learning materials and foster collaborative language learning, connectivity, and community building among students and between students and teachers.

Research by Ansari and Khan (2020) found that increased interactivity with peers, teachers, and online learning resources boosted student engagement. This heightened engagement, in turn, has a profound impact on students' linguistic capabilities. They noted that incorporating online social media platforms into CELL environments fosters creativity, dynamism, and research skills in students. This approach essentially transforms learning into a rich, knowledge-based experience. Educators can utilize social media platforms to provide students with a diverse range of linguistic resources. It helps facilitate a richer foreign language learning experience. Additionally, SM platforms enable educators to offer opportunities for authentic interaction and provide constructive, timely feedback (Naghdipour & Manca, 2022). This creates an engaging, immersive, and effective language learning environment that supports students' linguistic development and proficiency.

Numerous studies have examined the relevance of SM acceptance among higher education learners (Akgül & Uymaz, 2022; Alalwan, 2022; Hamadi, El-Den, Azam, & Sriratanaviriyakul, 2022; Tibber, Wang, & Zhang, 2023). The findings indicate widespread utilization of SM applications in CELL (Al-Qaysi et al., 2023). The potential of SM platforms to influence language learning goes beyond the traditional classroom. It has a significant impact on English language learning and offers a wide range of benefits for learners. Meirbekov et al. (2024) note that in informal learning environments, learners can engage with language in a more autonomous and flexible manner. Their studies found that conventional language textbooks and traditional modes of language teaching have crucial limitations, as they offer only restricted learning resources. They state that these modes of language teaching fail to engage learners. The static and rigid content of such textbooks hinder opportunities and stifle students' curiosity. It prevents learners from exploring and expanding their knowledge. Incorporating novel and innovative approaches in language classes can significantly enhance students' enthusiasm and motivation. This is largely achievable through the possibilities unleashed by SM platforms. Nowadays, utilizing SM platforms to support language learning has become a trend, reflecting the potential and popularity of these platforms in improving language learning experiences.

Social media (SM) platforms are widely used as a common means of communication among higher education students. Studies indicate that integrating SM into language education can enhance linguistic capabilities; however, the underlying dynamics remain unclear (Shafiq & Parveen, 2023). Research shows that utilizing SM's collaborative language learning capabilities and knowledge-sharing features boosts students' linguistic capacities and academic success. For instance, Rasheed et al. (2020) explored SM usage among university students and found a positive correlation between knowledge-sharing behavior, originality, and engagement. The collaborative and interactive features of social media platforms make this easily possible. It is observed that improved language learning outcomes are attained by students who harness the potential of AI-driven features of SM platforms (John, 2025a; Shafiq & Parveen, 2023). Additionally, Hosen et al. (2021) identified the capability of SM platforms to provide intrinsic motivation, which is essential for language learning. AI-enhanced features of SM platforms promote knowledge sharing, language learning, and overall student performance. Using gamified classes and SM platforms for language learning builds positive teacher-student rapport and promotes teacher enthusiasm (Akshay et al., 2024; John, 2025b) It also develops collaborative language learning. However, Malik and Haidar (2020) highlight an important research gap in understanding the actual impact of SM platforms on language learning and proficiency development. Research states that the systematic incorporation of SM into instructional practices for collaborative language learning remains in its nascent stages (Sabah, 2023). In other words, while SM's role in English language learning is increasingly

recognized, the extent to which it can help learners attain specific language proficiency levels remains understudied and unclear.

3. METHOD

3.1. Ethical Statement

This study is based on surveys conducted among participants without collecting sensitive personal data. The research adhered to standard academic practices, including ensuring the anonymity and confidentiality of the respondents, in compliance with applicable guidelines and regulations. It has obtained approval from the ethics committee of RUDN University, Russia.

3.2. Study Locale

The present study was conducted among ESL students in engineering programs in India. University students aged 18-35 from different universities across various states of India were selected to conduct this study.

3.3. Design of the Study

A structured survey questionnaire using a five-point Likert scale was prepared and distributed among ESL students to conduct the study. The respondents (N=355) were selected using purposive sampling technique. It was chosen over stratified random sampling or convenience sampling because it allows for the selection of ESL students with an engineering background who are active users of social media (SM) for English language learning. However, this technique limits its applicability to the wider university student community that utilizes social media for various other purposes. Consequently, the study's findings may not be broadly representative, which is a recognized limitation.

To address this constraint, future research should employ more inclusive sampling strategies to verify and broaden the applicability of these results. This will enhance the generalizability of the study. The reliability and internal consistency of the questionnaire were evaluated using Cronbach's alpha. Subsequently, Confirmatory Factor Analysis (CFA) was conducted to validate the theoretical model, assess construct validity, and examine the underlying factor structure. The research explored the impact of AI features of social media platforms in CELL. Specifically, eight variables related to CELL were investigated. Four independent variables were identified as motivations underlying social media usage. The collected data were analyzed using percentage analysis, Kaiser-Meyer-Olkin (KMO) measure, Bartlett's test of Sphericity, standard deviation, arithmetic mean, and ANOVA.

3.4. Data Collection and Analysis Procedure

Standard research protocols were followed to develop and validate the survey questionnaire. Prior to the formal distribution of the structured questionnaire, a sample of 30 respondents was collected as part of the pilot study. The questionnaire was subjected to iterative refinement based on respondent feedback. A systematic and nuanced examination of the resultant data was conducted by subsequently categorizing the questions into discrete sections. The reliability of the research tool was evaluated using Cronbach's alpha test. The suitability of the data for factor analysis was tested using KMO and Bartlett's test of Sphericity. It was found that the variables are adequately correlated. The research utilized a CFA model to validate the measurement structure. The data were summarized using percentage analysis, arithmetic mean, and standard deviation. Finally, ANOVA was used to compare the means statistically.

3.5. Demographic Profile of the Respondents

The demographic description reveals a relatively balanced distribution of male (46.2%) and female (52.7%) respondents, with a small percentage (1.1%) preferring not to disclose their gender identity. This suggests that the

findings of the study are generalizable to a broad population. The majority of participants (86.5%) were undergraduate students, with a smaller proportion of postgraduate students (12.7%) and Ph.D. scholars (0.8%). This may indicate that the study's findings are more representative of undergraduate students' experiences and perspectives. The age distribution shows a strong concentration of participants in the 18-20 age group (73%), followed by a notable proportion in the 21-25 age group (18%). The remaining age groups, 26-30 (3.9%) and 31-35 (5.1%), comprise smaller percentages of the sample. This age distribution suggests that the study's findings may be representative of young adults in their late teens to mid-twenties.

3.6. Frequency of Social Media Usage

It was observed that 104 respondents (29.3%) used social media (SM) for more than 3 hours a day for various purposes. Meanwhile, 61 participants (17.2%) stated that they used it for around 3 hours a day. On the other hand, 89 participants (25.1%) used it for around 2 hours a day, and 63 respondents (17.7%) used SM for around 1 hour a day. When 27 students (7.6%) reported around 30 minutes of SM usage, only 11 respondents (3.1%) stated that their SM usage was less than 30 minutes a day. Among 355 respondents, 346 (97.46%) accessed SM through smartphones, 8 (2.25%) used laptops, and only 1 (0.28%) used a desktop. The high frequency and duration of SM usage among respondents, with 29.3% using it for more than 3 hours a day, indicate the strong influence of SM platforms in the daily lives of youngsters.

SM platforms have a positive impact on CELL, as different SM platforms can facilitate communication, teamwork, and information sharing among students. Furthermore, AI-enabled features of SM platforms can enhance linguistic skills, as students are exposed to various language learning tools, languages, dialects, and writing styles. It has the potential to improve their reading, writing, and communication abilities. These findings suggest that SM usage has significant implications for language learning. It highlights the need for further analysis to explore these relationships in depth and identify strategies for maximizing SM's advantages while minimizing its shortcomings.

3.7. Time Spent Daily on SM for Language Education

The study finds that 149 university students (42%) used social media (SM) for 15 to 30 minutes daily for language education-related factors. Furthermore, it is observed that 88 respondents (24.8%) used it daily for 31 to 60 minutes for this specific purpose. Sixty-six participants (18.6%) utilized SM for more than 1 hour daily for linguistic enhancement. It is identified that only 52 students (14.6%) were not highly dependent on SM in developing their language skills; they used it less than 15 minutes a day for this purpose.

The study provides valuable insights into the behavioral patterns of university students regarding social media use for language education. A significant proportion of students (42%) use social media for 15-30 minutes daily for language learning. This indicates a potential reliance on digital platforms for language acquisition. However, a notable percentage (14.6%) exhibit low dependency on AI features provided by social media platforms for language development, using them for less than 15 minutes daily. These findings suggest that social media can be a valuable tool for language education. The varying usage patterns of social media for language learning underscore the need for further exploration into its role in shaping students' linguistic capabilities.

4. RESULTS

The study focused on eight variables related to CELL. Additionally, four key drivers of social media use were identified as underlying motivations.

Table 1. Reliability statistics.

	Cronbach's alpha	Number of items
SM Platforms	0.762	4
Collaborative English language learning	0.791	8

The obtained scores surpass the established threshold of 0.6, indicating that the research instrument possesses adequate reliability and is suitable for utilization in this study. As presented in Table 1, the results demonstrate a satisfactory level of internal consistency, confirming the instrument's reliability.

4.1. The impact of AI-Driven Features of SM Platforms on Collaborative English Language Learning (CELL)

In order to assess the suitability of the collected data for factor analysis, the KMO measure and Bartlett's Test of Sphericity were employed. The results are presented in Table 2.

Table 2. KMO and Bartlett's test.

Kaiser-Meyer-Olkin measure of sampling adequacy		0.769
Bartlett's test of sphericity	Approx. chi-square	836.655
	Df	66
	Sig.	0.000

The Kaiser-Meyer-Olkin measure of sampling adequacy yielded a value of 0.769. It indicates that factor analysis is suitable for examining the relationship between social media usage and CELL. Furthermore, Bartlett's test of sphericity revealed a significant value of .000. It suggests that the selected variables are statistically significant and exhibit correlations with each other. This provides a foundation for exploring the interrelationships between SM influence and CELL variables.

Table 3. Factor loadings and descriptive statistics on the influence of AI-driven features of social media platforms on CELL.

Parameters	Factor loadings	Mean
Reasons behind social media usage		
Social media platforms facilitate peer interaction and feedback.	0.426	3.65
I utilize social media for collaborative English language learning.	0.758	3.65
Social media platforms provide access to language learning materials.	0.701	3.71
SM platforms create a sense of community engagement and motivation.	0.458	2.94
Collaborative English language learning (Education)		
SM platforms are effective in promoting language learner autonomy and agency.	0.407	3.30
Social media enables me to acquire new vocabulary through interactive and collaborative language learning activities.	0.483	3.38
English language educators must integrate social media into their teaching practices to support collaborative language learning.	0.656	3.78
Social media can help reduce language learners' anxiety and stress.	0.687	3.94
Social media offers authentic English language learning experiences through interactive engagement.	0.613	3.89
I receive feedback and encouragement from peers on social media, and it keeps me motivated to learn the English language.	0.476	3.59
Social media-based collaborative English language learning helps to develop linguistic skills, such as writing, reading, speaking, and listening.	0.445	3.50

Since the factor loadings of seven out of eight statements for the second construct are greater than 0.4, these statements were retained, and one was deleted. The mean scores are presented in Table 3.
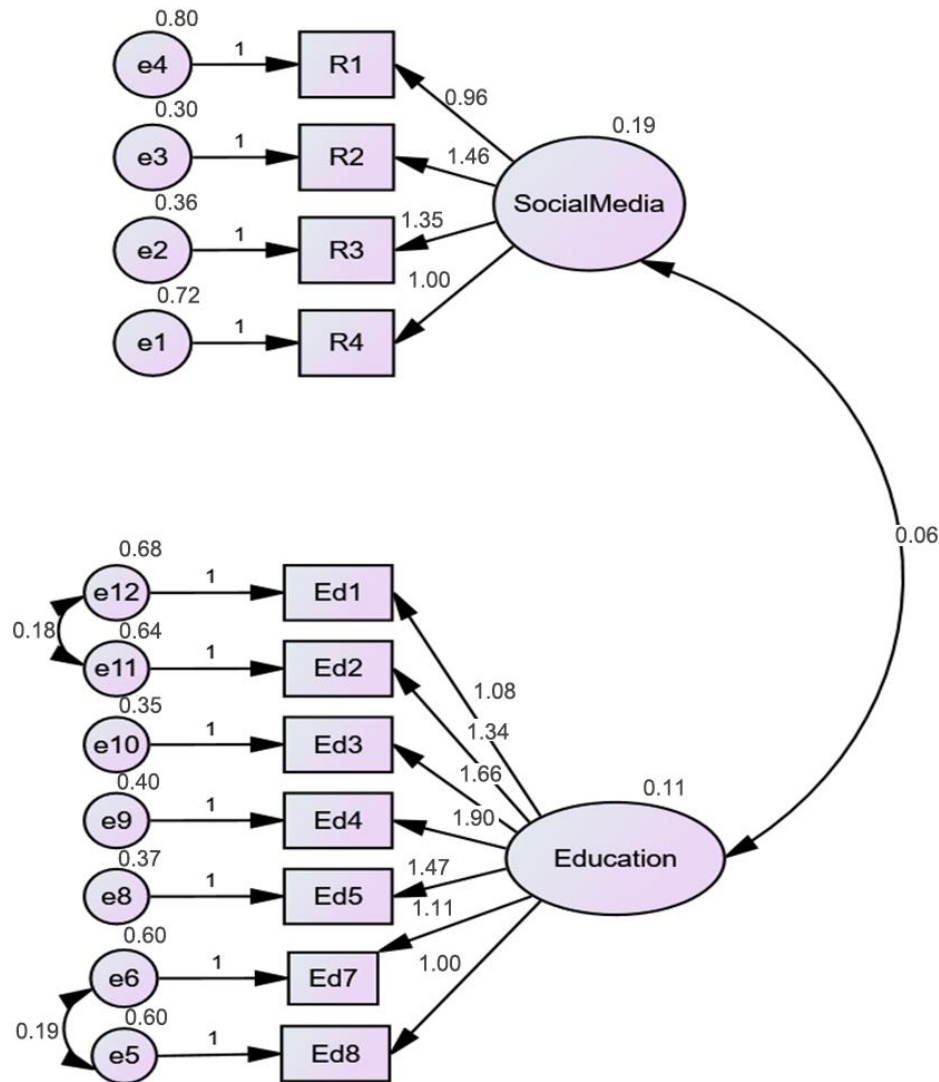
Figure 1. CFA model for the influence of AI-driven features of social media platforms on CELL (Education).

Table 4. Results of the goodness-of-fit test.

Indices	CMIN/df	GFI	AGFI	NFI	TLI	CFI	RMSEA	RMR
Model value	1.744	0.965	0.944	0.911	0.946	0.959	0.046	0.035
Recommended value	<3.0	>0.95	>0.90	>0.90	>0.90	>0.95	<0.08	<0.05

Figure 1 presents the CFA model and Table 4 shows the results of the goodness-of-fit test. Out of eight variables, the factor loadings of the seven variables are more than 0.40. Therefore, seven statements are retained (Field, 2013; Hair, 2010). CFA model for the influence of social media on CELL yielded a good model fit with satisfactory indices: GFI-0.965, AGFI-0.944, NFI-0.911, TLI-0.946, CFI-0.959, RMSEA-0.046, RMR-0.035, and CMIN/df-1.744. It is concluded that the factors loaded for the influence of social media usage on CELL are above the prescribed level, and the data adequately fit the model.

4.2. SM Platforms and CELL: Hypothesis Testing

H_{01}: *AI-driven features in social media platforms do not have an impact on collaborative English language learning among ESL students in engineering programs.*

In order to examine the impact of AI-driven features of social media platforms on collaborative English language learning among ESL students, a regression analysis was conducted. ANOVA analysis of social media outcomes and their results are depicted in Table 5 and Table 6, respectively.

Table 5. ANOVA analysis of SM outcomes.

Model summary				
Model	**R**	**R squared value**	**Adjusted R squared value**	**Std. error of the estimate**
1	0.336[a]	0.113	0.111	3.593

Note: a denotes predictors.

The regression model summary reveals that AI-driven features of social media platforms explain 11.3% of the variance in CELL (R-squared value = 0.113). The R-squared value of 0.113 indicates a small to moderate effect size. It suggests that about 11.3% of the variation in CELL can be attributed to AI-driven features of social media usage. It denotes that there is a significant relationship between AI-driven features of SM platforms and CELL.

Table 6. Result of ANOVA.

| Model		Sum of squares	Df	Mean square	F	Sig.
1	Regression	581.246	1	581.246	45.020	0.000[b]
	Residual	4557.531	353	12.911		
	Total	5138.777	354			

Note: b indicates predictor variable.

The ANOVA table confirms that the regression model is statistically significant, with a significant F-statistic (p = 0.000).

Table 7. Coefficients [a].

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	**Std. Error**	**Beta**	**T**	**Sig.**
1	(Constant)	13.593	1.065		12.766	0.000
	Social media usage	1.135	0.075	0.627	15.124	0.000

The coefficient table (see Table 7) reveals that AI-driven features of social media platforms have a significant positive effect on CELL (P=0.000). Moreover, a histogram of regression standardized residuals is shown in Figure 2.
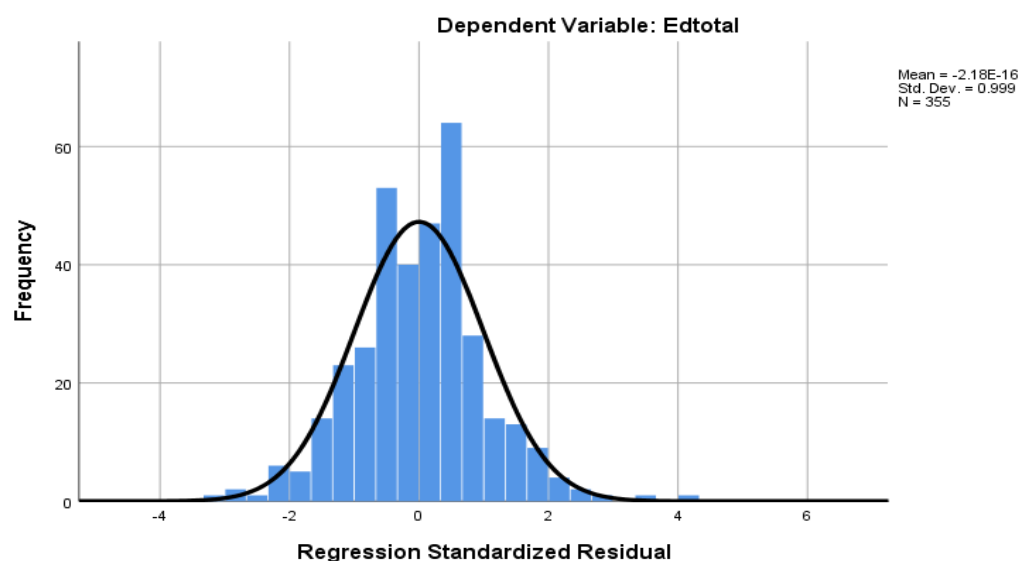
Figure 2. Histogram of regression standardized residuals.

Source: Study data.

This indicates that the predictors (AI-driven features of social media platforms) collectively account for a significant portion of the variance in CELL. Consequently, the null hypothesis is rejected, leading to the conclusion that AI-driven features of social media platforms have a significant positive impact on CELL.

5. DISCUSSION

5.1. The Impact of AI-Driven Features of SM Platforms on Collaborative English Language Learning of ESL Students in Engineering Programmes in India

This research analyzed the significance and impact of AI-driven features of social media platforms on CELL of ESL students in engineering programmes in India. It also examined the crucial factors contributing to these phenomena. The regression analysis results show that AI-enhanced capabilities of social media account for 11.3% of the variation in CELL. It indicates a small to moderate effect size. The results of the hypothesis testing revealed a positive relation between SM usage and CELL among ESL students. The data analysis shows that SM platforms effectively promote language learner autonomy and agency. It had a mean value of 3.30. The findings of the study are in line with Self-Determination Theory, posited by Ryan and Deci (2000). It suggests that using SM for collaborative language learning enhances learners' competence, autonomy, and relatedness. The findings are also concurrent with Cognitive-Behavioral Theory (Beck, 1979), which posits that SM platforms can be utilized to modify and challenge negative thought patterns. This helps to increase confidence levels and facilitates the development of effective English language learning strategies.

SM platforms support learners in tracking their progress, reframing their thoughts, and managing their own learning processes. They enable learners to engage in self-reflection, cognitive restructuring, and self-directed language learning. This approach can lead to a greater sense of independence and improved language proficiency among learners. Ultimately, it empowers learners to take charge of their language learning journey and fosters more effective language acquisition. It is also observed that digital literary works and SM platforms help learners improve their language skills. They assist learners in acquiring new vocabulary through collaborative and interactive English language learning activities (3.38). This aligns with the findings of John (2025a). The study states that digital literary works, digital platforms, and SM play a pivotal role in enhancing learners' linguistic skills.

Integrating social media (SM) and digital platforms into teaching practices supports CALL (Computer-Assisted Language Learning), and language educators must utilize these possibilities (3.78). The interactive environment provided by social media platforms reduces language learners' stress and anxiety, which had the highest mean value of 3.94. Additionally, it offers authentic English language learning experiences, with a mean score of 3.89. The intuitive interfaces and user-friendly features of social media platforms make them accessible and convenient tools for language learners to practice and improve their skills. The findings align closely with the Technology Acceptance Model (Davis, 1986), which suggests that users' adoption of technology is influenced by its ease of use and perceived utility. The study indicates that university students' willingness to utilize AI features in various SM platforms for practicing and learning languages depends on the platform's usability and usefulness.

Research demonstrates that active engagement with digital tools is positively correlated with superior language learning among students. The students can enhance their English language learning by utilizing the resources and opportunities provided by AI features of different social media platforms. This integration can lead to more collaborative and effective language learning experiences. It emphasizes the significance of combining social media and digital learning platforms in enhancing language learning outcomes and promoting deep student engagement (Oroni & Xianping, 2024). It is found that ESL students receive encouragement and feedback from peers on social media platforms, which keeps them motivated to learn the English language (3.59). The study's results are closely aligned with Social Learning Theory proposed by Bandura (1977). It suggests that learning occurs through imitation, observation, and interaction with others. Social media facilitates this process by enabling learners to observe and learn from others, receive feedback, and engage in reciprocal interactions with peers, tutors, and native speakers. This

process ultimately enhances students' language skills. It is also found that social media-based Computer-Assisted Language Learning (CALL) directly and indirectly helps students develop various linguistic skills such as writing, reading, speaking, and listening skills (3.50). Zhang et al. (2024) state that SM usage is positively correlated with students' language learning and performance.

Online group discussions and group learning via AI-powered chatbots are significantly helping students enhance their linguistic development. Social media platforms enable learners to meet their needs for language practice, social interaction, and cultural exchange. Additionally, they offer opportunities for self-expression, identity formation, and community building. These features align with the principles of Uses and Gratifications Theory (Katz et al., 1973). The theory suggests that individuals use media to satisfy their needs and desires, which is reflected in learners' use of these platforms. Mosharrafa, Akther, and Siddique (2024) observed that using social media in language education is advantageous for learners. Social media has the capacity to significantly improve students' language learning experiences, contributing to better linguistic outcomes and reducing anxiety.

5.2. Practical Strategies and Recommendations for Educators and Policymakers to Promote AI-Mediated Informal Digital Learning of English using SM Platforms and CELL Practices

A few policy recommendations with implementation strategies for policymakers and educators are discussed in this section. It can be used to promote AI-mediated informal digital learning of English (AIIDLE), leveraging social media platforms and collaborative language learning practices.

Educators should integrate AI-powered features of social media platforms into language curricula to enhance language learning through collaborative activities. Policymakers should collaborate with language instructors to develop AI-powered and social media-assisted lesson plans for successful implementation. Providing excellent training to educators and partnering with educational technology experts will significantly help to yield better results in this domain. It will improve language learning outcomes and also help them utilize the potential of language learning chatbots like Mondly, Duolingo Bot, Talkpal, etc., to a great extent. AI-enabled features of social media platforms can be effectively utilized to develop practical resources, guides, and tools tailored to the needs of students (Xue & Churchill, 2019). Language teachers can foster online language learning communities by creating and moderating online spaces on social media platforms. This approach helps language learners connect, share resources, and practice language skills. Developing effective assessment tools for AI-facilitated social media-based language learning can improve learning outcomes, inform decision-making, and enhance student support and engagement (John, 2025a; Zou, Li, & Li, 2018). Such a comprehensive evaluation framework can be created with the support of assessment experts. The skills and knowledge of teachers in using social media for language learning can be supported through professional development opportunities.

Providing language educators with resources that improve their ability to integrate AI-assisted features of social media (SM) into their teaching practices will also support their professional development and growth. They can harness SM platforms to facilitate idea-sharing, communication, and joint project development (Al-Qaysi et al., 2023). SM-based language learning can be enhanced and refined by conducting regular assessments and evaluations. This helps to ensure ongoing effectiveness and impact, inform strategic decisions, and identify areas for improvement. Moreover, students and educators must be given strong support, sufficient resources, guidelines, and training about best practices in using SM platforms. The effectiveness of AI-assisted SM platforms in developing students' English language proficiency can be analyzed through regular evaluations and assessments. Meanwhile, utilizing AI-facilitated SM platforms for English language learning poses several complex issues. Artificial intelligence may not fully grasp the subtleties of human language, leading to limited contextual understanding. Another challenge involves cultural and idiomatic barriers, as AI models may not account for idioms, cultural references, or colloquialisms, which can result in inaccurate feedback or misinterpretations. Authenticity and accuracy concerns due to over-dependence on technology are also significant. Critical thinking and problem-solving skills in real-life situations may be hindered

by excessive reliance on AI. Additionally, AI-generated content is susceptible to errors and biases stemming from training data issues; therefore, generated content must be properly evaluated and monitored. These issues highlight the importance of balancing AI-facilitated learning with human interaction and feedback to ensure comprehensive language development. Concerns related to security and data privacy also pose crucial challenges in this domain (Epstein & Quinn, 2020; Heiss, Nanz, & Matthes, 2023). To address these concerns, policymakers and educators can encourage students to critically evaluate the language learning platforms they use.

6. CONCLUSION

This research examined the impact of AI-enhanced features of social media platforms on collaborative English language learning among ESL students in engineering programs. It found that AI-assisted CELL promotes peer interaction, enhances communication skills, and facilitates a supportive learning environment. This approach encourages deeper understanding and enables learners to engage in dynamic exchanges of ideas. Consequently, learners can refine their language skills and develop critical thinking abilities (Kukulska-Hulme & Viberg, 2018; Zou et al., 2018). It also enhances their confidence levels, cultural awareness, and motivation. The study emphasizes the role and relevance of AI-enabled features of social media platforms in improving vocabulary acquisition through collaborative and interactive language learning activities. These features support language learners' autonomy, reduce anxiety and stress, and offer opportunities for integrating AI functionalities into language teaching. Additionally, social media platforms provide authentic language learning experiences through interactive engagement, fostering the development of speaking, writing, reading, and listening skills. They also motivate learners by offering encouragement and immediate feedback from peers, thereby enhancing overall language proficiency.

Novel technologies and social media platforms offer a viable alternative to traditional classroom instruction. These advancements have revolutionized language learning (John, 2025b; Zou et al., 2018). Social media-facilitated interaction and online CELL pave the way for personalized and flexible learning experiences, which cater to learners' individual preferences and needs. Ultimately, this shift towards CELL, assisted by AI-facilitated social media platforms, has the capacity to foster global connections, enhance language acquisition, and redefine the future of language education. The findings of the study emphasize the shifting responsibilities of language educators in an era where technology and student autonomy are increasingly prioritized in second language education. It advocates for a subtle focus on the pedagogical and instructional implications of technology-enhanced language learning to maximize its potential benefits (Zhang, Zou, Cheng, & Xie, 2022). Finally, this study offers significant implication strategies and valuable policy recommendations for policymakers and educators to promote AIIDLE utilizing collaborative language learning practices and social media platforms. Stakeholders can develop effective strategies to minimize social media's drawbacks and maximize its advantages by applying these findings. Future studies can build on these findings by conducting research on tailored interventions and their sustained impact. Such studies can contribute to the development of effective and informed practices in language education. Ultimately, this research lays the groundwork for further investigation into the evolving role of AI-mediated social media platforms in language education.

6.1. Limitations and Future Directions

Although this study has made several important contributions, it is essential to acknowledge a few limitations. First, the study was conducted among ESL students in engineering programs at various universities across India, which may not represent international students from different countries. The responses of students from different countries may vary, highlighting the need for further studies among students from other nations. Choosing diverse geographical locations and countries can significantly aid in achieving this goal and increase the generalizability of the findings. Second, the respondents' opinions were based on subjective evaluations. To enhance the validity and reliability of future research, it is recommended that more objective indicators should be incorporated. Third, the

methodology used to analyze the collected data included the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy, Bartlett's test of Sphericity, Confirmatory Factor Analysis, and ANOVA as primary statistical tools. Future research may employ advanced methodologies to yield more accurate results. Fourth, the demographic breakdown suggests that the study's findings are most representative of undergraduate students, particularly those aged 18-25. However, the study's generalizability to older populations and postgraduate students is limited. Collecting data from respondents across varied age groups would provide a more comprehensive understanding of the topic and enhance the overall validity of the study. Fifth, this research did not conduct a discourse analysis of social media interactions. Future studies may explore this area further by using discourse analysis to investigate the discursive and linguistic features of AI-facilitated social media interactions and their impact on ESL students. Sixth, future research should explore additional variables influencing CELL, providing a more nuanced understanding of this complex issue. Finally, this study did not examine the contextual factors that may influence the relationship between AI-enhanced features of social media platforms and their impact on CELL. Future studies should consider exploring the role of contextual factors such as self-regulation skills, personality traits, and socioeconomic background to offer a more detailed understanding of the relationships between these variables.

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