

Sociocultural Perspectives on Artificial Intelligence in English Language Learning: Insights from Saudi University Students

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Abstract

Artificial intelligence (AI) is increasingly being integrated into educational systems worldwide, offering transformative potential for language learning. This research investigates the sociocultural attitudes of Saudi university students toward AI in English language learning, examining how factors such as age, academic specialization, and economic background influence their perceptions. Data were collected from 341 male students across various disciplines at Prince Sattam University, Saudi Arabia, using a structured questionnaire adapted from the Negative Attitude toward Artificial Intelligence Scale. The findings reveal that students generally hold positive attitudes toward AI, particularly in terms of communication (mean: 3.89) and interaction (mean: 3.70), recognizing its potential to enhance language learning. However, concerns about AI's social influence and ethical implications were evident, as reflected in the neutral stance on the "Social Influence of AI" subscale (mean: 2.79). Significant differences in attitudes were observed based on educational specialization, with medical students showing the most positive attitudes and law students expressing greater skepticism. Younger students (18-20 years) were more receptive to AI than older students, and those from higher-income families perceived AI as more effective. These findings highlight the importance of considering sociocultural factors when integrating AI into educational settings. The study underscores the need for ethical guidelines, equitable access to technology, and culturally sensitive AI tools to ensure inclusive and effective learning experiences. By addressing these dimensions, educators and policymakers can better align technological advancements with the diverse needs of learners, paving the way for more innovative and responsive educational practices.

Keywords: artificial intelligence, sociocultural attitudes, Saudi Arabia, educational technology, ethical implications

1. Introduction

The integration of artificial intelligence (AI) into education has revolutionized traditional teaching and learning methodologies (Mariam, Adil, Zakaria, 2024; Najmiddinova, 2024, particularly in the field of language acquisition. AI-powered tools, such as intelligent tutoring systems, language learning apps, and automated feedback mechanisms, have demonstrated significant potential in enhancing the efficiency and effectiveness of language learning. In the context of English as a Medium of Instruction (EMI) (Martínez, 2016; Rahmadani, 2016), where English is used to teach academic subjects in non-English-speaking countries, AI offers innovative solutions to address challenges such as language barriers, personalized learning, and student engagement. However, the successful adoption of AI in education is not solely dependent on technological advancements; it is also influenced by the sociocultural attitudes and perceptions of the learners who interact with these technologies. Saudi Arabia, a country undergoing rapid educational reforms as part of its Vision 2030 initiative, has increasingly embraced EMI in higher education institutions (AlImnakrah & Evers, 2020; Khan & Iqbal, 2020). This shift aims to enhance students' English proficiency and prepare them for a globalized workforce. Within this context, artificial intelligence has emerged as a promising tool for supporting English language learning. However, the acceptance and effectiveness of AI in this domain are shaped by the sociocultural backgrounds of learners. Sociocultural theory, pioneered by Lev Vygotsky, Clabaugh (2010) emphasizes the role of social interaction, cultural context, and mediated learning in cognitive development. Applying this theory to AI in education, it becomes evident that students' attitudes toward AI are influenced not only by the technology itself but also by their cultural norms, educational experiences, and social environments. Despite the growing body of research on AI in education, there is a notable gap in understanding how sociocultural factors influence students' attitudes toward AI (Kim & Lee, 2024) in EMI contexts, particularly in Saudi Arabia. Previous studies have explored the technical capabilities of AI and its potential to transform education, but few have examined the human and cultural dimensions of AI integration. This study seeks to address this gap by investigating the sociocultural attitudes of Saudi university students towards the use of AI in English language learning. Specifically, it explores how factors such as age, educational specialization, and economic status shape students' perceptions and acceptance of AI. This study aims to address the following research questions: 1- What are the attitudes of Saudi university students toward utilizing artificial intelligence in learning English from a

sociocultural perspective? 2- How do age, educational specialization, and economic status influence university students' perceptions and acceptance of AI in English language learning? By answering these questions, this study aims to provide a deeper understanding of the sociocultural dynamics that influence the adoption of AI in education. The findings will contribute to the development of strategies for effective integration of AI into EMI classrooms, ensuring that technological advances align with the cultural and social contexts of the learners. Furthermore, this research will offer valuable insights for educators, policymakers, and AI developers, highlighting the importance of considering sociocultural factors when designing and implementing AI-driven educational tools. In summary, this study bridges the gap between technology and culture by examining the sociocultural attitudes of Saudi university students toward AI in English language learning. It underscores the need for a holistic approach to AI integration, one that not only leverages technological innovations, but also respects and responds to the cultural and social contexts of learners. Through this exploration, the study aims to pave the way for more inclusive and effective AI-driven educational practices in Saudi Arabia and beyond.

2. Literature Review

The integration of artificial intelligence (AI) into education, particularly in language learning (Novawan, Walker, and Ikeda, 2024; Idham, Rauf, and Rajab, 2024; Patty, 2024), has garnered significant attention in recent years. This literature review explores the theoretical foundations and empirical studies that inform our understanding of AI's role in education, with a focus on sociocultural perspectives and the unique context of English as a Medium of Instruction (EMI) in Saudi Arabia. The review is structured around three key themes: (1) Vygotsky's sociocultural theory and its relevance to AI in education, (2) sociocultural attitudes toward AI in Saudi Arabia, and (3) the role of sociocultural factors in shaping students' acceptance of AI.

2.1 Vygotsky's Sociocultural Theory and AI in Education

Lev Vygotsky's sociocultural theory posits that learning is a socially mediated process, where interaction with others and cultural tools play a critical role in cognitive development (Vygotsky and M. Cole, 1978). In the context of language learning, this theory highlights the importance of social interaction, scaffolding provision, and the utilization of cultural tools to facilitate language learning. AI, as a cultural tool, has the potential to mediate language learning by providing personalized feedback, creating interactive learning environments, and facilitating communication between learners and technology (Lantolf, Thorne, and Poehner, 2014). Recent studies have explored how AI can serve as a "more knowledgeable other" in Vygotsky's Zone of Proximal Development (ZPD), offering learners the support they need to achieve tasks they could not accomplish independently (Kim & Lee, 2024). For example, AI-powered chatbots have been shown to enhance language learners' conversational skills by providing real-time feedback and simulating authentic communication scenarios (Jamshed, Alam, Al Sultan, et al., 2024). However, the effectiveness of AI as a mediator in language learning depends on learners' willingness to engage with the technology, which is influenced by their sociocultural backgrounds.

2.2 Sociocultural Attitudes Toward AI in Saudi Arabia

In Saudi Arabia, the adoption of AI in education is closely tied to the country's Vision 2030 initiative, which aims to modernize the education system and prepare students for a knowledge-based economy (Almekhlafy, 2020). Within this context, English language learning has become a priority, as proficiency in English is seen as essential for academic and professional success in a globalized world. However, the integration of AI into EMI classrooms is not without challenges, particularly when considering the sociocultural attitudes of Saudi students. Research indicates that Saudi students generally hold positive attitudes toward technology-enhanced learning, but their acceptance of AI is influenced by cultural norms and educational practices. (AbdAlgane & Jabir Othman, 2023). For example, a study by Alshehri (2023) found that Saudi students value the efficiency and convenience of AI tools but express concerns about the potential loss of human interaction in the learning process. These findings highlight the need to balance technological innovation with cultural sensitivity when implementing AI in Saudi classrooms.

2.3 The Role of Sociocultural Factors in AI Acceptance

Sociocultural factors such as age, educational specialization, and economic status play a significant role in shaping students' attitudes toward AI. Younger students, who are often more familiar with digital technologies, tend to be more receptive to AI tools than older students (Stein, Messingschlager, Gnams, et al., 2024). Similarly, students from technical fields such as medicine and engineering may perceive AI as more relevant to their academic and professional goals, leading to more positive attitudes. Kim & Lee (2024) highlighted that economic status also influences students' access to advanced AI tools, which can affect their perceptions of AI's effectiveness. For instance, students from higher-income families are more likely to have access to cutting-edge AI technologies, which may enhance their learning experiences and foster positive attitudes towards AI (Yuksel, Dikilitas, Webb, et al., 2024; Holmes, Bialik, and Fadel, 2019). Conversely, students from lower-income backgrounds may have limited exposure to AI, leading to skepticism or neutral attitudes.

2.4 Research Gaps and the Importance of the Current Study

While existing research provides valuable insights into the role of AI in education, there is a notable gap in understanding how sociocultural factors influence students' attitudes toward AI in EMI contexts, particularly in Saudi Arabia. Most studies have focused on the technical capabilities of AI or its impact on learning outcomes, with less attention given to the human and cultural dimensions of AI integration. This study addresses this gap by examining the sociocultural attitudes of Saudi university students toward AI in English language learning, with a focus on the interplay between technology, culture, and education. By exploring how factors such as age, educational specialization, and economic status shape students' perceptions of AI, this study contributes to the growing body of literature

on AI in education and provides practical recommendations for integrating AI into EMI classrooms in culturally sensitive ways.

3. Methodology

3.1 Research Design

This study adopts a quantitative research design to explore the attitudes of Saudi university students toward AI in English language learning. A quantitative approach was chosen because it allows for the systematic measurement of attitudes and perceptions across a large sample, enabling the identification of patterns and trends (Creswell, 2021). The study focuses on five key dimensions of AI attitudes: social influence, communication, interaction, emotions, and characteristics of AI. These dimensions are examined in relation to sociocultural factors such as age, educational specialization, and economic status of participants.

3.2 Participants

The study involved 341 participants, all of whom were male students enrolled in various academic programs at Prince Sattam University (PSU) in Saudi Arabia. The participants were selected using a convenience sampling method, with students recruited from four main academic specializations: medicine, business administration, engineering, and law. The sample consisted entirely of male students, reflecting the gender-segregated nature of Saudi Arabia's educational system. Participants ranged in age from 18 to 23 years, with the majority (61.3%) falling within the 18-20 age group. This age range was chosen because it represents the typical demographic of undergraduate students in Saudi universities. The gender distribution of the participants reflects the unique sociocultural context of Saudi Arabia, where gender segregation is a common practice in educational institutions. As a result, the study included only male students, which is representative of the male student population at Prince Sattam University. This limitation is important to note, as it may affect the generalizability of the findings to female students. The age group distribution of the participants shows that the majority of students were between 18 and 20 years old, representing 61.3% of the sample. This age group is typical for undergraduate students in Saudi universities, as most students enter higher education immediately after completing secondary school. The remaining participants were between 21 and 23 years old, representing 36.4% of the sample, with a small percentage (2.3%) being older than 23 years. This distribution highlights the focus on younger students, who are often more familiar with digital technologies and may have different attitudes toward AI compared to older students. Participants were drawn from four main academic specializations: medicine, business administration, engineering, and law. Medical students constituted the largest proportion of the sample (64.2%), followed by business administration students (23.8%), law students (10.6%), and engineering students (1.5%). This distribution reflects the popularity of these fields among Saudi university students and provides a diverse sample for examining how educational specialization influences attitudes toward AI. The economic status of the participants was assessed based on their family's monthly income. The majority of participants (36.1%) came from households earning less than 8,000 Saudi Riyals per month, while 38.1% belonged to middle-income families, those earning between 8,000 and 18,000 Riyals. A smaller proportion (15.5%) came from high-income households earning more than 25,000 Riyals. This distribution provides insights into how economic status may influence students' access to and perceptions of AI technologies. To provide a clear overview of the participants' demographic characteristics, two pie charts are included in figure 1. The first chart illustrates the academic specialization distribution, showing the proportion of students from medicine, business administration, law, and engineering. The second chart represents the age group distribution, highlighting that the majority of participants were between 18 and 20 years old, with a smaller proportion falling into the 21-23 age range. These visual representations help to illustrate the composition of the sample and provide context for the findings.

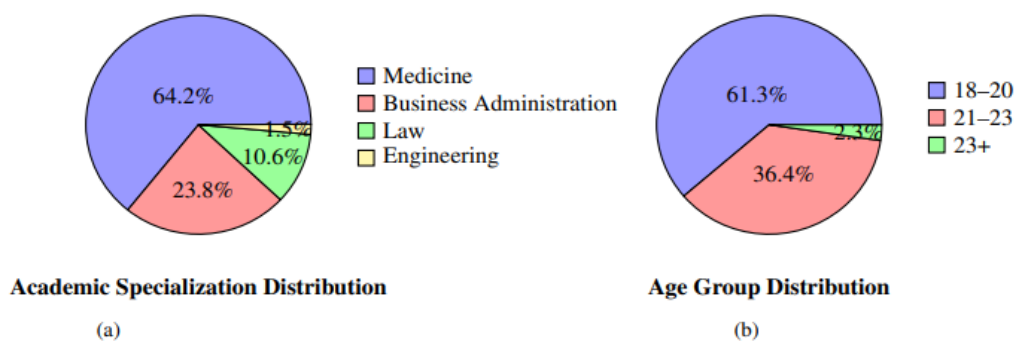


Figure 1. Demographic Distribution of Participants

3.3 Instrumentation

The instrumentation for this study was carefully designed to measure the sociocultural attitudes of Saudi university students toward the use of artificial intelligence (AI) in English language learning. The primary data collection tool was a structured questionnaire, adapted from Kim and Lee's (2023) Negative Attitude toward Artificial Intelligence Scale. This section provides a detailed description of the questionnaire, its adaptation process, and the measures taken to ensure its reliability and validity. The questionnaire was divided into two main sections: demographic information and attitude measurement. The demographic section gathered data on participants' age, educational specialization, and family monthly income, which were utilized to examine the influence of these factors on participants' attitudes toward AI. The attitude measurement section consisted of 17 items divided into five subscales, each focusing on a specific

dimension of AI attitudes. These subscales included: ‘social influence of AI,’ ‘communication with AI,’ ‘situations of interaction with AI,’ ‘emotions in interaction with AI,’ and ‘characteristics of AI.’ Each item was rated on a 5-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), allowing participants to express the intensity of their agreement or disagreement with each statement. To ensure the questionnaire was culturally and linguistically appropriate for the Saudi context, several modifications were made. The original scale, developed in English, was translated into Arabic, the participants’ first language. The translation process was conducted by a bilingual expert in applied linguistics and reviewed by two additional PhD holders in linguistics to ensure accuracy and clarity. Additionally, the items were slightly modified to specifically reference English language learning, ensuring relevance to the study’s focus. For example, the item “I can communicate fluently with artificial intelligence” was adapted to “I can communicate fluently with artificial intelligence in English.” The reliability of the questionnaire was assessed using Cronbach’s alpha, a statistical measure of internal consistency. The Cronbach’s alpha values for the five subscales ranged from 0.700 to 0.904, indicating high reliability. The overall Cronbach’s alpha for the entire questionnaire was 0.846, which is well above the acceptable threshold of 0.7. Table 1 summarizes the reliability analysis for each subscale and the total questionnaire:

Table 1. Cronbach’s Alpha Reliability Analysis

items	N of items	Cronbach's alpha
Social influence of AI	4	0.700
Communication with AI	4	0.775
Situations of interaction with AI in English	4	0.904
Emotions in interaction with AI	3	0.799
Characteristics of AI	2	0.854
TOTAL	17	0.846

3.4 Data Collection Procedure

The data collection procedure for this study was carefully designed to ensure the efficient and ethical gathering of data from Saudi university students regarding their attitudes toward the use of artificial intelligence (AI) in English language learning. This section provides a detailed description of the steps taken during the data collection process, including the preparation, distribution, and administration of the questionnaire.

3.5 Preparation Phase

Before data collection began, the research team prepared the questionnaire and obtained the necessary approvals. The questionnaire, adapted from Kim and Lee’s (2023) Negative Attitude toward Artificial Intelligence Scale, was translated into Arabic and modified to suit the context of English language learning. The translation was reviewed by two PhD holders in linguistics to ensure accuracy and cultural relevance. The questionnaire was then converted into an electronic format using Google Forms, a user-friendly platform that allowed for easy distribution and data collection. The electronic format also ensured that responses could be collected efficiently and stored securely. Prior to distribution, the research team conducted a pilot test with a small group of students to identify any potential issues with the questionnaire’s clarity or functionality. Based on the feedback, minor adjustments were made to improve the survey’s usability. 3.4.2 Distribution and Administration The questionnaire was distributed to students enrolled in various academic programs at Prince Sattam University (PSU) in Saudi Arabia. The distribution process involved the following steps:

- **Instructor Collaboration:** The research team collaborated with instructors from four academic specializations—medicine, business administration, engineering, and law—to facilitate the distribution of the questionnaire. Instructors were provided with a link to the Google Form and asked to share it with their students during class time.
- **In-Class Administration:** The questionnaire was administered during regular class hours to ensure a high response rate. Instructors introduced the survey to their students, explaining its purpose and emphasizing that participation was voluntary. Students were given approximately 10 minutes to complete the survey, and instructors remained in the classroom to address any questions or concerns.
- **Informed Consent:** Before participating, students were required to sign a consent form confirming their voluntary participation and understanding of the study’s purpose. The consent form also assured students that their responses would remain confidential and would not affect their academic performance.
- **Anonymity and Confidentiality:** To encourage honest and unbiased responses, the questionnaire was designed to be anonymous. Students were not required to provide their names or any identifying information, and the data were stored securely on a password-protected server.

The formula for the arithmetic mean (\bar{x}) is given by

$$\bar{x} = \frac{1}{N} \sum_{i=1}^N x_i$$

where N is the total number of observations and x_i represents each individual value in the dataset. The formula for the

population standard deviation (σ) is

$$\sigma = \sqrt{\frac{1}{N} \sum_{i=1}^N (x_i - \bar{x})^2}$$

where σ represents the population standard deviation, s is the sample standard deviation, n is the sample size, and x_i represents each data point.

4. Results

This section presents the findings of the study, which aimed to explore the sociocultural attitudes of Saudi university students toward the use of artificial intelligence (AI) in English language learning. The results are organized into two main parts: (1) an overview of students' attitudes toward AI across the five subscales' (2) an analysis of how sociocultural factors such as age, educational specialization, and economic status influence these attitudes. Descriptive statistics, reliability analysis, and hypothesis testing were used to analyze the data.

4.1 Overview of Students' Attitudes Toward AI

The overall findings indicate that Saudi university students hold generally positive attitudes toward the use of AI in English language learning, with a total mean score of 3.53 (70.6%) across all subscales. However, attitudes varied across the five dimensions of AI, as outlined in Table 2.

Table 2. Mean and Standard Deviation (N=341)

NO.	Items	Mean	Standard Deviation	%	Ranking	Decision
2	I think language learning will be dominated by artificial intelligence. (social dominance; peer assistance)	3.53	1.235	70.6%	1	Agree
1	If artificial intelligence behaves like humans, it seems that bad things will happen to humans in terms of language learning.	3.22	1.260	64.3%	2	Neutral
4	I am worried that artificial intelligence could have a bad influence on children's English language learning.	3.07	1.416	61.3%	3	Neutral
3	If artificial intelligence has emotions, I would be anxious to learn English with it. (ZPD)	3.03	1.325	60.5%	4	Neutral
A	Social influence of AI	2.79	0.927	55.8%		Neutral
5	I can maintain a conversation with AI to learn English.	4.08	0.991	81.5%	1	Agree
7	I can understand what artificial intelligence is saying in English.	4.00	0.931	80.1%	2	Agree
6	I can communicate fluently with artificial intelligence in English.	3.84	0.968	76.9%	3	Agree
8	I can predict what AI will do when I ask for help to learn English	3.65	1.048	73.1%	4	Agree
B	Communication with AI	3.89	0.729	77.9%		Agree
10	When learning English, I am nervous about manipulating and using artificial intelligence with other people.	2.91	1.298	58.3%	1	Neutral
12	Being specialized in English language, I would be anxious to work in a job that works with artificial intelligence.	2.80	1.351	56.0%	2	Neutral
11	When learning English, I have anxiety to even think of artificial intelligence judging what it is.	2.76	1.340	55.2%	3	Neutral
9	I am very nervous about dealing with artificial intelligence in learning English	2.62	1.357	52.4%	4	Neutral
C	Situations of interaction with AI in English	3.23	1.159	64.5%		Neutral
15	I am comfortable talking to artificial intelligence to learn English.	3.85	1.057	77.0%	1	Agree
13	If AI has emotions, I can be friends with AI to aid me in learning English.	3.69	1.175	73.7%	2	Agree
14	I am comfortable living with artificial intelligence that has emotions when learning English.	3.58	1.144	71.6%	3	Agree
D	Emotions in interaction with AI	3.70	0.982	74.1%		Agree
17	I understand how useful artificial intelligence can be for English language learners.	4.09	0.931	81.7%	1	Agree
16	I know how fast artificial intelligence can do things especially for English language learners.	3.99	0.985	79.9%	2	Agree
E	Characteristics of AI	4.04	0.896	80.8%		Agree
	total	3.53	0.501	70.6%		Agree

4.2 Social Influence of AI (Mean: 2.79, Neutral-55.8%)

Students expressed a neutral stance on the social influence of AI, with a mean score of 2.79. While 70.6% of students agreed that AI would dominate language learning in the future, concerns about AI behaving like humans (64.3%) and its potential negative influence on children's learning (61.3%) were also evident. These findings suggest that while students recognize AI's growing role in education, they remain cautious about its broader societal implications. For example, one student commented, "I think AI will change how we learn

languages, but I worry about losing the human touch in education.” This reflects a common sentiment among participants, who acknowledge AI’s potential but are wary of its long-term effects on human interaction.

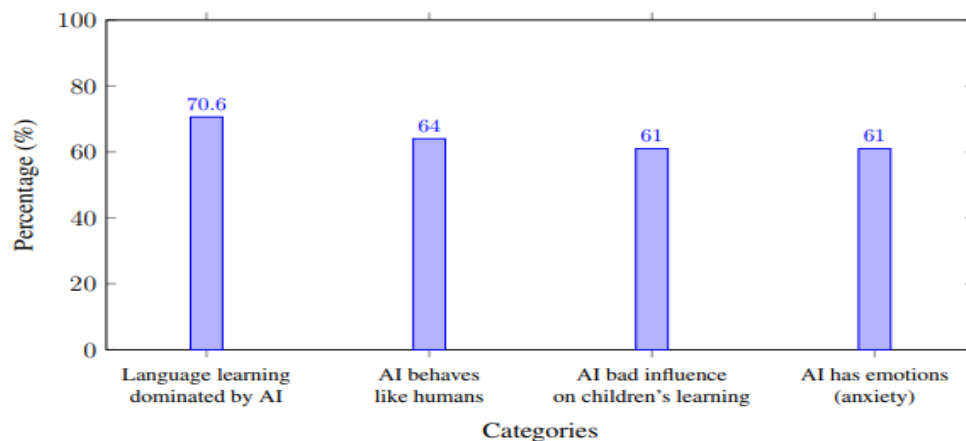


Figure 2. Social Influence of AI on Language Learning. The chart shows the percentage of respondents who agree with various statements about the social influence of AI in language learning

4.3 Communication with AI (Mean: 3.89, Agree-77.9%)

The highest level of agreement was observed in this category, with a mean score of 3.89. Specifically, 81.5% of students agreed that they could maintain a conversation with AI to learn English, and 80.1% confirmed they could understand AI’s responses in English. These results indicate that students feel confident and comfortable communicating with AI, perceiving it as a reliable tool for language interaction and assistance. For instance, one participant noted, “I find it easy to talk to AI, and it helps me practice my English without feeling judged.” This highlights the practical benefits of AI in providing a nonjudgmental environment for language practice.

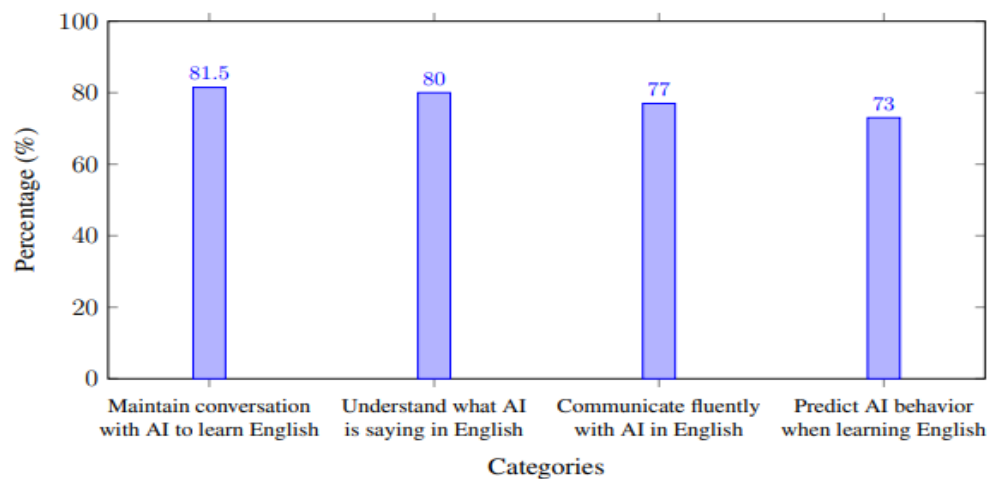


Figure 3. Communication with AI for English Learning. The chart shows the percentage of respondents who agree with various statements about their ability to communicate with AI for learning English

4.4 Situations of Interaction with AI (Mean: 3.23, Neutral-64.5%)

Students exhibited moderate anxiety regarding interactions with AI in social or professional settings, with a mean score of 3.23. For example, 58.3% of students reported feeling nervous when using AI in group settings, and 56.0% expressed concerns about working in AI-integrated jobs. These findings suggest that while students are not overly anxious about AI, they remain somewhat hesitant about its role in professional and social environments. One student shared, “I’m okay using AI on my own, but I feel nervous using it in front of others or in a work setting.” This reflects a common concern about the social dynamics of AI interactions.

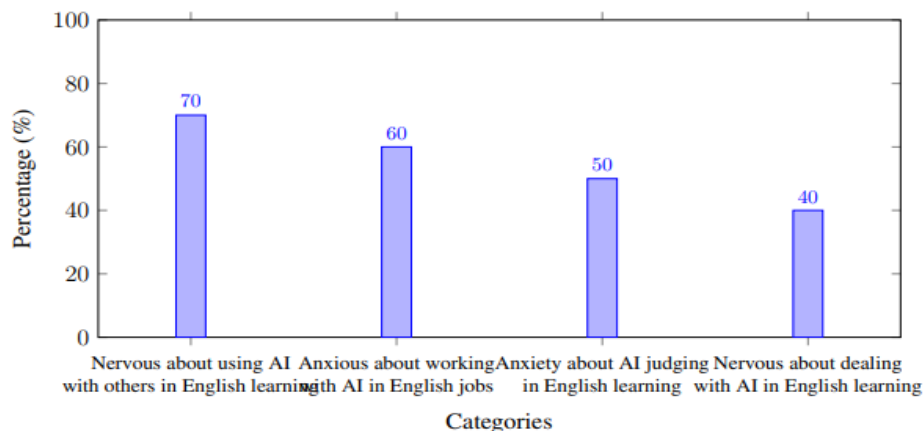


Figure 4. Situations of Interaction with AI in English Learning

The chart shows the percentage of respondents who feel nervous or anxious in various situations involving AI in English learning

4.5 Emotions in Interaction with AI (Mean: 3.70, Agree - 74.1%)

Students demonstrated a strong acceptance of AI's emotional aspects, with a mean score of 3.70 across the "Emotions in Interaction with AI" subscale. This high level of acceptance is further supported by the specific responses: 77.0% of students agreed that they were comfortable talking to AI, and 73.7% expressed a belief that they could form a "friendship" with AI to support their learning. These findings suggest that a significant portion of students are open to the idea of AI possessing human-like emotions, indicating a willingness to engage with AI in a more interactive and personal manner. For instance, one participant remarked, "If AI can understand my emotions, I think it would make learning more enjoyable and less stressful." This sentiment underscores the potential for emotionally responsive AI to create a more engaging and supportive learning environment. The results highlight the importance of designing AI systems that can recognize and respond to emotional cues, as this capability could foster deeper connections between students and AI tools, ultimately enhancing the overall learning experience. Additionally, the positive reception of AI's emotional aspects suggests that students are not only comfortable with AI's technical functionalities but also value its potential to provide empathetic and personalized support, which could play a crucial role in reducing anxiety and increasing motivation in language learning contexts.

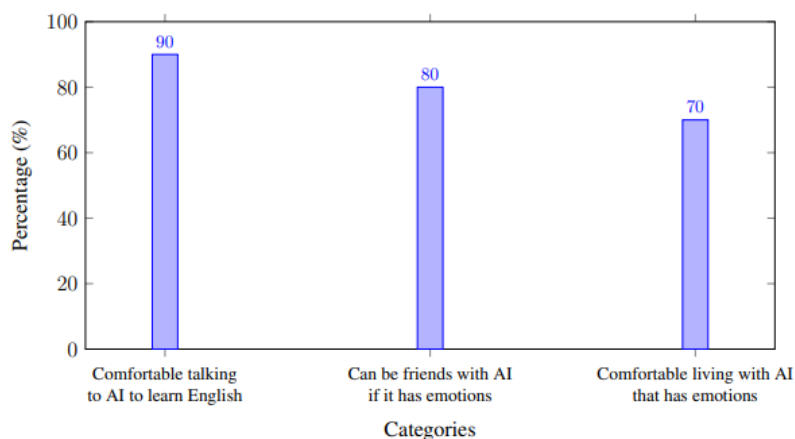


Figure 5. Emotions in Interaction with AI for English Learning. The chart shows the percentage of respondents who feel comfortable or positive about interacting with AI in various emotional contexts during English learning

4.6 Characteristics of AI (Mean: 4.04, Agree - 80.8%)

Students perceived AI as a highly effective and efficient tool for language learning, with a mean score of 4.04. Specifically, 81.7% of students recognized AI's usefulness, and 79.9% acknowledged its speed and efficiency. These findings reinforce the value of AI in academic settings and highlight its potential to enhance language learning outcomes. One student remarked, "AI is so fast and accurate—it saves me a lot of time when I'm practicing English." This reflects the practical advantages of AI in providing quick and reliable support for language learners. The high level of agreement suggests that students view AI as a valuable resource for improving their language skills, particularly in terms of accessibility and convenience. Furthermore, the recognition of AI's speed and accuracy indicates that students appreciate its ability to deliver immediate feedback, which is crucial for effective language practice. These results underscore the importance of integrating AI tools into educational frameworks to meet the evolving needs of learners in a fast-paced, technology-driven world.

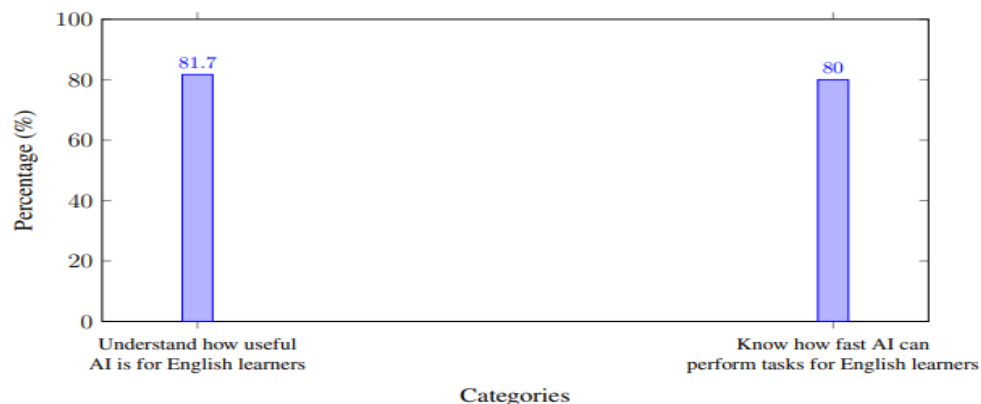


Figure 6. Characteristics of AI for English Learning. The chart shows the percentage of respondents who recognize the usefulness and speed of AI in aiding English language learners

4.7 Influence of Sociocultural Factors on Attitudes Toward AI

The study also examined how sociocultural factors such as age, educational specialization, and economic status influence students' attitudes toward AI. The results are summarized below:

4.7.1 Educational Specialization

The Kruskal-Wallis test revealed significant differences in attitudes based on educational specialization ($p < 0.05$). Medical students had the highest mean rank (183.24), indicating the most positive attitudes toward AI, while law students had the lowest mean rank (141.06), suggesting greater skepticism. These differences may reflect the varying relevance of AI to different academic fields. For example, medical students may view AI as a valuable tool for accessing up-to-date information and improving diagnostic skills, while law students may be more cautious about relying on AI for tasks that require critical thinking and human judgment.

Table 3. Kruskal-Wallis test for specialization (N=341)

Variables	Categories	N	Sum of Ranks	Average of Ranks	Kruskal-Wallis	P-value
Social influence of AI	Medicine	219	38646.00	176.47	2.498	0.476
	Engineering	5	926.00	185.20		
	Business Administration	81	13236.50	163.41		
	Law	36	5502.50	152.85		
Communication with AI	Medicine	219	39364.00	179.74	5.749	0.124
	Engineering	5	581.50	116.30		
	Business Administration	81	12799.50	158.02		
	Law	36	5566.00	154.61		
Situations of interaction with AI in English	Medicine	219	38372.50	175.22	1.658	0.646
	Engineering	5	755.50	151.10		
	Business Administration	81	13607.00	167.99		
	Law	36	5576.00	154.89		
Emotions in interaction with AI	Medicine	219	38598.50	176.25	2.108	0.550
	Engineering	5	684.00	136.80		
	Business Administration	81	13158.00	162.44		
	Law	36	5870.50	163.07		
Characteristics of AI	Medicine	219	39294.50	179.43	6.469	0.091
	Engineering	5	510.50	102.10		
	Business Administration	81	12919.50	159.50		
	Law	36	5586.50	155.18		
total	Medicine	219	40129.50	183.24	10.288	0.016
	Engineering	5	609.00	121.80		
	Business Administration	81	12494.50	154.25		
	Law	36	5078.00	141.06		

4.7.2 Age

Age also played a significant role in shaping attitudes toward AI ($p < 0.05$). Younger students (18-20 years) had the highest mean rank (182.53), indicating more positive attitudes, while older students (22+ years) had the lowest mean rank (119.69). This suggests that younger students, who are often more familiar with digital technologies, are more receptive to AI in language learning. One younger participant commented, "I've grown up using technology, so AI feels natural to me." In contrast, an older student noted, "I'm not sure if I can trust AI to help me learn English—I prefer traditional methods."

Table 4. Kruskal-Wallis test for Age (N=341)

Variables	Categories	N	Sum of Ranks	Average of Ranks	Kruskal-Wallis	p_value
Social influence of AI	18-20 Years	209	36544.50	174.85	0.974	0.615
	21-22 Years	124	20346.00	164.08		
	More than 22 Years	8	1420.50	177.56		
Communication with AI	18-20 Years	209	37751.00	180.63	5.304	0.071
	21-22 Years	124	19388.00	156.35		
	More than 22 Years	8	1172.00	146.50		
Situations of interaction with AI in English	18-20 Years	209	37687.50	180.32	5.488	0.064
	21-22 Years	124	19583.50	157.93		
	More than 22 Years	8	1040.00	130.00		
Emotions in interaction with AI	18-20 Years	209	36787.00	176.01	3.338	0.188
	21-22 Years	124	20589.50	166.04		
	More than 22 Years	8	934.50	116.81		
Characteristics of AI	18-20 Years	209	36461.50	174.46	0.735	0.693
	21-22 Years	124	20568.50	165.88		
	More than 22 Years	8	1281.00	160.13		
total	18-20 Years	209	38148.50	182.53	8.348	0.015
	21-22 Years	124	19205.00	154.88		
	More than 22 Years	8	957.50	119.69		

4.7.3 Economic Status

While economic status did not significantly impact overall attitudes toward AI, students from high-income families (more than 25,000 Riyals) had the highest mean rank (194.92) for the “Characteristics of AI” subscale, indicating they perceived AI as more effective. This may reflect greater access to advanced AI tools among wealthier students. For example, one student from a high-income background stated, “I use AI apps every day to practice English, and they’re really helpful.” In contrast, a student from a lower-income family shared, “I don’t have access to the latest AI tools, so I’m not sure how useful they are.”

Table 5. Kruskal-Wallis test for Monthly income (N=341)

Variables	Categories	N	Sum of Ranks	Average of Ranks	Kruskal-Wallis	p_value
Social influence of AI	Less than 8,000 Riyals	123	20817.50	169.25	2.869	0.580
	8,000 - 12,000 Riyals	63	11367.00	180.43		
	12,000 - 18,000 Riyals	67	10653.00	159.00		
	19,000 - 25,000 Riyals	35	6612.50	188.93		
	More than 25,000 Riyals	53	8861.00	167.19		
Communication with AI	Less than 8,000 Riyals	123	19419.00	157.88	8.856	0.065
	8,000 - 12,000 Riyals	63	10617.00	168.52		
	12,000 - 18,000 Riyals	67	12401.00	185.09		
	19,000 - 25,000 Riyals	35	5371.00	153.46		
	More than 25,000 Riyals	53	10503.00	198.17		
Situations of interaction with AI in English	Less than 8,000 Riyals	123	20580.00	167.32	0.571	0.966
	8,000 - 12,000 Riyals	63	11001.50	174.63		
	12,000 - 18,000 Riyals	67	11671.50	174.20		
	19,000 - 25,000 Riyals	35	6209.50	177.41		
	More than 25,000 Riyals	53	8848.50	166.95		
Emotions in interaction with AI	Less than 8,000 Riyals	123	20857.00	169.57	2.890	0.576
	8,000 - 12,000 Riyals	63	10475.50	166.28		
	12,000 - 18,000 Riyals	67	12054.00	179.91		
	19,000 - 25,000 Riyals	35	5280.50	150.87		
	More than 25,000 Riyals	53	9644.00	181.96		
Characteristics of AI	Less than 8,000 Riyals	123	20814.50	169.22	9.471	0.050
	8,000 - 12,000 Riyals	63	9913.00	157.35		
	12,000 - 18,000 Riyals	67	12334.00	184.09		
	19,000 - 25,000 Riyals	35	4919.00	140.54		
	More than 25,000 Riyals	53	10330.50	194.92		
total	Less than 8,000 Riyals	123	19837.00	161.28	4.408	0.354
	8,000 - 12,000 Riyals	63	10903.00	173.06		
	12,000 - 18,000 Riyals	67	12128.50	181.02		

19,000 - 25,000 Riyals	35	5454.50	155.84
More than 25,000 Riyals	53	9988.00	188.45

5. Discussion

The findings of this study offer significant insights into how Saudi university students perceive the use of artificial intelligence (AI) in English language learning, particularly through the lens of sociocultural influences. The results reveal that while students generally hold favorable views toward AI, their attitudes are influenced by factors such as age, academic specialization, and socioeconomic background. This discussion contextualizes the findings within existing research, explores the implications for integrating AI into educational systems, and provides recommendations for future studies and practical applications. The overall positive attitudes toward AI, as evidenced by high mean scores across key dimensions such as communication, interaction, and AI characteristics, indicate that students recognize the potential of AI to enhance language learning. This aligns with prior studies emphasizing AI's ability to deliver personalized feedback, foster interactive learning environments, and support language acquisition (Holmes, Bialik, and Fadel, 2019). The strong agreement in the "Communication with AI" subscale suggests that students feel comfortable engaging with AI, which is essential for the successful adoption of AI tools in education (Zhang, Sun, Galley, et al., 2020). However, the neutral stance on the "Social Influence of AI" subscale reveals lingering concerns about AI's broader societal impact. Students expressed apprehension about AI mimicking human behavior and its potential effects on children's learning, reflecting a sense of cautious optimism. These concerns highlight the need to address ethical and societal implications when implementing AI in educational contexts (Amershi, Cakmak, Knox, et al., 2014). The study also uncovered notable differences in attitudes based on sociocultural factors. For instance, students in medical fields exhibited more positive attitudes toward AI than those in law. This divergence likely stems from the varying relevance of AI across disciplines. Medical students, who often rely on data-driven tools and up-to-date information, may view AI as a valuable asset for their academic and professional development (Topol, 2019). In contrast, law students, whose work involves nuanced interpretation and judgment, may be more skeptical about AI's role in their field (Susskind, 2018). These findings resonate with research suggesting that the perceived utility of AI within one's discipline significantly influences acceptance and adoption (Venkatesh, M. G. Morris, G. B. Davis, et al., 2003). Age emerged as another critical factor, with younger students (18-20 years) showing greater receptiveness to AI than their older counterparts. This generational difference may be attributed to younger students' familiarity with digital technologies, making them more comfortable with AI-driven tools (Prensky, 2001). On the other hand, older students, who may have less exposure to advanced technologies, tend to prefer traditional learning methods. This underscores the importance of considering digital literacy and technological familiarity when designing AI-based educational solutions (Selwyn, 2016). Economic status also played a noticeable role, particularly in shaping perceptions of AI's effectiveness. Students from higher-income families, who likely have greater access to advanced AI tools, viewed AI more positively. This disparity points to the need for equitable access to technology to ensure that all students can benefit from AI-driven learning opportunities. According to Warschauer (2011), addressing these socioeconomic gaps is crucial for fostering inclusive educational environments. The implications of these findings are multifaceted. The positive attitudes toward AI suggest that there is considerable potential for its integration into English language learning, particularly in providing tailored and interactive experiences (Holmes, Bialik, and Fadel, 2019). However, the concerns about AI's societal and ethical implications emphasize the importance of transparent and responsible implementation. Educators and policymakers should prioritize ethical guidelines, maintain human interaction, and ensure that AI tools are designed with cultural sensitivity in mind (Amershi, Cakmak, Knox, et al., 2014). Additionally, the influence of sociocultural factors highlights the need for customized approaches that consider the diverse backgrounds and needs of students (Selwyn, 2016).

While this study provides valuable insights into students' perceptions of AI in English language learning, it has several limitations. First, the sample was limited to Saudi university students, which may not fully capture the diversity of attitudes across different cultural and educational contexts. Future research should expand the scope to include students from other regions and educational systems. Second, the study relied on self-reported data, which may be subject to bias. Future work could incorporate observational or experimental methods to validate the findings. Finally, the study focused on perceptions rather than actual use of AI tools. Future research should explore how students interact with AI in real-world learning scenarios to better understand its impact on language acquisition.

6. Conclusion

This study explores the sociocultural attitudes of Saudi university students toward the use of artificial intelligence (AI) in English language learning, revealing a generally positive outlook tempered by concerns about AI's broader societal and ethical implications. Students expressed confidence in AI's ability to facilitate communication and interaction, with mean scores of 3.89 and 3.70, respectively. However, neutral attitudes toward AI's social influence (mean: 2.79) reflect apprehensions about its impact on human interaction and ethical use. Factors such as age, academic specialization, and economic status significantly shaped these perceptions, with younger students and those in fields like medicine showing greater acceptance, while older students and those in law expressed skepticism. Students from higher-income backgrounds also viewed AI more positively, likely due to greater access to advanced technologies. These findings emphasize the importance of designing AI tools that are culturally sensitive, ethically sound, and accessible to all students. Educators and policymakers must address disparities in technology access and ensure that AI integration complements, rather than replaces, human interaction in education. By fostering digital literacy and tailoring AI solutions to diverse needs, stakeholders can create more inclusive and effective learning environments. Looking ahead, the successful integration of AI in education will depend on balancing technological innovation with ethical considerations and cultural values.

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Authors' contributions

Dr. Aldaghri and Dr. Alshraa were responsible for study design and revising. Dr. Alshraa was responsible for data collection. Dr. Aldaghri was responsible for data analysis. All authors read and approved the final manuscript.

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References

- AbdAlgane M., & Jabir Othman, K. A. (2023). Utilizing artificial intelligence technologies in Saudi EFL tertiary level classrooms. *Journal of Intercultural Communication*, 23(1). <https://doi.org/10.36923/jicc.v23i1.124>
- Allmnakrah A. & Evers, C. (2020). The need for a fundamental shift in the Saudi education system: Implementing the Saudi Arabian Economic Vision 2030. *Research in Education*, 106(1), 22-40. <https://doi.org/10.1177/0034523719851534>
- Almekhlafy, S. S. A. (2020). Online learning of English language courses via blackboard at Saudi universities in the era of covid-19: Perception and use. *PSU Research Review*, 5(1), 16-32. <https://doi.org/10.1108/PRR-08-2020-0026>
- Alshehri, A. (2023). *Attitudes and perceptions of Saudi students towards their non-native EMI instructors*.
- Amershi, S., Cakmak, M., & Knox, W. B., et al. (2014). Power to the people: The role of humans in interactive machine learning. *AI Magazine*, 35(4), 105-120. <https://doi.org/10.1609/aimag.v35i4.2513>
- Clabaugh, G. K. (2010). The educational theory of Lev Vygotsky: A multi-dimensional analysis. *New Found*, 1-18.
- Creswell, J. W. (2014). *A concise introduction to mixed methods research*. Sage Publications.
- Holmes, W., Bialik, M., & Fadel, C. (2019). Artificial intelligence in education. In *Encyclopedia of education and information technologies* (pp. 88-103). Cham: Springer International Publishing. https://doi.org/10.1007/978-3-030-10576-1_107
- Idham, A. Z., Rauf, W., & Rajab, A. (2024). Navigating the transformative impact of artificial intelligence on english language teaching: Exploring challenges and opportunities. *Jurnal Edukasi Saintifik*, 4(1), 8-14. <https://doi.org/10.56185/jes.v4i1.620>
- Jamshed, M., Alam, I., Al Sultan, S. et al., (2024). Using artificial intelligence for English language learning: Saudi EFL learners' opinions, attitudes and challenges. *Journal of Education and E-Learning Research*, 11(1), 135-141. <https://doi.org/10.20448/jeelr.v11i1.5397>
- Khan M. B., & Iqbal, S. (2020). Vision 2030 and the national transformation program. In *Research, Innovation, and Entrepreneurship in*

- Saudi Arabia, 146-166, Routledge. <https://doi.org/10.4324/9781351040020-7>
- Kim, S. W., & Lee, Y. (2024). Investigation into the influence of socio-cultural factors on attitudes toward artificial intelligence. *Education and Information Technologies*, 29(8), 9907-9935. <https://doi.org/10.1007/s10639-023-12172-y>
- Lantolf, J. P., Thorne, S. L., & Poehner, M. E. (2014). Sociocultural theory and second language development. In *Theories in Second Language Acquisition*, 221-240, Routledge.
- Mariam, G., Adil, L., & Zakaria, B. (2024). The integration of artificial intelligence (AI) into education systems and its impact on the governance of higher education institutions. *International Journal of Professional Business Review: Int. J. Prof. Bus. Rev.*, 9(12), 13. <https://doi.org/10.26668/businessreview/2024.v9i12.5176>
- Martínez, R. (2016). English as a medium of instruction (EMI) in Brazilian higher education: Challenges and opportunities. *English in Brazil: Views, Policies and Programs*, 191-228.
- Najmiddinova, G. (2024). The integration of artificial intelligence (AI) into education system. *Tamaddun Nuri Jurnal*, 12(63), 34-37. <https://doi.org/10.69691/r1bx4f56>
- Novawan, A., Walker, S. A., & Ikeda, O. (2024). The new face of technology-enhanced language learning (TELL) with artificial intelligence (AI): Teacher perspectives, practices, and challenges. *Journal of English in Academic and Professional Communication*, 10(1), 1-18. <https://doi.org/10.25047/jeapco.v9i1.3754>
- Patty, J. (2024). The use of ai in language learning: What you need to know. *Jurnal Review Pendidikan dan Pengajaran (JRPP)*, 7(1), 642-654.
- Prensky, M. (2001). Digital natives, digital immigrants. *On the Horizon*, 9(5), 1-6. <https://doi.org/10.1108/10748120110424816>
- Rahmadani, D. (2016). Students' Perception of English as a Medium of Instruction (EMI) in English Classroom, *Journal on English as a Foreign Language*, 6(2), 131-144. <https://doi.org/10.23971/jevl.v6i2.432>
- Selwyn, N. (2016). *Education and technology: Key issues and debates*. Bloomsbury Publishing. <https://doi.org/10.5040/9781474235952>
- Stein, J. P., Messingschlager, T., & Gnambs, T., et al., (2024). Attitudes towards AI: Measurement and associations with personality. *Scientific Reports*, 14(1), 2909. <https://doi.org/10.1038/s41598-024-53335-2>
- Susskind, J. (2018). *Future politics: Living together in a world transformed by tech*. Oxford University Press.
- Topol, E. J. (2019). High-performance medicine: The convergence of human and artificial intelligence. *Nature Medicine*, 25(1), 44-56. <https://doi.org/10.1038/s41591-018-0300-7>
- Venkatesh, V., Morris, M. G., & Davis, G. B., et al. (2003) User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 425-478. <https://doi.org/10.2307/30036540>
- Vygotsky L. S., & Cole, M. (1978). *Mind in society: Development of higher psychological processes*. Harvard University Press.
- Warschauer, M. (2011). *Learning in the cloud: How (and why) to transform schools with digital media*. Teachers College Press.
- Yuksel, D., Dikilitas, K., & Webb, R., et al., (2024). Exploring EMI students' attitudes towards translanguaging and English language proficiency threshold across different disciplines. *International Journal of Bilingual Education and Bilingualism*, 1-17. <https://doi.org/10.1080/13670050.2024.2446561>
- Zhang, Y., Sun, S., & Galley, M., et al. (2020). Dialogpt: Large-scale generative pre-training for conversational response generation *Arxiv Preprint Arxiv:1911.00536*. <https://doi.org/10.18653/v1/2020.acl-demos.30>