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AI-INFUSED IMMERSION: CULTIVATING EFL LEARNERS' INTERCULTURAL SENSITIVITY THROUGH GOOGLE'S GEMINI AI CHATBOT

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Abstract: The pace of change in the 21st century is unprecedented. Some skills have fallen from favour while others have rapidly become obsolete. Intercultural sensitivity is among the needed competencies in this era. It guarantees effective intercultural communication in multicultural and plurilingual communities. Individuals with good levels of cultural awareness, empathy, openness, and sensitivity represent a highly desired social profile. Henceforth, this inquiry investigates the influence of using Google's Gemini AI ChatGPT on cultivating EFL learners' intercultural sensitivity. It follows a quasi-experimental mixed methods design with a single case study of 8 EFL third-year students from the University of Guelma, Algeria. The study contains a quasi-experiment which covered 8 sessions, 2 hours per each, in which 6 themes were covered. To measure learners' intercultural sensitivity, Chen and Starosta's (2000) intercultural sensitivity scale is adopted as a pre and posttest. The treatment also included a focus group discussion after completing the intervention. The quantitative analysis of the scale using the Wilcoxon signed-ranks test unveils a significant difference in pre and posttest results as learners excel from moderate to high level of intercultural sensitivity. The qualitative thematic analysis of focus group discussion reveals that learners developed their cultural knowledge, attitudes, and awareness, and became more ethnorelative. Thus, the findings support the alternative hypothesis which implies that the use of Gemini AI's ChatGPT cultivates learners' intercultural sensitivity. Eventually, this inquiry outlines a set of pedagogical recommendations for fostering intercultural sensitivity and AI integration in the Algerian EFL classroom.

Keywords: Artificial intelligence; Gemini, Gemini's AI chatbot; intercultural education; intercultural sensitivity.

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1. Introduction

Accrediting globalization and technological advancements down to the 21st century, unprecedented waves of social mobility and immigration have been circulating the globe. Hence, such waves have brought people from diverse linguistic and cultural backgrounds together. Both virtual and in-person intercultural communication taking part between these people has become more frequent (Risager, 2006). However, this change in communication patterns needs individuals with heightened levels of cultural awareness, empathy, openness, tolerance, and sensitivity towards others. Over the recent years, growing attentiveness has been given to the role of intercultural education in forming individuals who would fit as global citizens. Educational classrooms are fertile settings for nurturing this set of intercultural competencies (Guilherme, 2002). Such education helps learners, especially EFL learners, to develop their cultural knowledge, cultural attitudes, intercultural skills, and cultural awareness to be able to communicate in diverse sociocultural milieus (Feng, 2009; Byram, 2021). At the crux of any effective intercultural communication lies a high level of intercultural sensitivity (ICS) on the part of interlocutors; ICS qualifies people to understand and accept cultural divides. Not having a good level of ICS hinders the effectiveness of intercultural communication by raising potential conflicts and misunderstandings (Chen & Starosta, 1997).

A wide range of empirical studies on fostering EFL learners' ICS have been conducted. Tirnaz and Narafshan (2020) have investigated the influence of analyzing cultural TV advertisements on Iranian' EFL learners' ICS. Learners had the opportunity to compare and contrast diverse cultural patterns. The study yielded positive results as the ICS level of learners was improved. Another study by Bennouioua (2023) investigated the impact of analyzing critical incidents on Algerian EFL learners' ICS. The researcher's intervention proved that critical incidents do foster learners' ICS. Sellami (2025) investigated the impact of storytelling circles on fostering Algerian EFL learners' ICS. Eventually, it was found that storytelling is a good cultural technique to foster ICS as learners were allowed to negotiate and reflect on cultural divides. Hagley (2020) surveyed the impact of virtual cultural exchange programmes on Japanese EFL learners' ICS. It was found that such programmes helped learners acquire a set of intercultural competencies. These studies and many more have tried different treatments to foster EFL learners' ICS. Nevertheless, no studies on fostering this complex competence through the use of artificial intelligence (AI) chatbots were found. Research on the integration of AI in intercultural education is still in its infancy despite its significant impact on foreign language learning/teaching (Chen et al., 2022; Jaing, 2022). AI use in education enhances learners' linguistic competence as it helps them monitor and evaluate their written productions and improve their oral skills (Dale & Viethen, 2021). Not only empowering foreign language learning through its diverse applications, AI also fosters EFL learners' critical thinking (Baidoo-Anu & Ansah, 2023). Intercultural competencies are seldom considered in EFL classrooms due to some personal and pedagogical considerations on the part of EFL teachers (Sellami, 2024a). Henceforth, this study addresses that gap. It seeks to investigate the impact of using Gemini AI's ChatGPT on EFL learners' intercultural sensitivity as no research on using Gemini AI's ChatGPT in intercultural education is found. This inquiry would be an opportunity to address this research gap. In light of these research aims, the following research questions need meticulous answers:

RQ1: Does the use of Gemini's AI ChatGPT to negotiate cultural divides cultivate Algerian EFL learners' intercultural sensitivity?

RQ2: What is the set of intercultural competencies learners would develop as a result of using Gemini's AI ChatGPT in intercultural experiential learning?

In light of the above research aim and questions, we hypothesize that:

H_0: If EFL learners use Gemini's AI ChatGPT to negotiate cultural divides this would not cultivate their intercultural sensitivity.

H_1: If EFL learners use Gemini's AI ChatGPT to negotiate cultural divides this would cultivate their intercultural sensitivity.

2. Literature Review

2.1 Intercultural Education in EFL Settings

Given the inexorable bond between language and culture, integrating elements of culture in the EFL setting is indispensable (Chen & Le, 2019). Markedly, with the advent of globalization, developing EFL learners' set of intercultural competencies has become a quintessential target to attain (Liu, 2020). Given the multicultural and plurilingual quiddity of today's communities, learners are supposed to understand and negotiate cultural divides, act appropriately and effectively in intercultural encounters, and develop a sense of openness towards otherness (Tomalin & Stempleski, 1994). Nowadays foreign language education has veered from developing students' linguistic and communicative competencies aside to making them global citizens by nurturing their intercultural competencies. Having this presumption in mind, learners are supposed to master elements beyond language structure. That is, they have to gain an understanding that language use is a sociocultural complex and fluid process that demands mastery of knowledge and skills beyond linguistic resources (Krasner, 1999). This perspective surpasses the seminal view of language use which restricts it to a codified system to be learned and moves further to embrace meta-elements like beliefs, ideologies, and cultural behaviours in sociocultural settings (Kramsh, 2009; Risager, 2007; Liddicoat, 2020). The latter is attained through systematic intercultural education (Newton et al., 2010).

Intercultural education (henceforth IE) is a pedagogy which aims primarily at raising learners' awareness of cultural diversity and variability of language use across various sociocultural milieus (Holliday, 2011). It lies in the impulses of intercultural communicative learning, that is, it encourages learners to understand, negotiate, question, and reflect on cultural divides instead of spoon-fed them with isolated cultural knowledge (Zhang, 2007). IE comes to realize practically some of the 21st-century principles, i.e., it comes to preparing EFL learners to be effective individuals inside and outside the classroom. Having sufficient cultural knowledge, positive cultural attitudes, intercultural skills, and critical cultural awareness uplifts learners to possess intercultural competence which would help them to act appropriately in any sociocultural setting other than theirs (Barrett & Golubeva, 2022).

Throughout history, intercultural education was taught structurally through a reductionist view of culture. IE was restricted to superficial teaching of aspects of culture from the target and source cultures only; in most cases, culture teaching was based on a mere comparison between both. Such a superficial paradigm of culture neglected the cruciality of critically understanding and negotiating aspects of culture. The latter has fallen from favour due to its narrow scope and shortcomings and was replaced by intercultural communicative learning (Chen & Le, 2019). Intercultural communicative learning, unlike the seminally reacted against pedagogy of culture, promotes procedural cultural knowledge instead of declarative cultural knowledge. In other words, it stresses using one's cultural knowledge to communicate effectively instead of only knowing about culture(s) (Chen & Le, 2019).

Following the same line of thought, IE puts weight on helping learners develop their cultural awareness, understand the ubiquitous and multifaceted nature of culture, and reflect and question cultural divides instead of memorizing cultural knowledge as rigid facts (Gashi, 2021). Having said this, IE sets culture teaching jail-free from narrowing the giant entity of

culture to its national boundaries. That is to say, a cultural aspect is not a robe worn by everyone unexceptionally, different people might have different cultural preferences despite belonging to the same cultural community (Dervin & Clark, 2014). This essentialist paradigm of culture is by now surpassed due to its deficiency in preparing learners to be global citizens, hence, it is replaced by a non-essentialist paradigm of culture. The latter focuses on making learners competent intercultural communicators by instructing them on different cultures instead of restricting culture teaching to the native-speakerism model, teaching Anglophone cultures in the case of EFL classes for instance (Baker, 2022). It is worth noting that this study follows the non-essentialist paradigm of culture in cultivating learners' intercultural sensitivity. Intercultural sensitivity is better cultivated through this paradigm of culture to ensure learners' competency in diverse sociocultural millies (Sellami, 2024b; Sellami, 2025).

2.2 Understanding Intercultural Sensitivity

Intercultural education incarnated its cardinal principle of making learners interculturally competent into 5 perspectives in the EFL settings. The first perspective promotes the development of EFL learners' sociolinguistic competence (Canale & Swain, 1980), the second and third perspectives stress cultivating learners' intercultural communicative competence (Byram, 1997) and intercultural sensitivity (Bennett, 1986), the fourth perspective promotes global citizenship education (Byram, 2008), and the fifth one concerns the preparation of learners' to adapt a third position as speakers, i.e., to make them cross-cultural mediators (Kramsh, 1993; 1998). These different perspectives align with the ultimate aim of helping learners develop their linguistic, pragmatic, and sociocultural competencies which would allow them to act fitly in diverse sociocultural millies. For this study, the third perspective which is intercultural sensitivity is put under scrutiny.

Intercultural sensitivity (ICS) is a focal aspect of any intercultural education program. The construct holds both broad and specified conceptions. In its broad definition, ICS is delimited as having positive (re)actions towards cultural diversity (Bhawuk & Brislin, 1992; Straffon, 2003). In its specified conception, ICS is the gradual change from being extremely ethnocentric to becoming more ethnorelative. In simple words, moving from a position of evaluating other cultures from the standpoint of one's culture and reckoning that one's culture is superior to other cultures to understanding and accepting cultural diversity (Bennett, 1986; 1993). ICS is also defined from two different yet complementary angles. Hammer et al., (2003) view ICS as a purely cognitive process of internalizing, accepting, and respecting cultural divides. Chen and Starosta (1997) postulate that ICS accumulate both affective and behavioural domains, i.e., it encompasses holding positive emotions and attitudes towards cultural differences and accordingly acts fitly in intercultural encounters. These two conceptions of ICS might seem different yet they complete one another.

Intercultural sensitivity is a bedrock component in any intercultural communication. It facilitates interaction by helping one to comprehend the sociocultural realities of others and, thus, be able to interact with them (Anderson et al., 2006; Bennett, 2017). To attain this aim, ICS can be cultivated in educational settings, hence, some models of ICS have been proposed so far. The widely acknowledged model of ICS is the one by Bennett (1993). In this study two models of ICS were adopted, the one by Bennett and the one by Chen and Starosta (2000). The following section contains an ample explanation of both models.

The ICS model of Bennett (1993) places one's responses and experiences with intercultural differences in a continuum of two ends, the first end includes ethnocentrism as an initial state, while the other end includes ethnorelativism as a final state. Ethnocentrism contains three consecutive stages: denial, defence, and minimization. Similarly, ethnorelativism includes three stages: acceptance, adaptation, and integration. One with no

ICS is placed at the denial stage, while one who is, to a good extent, interculturally sensitive is placed at the integration stage. Within the first stage of ethnocentrism, as its name implies, cultural differences are denied by learners, i.e., learners do not recognize cultural divides. Once the denial stage is surpassed, cultural differences become visible to learners yet still negatively perceived. By time the stage of minimization takes place when learners jail-free themselves from negative perception of cultural differences. Ethnocentrism is overcome when all these three stages are surpassed, herein, the consecutive stages of ethnorelativism take place. Within the first stage of ethnorelativism learners get to accept cultural differences, followed by the adaptation stage where they get to nurture their intercultural set of competencies then in the last stage they start to customize their behaviours in sociocultural settings other than theirs (Bennett, 2017).

Chen and Starosta's (2000) model of ICS delineates three domains one must possess to be uplifted as being interculturally sensitive: cognitive, affective, and behavioural domains. The cognitive domain conditions having a heightened level of awareness of cultural differences. The affective one concerns having positive attitudes towards other cultures, i.e., being open, empathetic, and non-judgmental towards cultural divides. The behavioural domain is the realization of the preceding ones in real intercultural encounters, that is, using one's knowledge and positive attitudes to adjust behaviours, verbal and nonverbal behaviours, in different intercultural communications (Chen & Starosta, 1996). By acquiring these domains one is more likely to "promotes intercultural awareness, appropriateness, and understanding" (Sellami, 2025, p.230). In simple terms, having ICS allows one to be culturally aware of cultural divides, behave appropriately in different intercultural encounters, and have a sufficient understanding of the complexity of culture and cultural diversity.

2.3 The Advent of Artificial Intelligence to Foreign Language Education

Artificial intelligence (henceforth AI) is a buzzword down to the 21st century's digital revolution. Before venturing into a thorough account of AI penetration in foreign language education, it is wiser to define it first. AI is a tech-based computer system which imitates human intelligence and sometimes exceeds it in understanding and processing huge amounts of data in a limited duration; it not only simulates human intelligence but also capacities through the application of computer-based technology (Zein, 2000). AI invention assumes tasks which were once performed only by a human, i.e., generated only by human intelligence. In a similar conception, AI is postulated as a tech advancement which replicates human cognitive abilities, that is, it is the ability of a device to reckon and cognitively operate as a human (Wang, 2019; Qoura & Elmansi, 2023). Infusing AI into different devices allows them to make rational decisions, learn, reason and solve problems like humans (Tredinnick, 2017; Stone et al., 2016). Simply put, AI is a system which uplifts machines to have human-like intelligence and capacities to operate similar tasks and perform identical cognitive processes.

Having the ability to mimic human intelligence made AI a top-tier force which comes to (re)shape many fronts of human life, and education is no exception. The unprecedented advances in AI technology condition its inclusion in the field of education, especially foreign language education. As postulated by Pikhart (2020), AI inclusion in language learning/teaching serves the demands of this era by promoting competitiveness and sustainability in wider contexts. Through using different AI tools in language learning classes, a set of aspirations is noticed. AI tools help in leveraging a personalized learning experience for learners. Eventually, such tools help learners develop their autonomous learning (Pokrivcakova, 2019). These tools offer learners a great deal of flexibility in which they can tailor personalized instructions, and give immediate feedback (Chan & Tsi, 2023).

The infiltration of AI tools into language learning serves in four areas: in the classroom for learning, to prepare homework and lessons, for examinations and grading, and for personalized feedback and correction of students' productions (Lee, 2018). These offers make AI-based learning a way to satisfy learners' needs, wants, and preferences as it gives them the free will to customize their learning journeys (Zhao & Nazir, 2022). In the EFL settings, research has shown that AI use helps in nurturing learners' linguistic skills as it gives them a space to generate output and process input in a personalized manner (Chemire & Kitila, 2022). The natural language processing (NLP) quiddity of AI leverages learners' language skills as it allows them to acquire a plethora of lexical items, internalize some grammatical patterns, and develop their speaking (sub)skills (Vera, 2023). This technology, therefore, comes to refine the teaching methodologies by providing a fresh breath to the classroom far from seminal pedagogies which no longer interest learners of Z and Alpha generations.

AI offers a series of tools dedicated to instructional and non-instructional purposes. The former category includes, but is not restricted to, Duolingo app, Babbel, Rosetta Stone, Quizlet, and Grammarly which are interactive language-learning applications and proofreading. In addition to chatbots like Chatgpt, Gemini, and DeepSeek. Chatbot, in common parlance, is a conversational agent based on a computerized system which functions as a colloquist between the user and the bot. Chatbots do assist humans virtually by helping them with their inquiries (Gupta & Hathwar, 2020). Using AI chatbots in daily life has drastically emerged in the few last years to facilitate tasks. This utility is transferred to language learning as well. Integrating chatbots in learning has offered learners a space where they can ask for information, solve problems, suggest guidance, complete tasks, and many more (Shihatah, 2022). The core of this research is the ChatGPT of Google Gemini. Hence, it investigates the possible effect of Google's Gemini ChatGPT on learners' intercultural sensitivity development.

Gemini is a multimodal language model which has the capability to interact with a large number of inputs in their different modes of representation, namely, texts, images, audio, videos, and many more (Imran & Almusharraf, 2024). Gemini is the latest DeepMind AI model launched by Google in December 2023 which is characterized by Visual Language Model (VLM) technology and Natural Language Processing (NPL) (Coles, 2023; Farrokhnia et al., 2023). Given its robust nature, the different functions of Gemini help users learn foreign languages, get scrutinized and multi-optional responses to their inquiries and have open conversations on any topic (Nyaaba, 2023). Such features are empowered by the flexibility Gemini enjoys as it has the ability to search on Google search engines to process data and provide answers to users' inquiries (Portakal, 2023). The services provided by Gemini make it a contender in language education as it helps in presenting personalized learning to learners, provides innovative solutions to problems, makes learning dynamic, and fashion appropriate feedback to learners (Perera & Lankathilaka, 2023; Saeidnia, 2023). The top-tier feature of Google Gemini is that it relies on evidence-based reasoning, i.e., it is twofold: neutral and bases its output on solid shreds of evidence (Nyaaba, 2023). Not only catering for learners' needs, styles, and preferences, but Gemini also is a safe hand for teachers as it helps them in their lesson preparation, assignments, worksheets, material generation, and suggestions for innovative activities and tasks (Team et al., 2023).

The great aspirations AI brings to language education do not exclude it from equally having some impediments. The overreliance on AI in education handicaps learners' critical thinking, problem-solving skills, and independent reasoning (Berrarbi & Amrane, 2025). Learners' tendency to rely on AI to perform different educational tasks limits the development of their critical thinking and problem-solving skills in which no cognitive efforts are spent to operate different tasks instead they become more dependent on such tools and creativity-free

(Smith & Johnson, 2020; Chelghoum & Chelghoum, 2025). Another impediment is the potential for bias existence in such tools' output. The blind absorption of content generated by AI might disseminate stereotypes and dis/misinformation to learners (Lee & Kim, 2019). These impediments need careful monitoring from both parties: teachers and students. When AI is used inside the classroom, it is the responsibility of the teacher to monitor learners on how to use it mindfully without allowing it to overcome their cognitive abilities, when used outside the classroom, learners must be aware that AI is meant to help not to replace them.

3. Methodology

3.1 Research Methodology

This inquiry aims to investigate the potential influence of using Gemini's AI ChatGPT to enhance EFL learners' intercultural sensitivity if used to engage them in intercultural experiential learning. Given the rich output AI chatbots provide, this makes them a source of cultural information. This would immerse learners into virtual experiential learning by exploring cultural divides through the help of the bot. To attain this aim, answer the aforementioned research questions, and verify the hypotheses of this research, this inquiry adopts a single intrinsic case study design for practical considerations. A single intrinsic case study design is deemed pivotal in treatments where the researcher seeks deep examination of a particular matter in a particular setting as it helps him/her in obtaining highly contextualized data (Hamilton et al., 2013; Simons, 2009). The use of mobile-assisted language learning in this research conditions the adaptation of a single case study so that the researcher can deliberately scaffold and monitor learners on the use of Gemini's AI chatbot, and at the same time negotiate cultural divides through their output. Having to make such an intervention with a normal intact group of 30 students or more is estimated impractical as it gives the researcher limited control over the site of her inquiry. This research also follows a quasi-experimental design. It was not possible to opt for a true experimental design since the sample of this study was conveniently assigned and not randomly selected. Additionally, a mixed-methods design was also adopted because the study contains both qualitative and quantitative tools of data collection.

3.2 *Participants of the Study*

This study targeted the population of third year students at Guelma University. The impetus which actuated addressing this population was twofold: first, it was found by Oumeddour (2023) and Sellami (2025) that this population lacks intercultural competence and intercultural sensitivity despite the integration of intercultural education in the yearly syllabus of the oral expression module. Second, this population was accessible to the researcher who was the teacher in charge of the module of oral expression of this level. However, working with the whole population was, by all means, impractical, hence, it was wiser to opt for a sample. Therefore, the sample of this research contained 8 students assigned conveniently from the chosen population. Participants took part in this study willingly, i.e., they were volunteers who had given their verbal consent to participate in the intervention (Cohen et al., 2018).

To ensure the validity of this research, threats to internal and external validity are considered. When the researcher asked for volunteers, many students showed interest in participation, however, the selection was random to preserve the validity of the research; that is, the selected participants were not chosen based on some qualities they have while others lack, instead they were randomly picked up for the study. The 8 participants were 6 females (P=80%) and 2 males (P=20%). They had the same age and studied the English language at the university for the same duration (2 years); their cognitive development is also deemed somehow identical due to their similar age category (Phakiti, 2014). These considerations set

the research far from having its validity questioned as its participants are chosen following the norms of scientific research and not the preferences of the researcher.

3.3 Data Gathering Tools

This research adopted both quantitative and qualitative tools of data collection. For the quantitative one, it adopts Chen and Starosta's (2000) Intercultural Sensitivity Scale (ISS), see Appendix **I**. This predesigned scale contains 24 items arranged on a 5-point Likert scale. The scale was used as a pre and posttest to assess the ICS level of learners before and after the treatment. Its items are classified into 5 dimensions: (1) interaction engagement (items 1, 11, 13, 21, 22, 23, and 24), (2) respect for cultural differences (items 2, 7, 8, 16, 18, and 20), (3) interaction confidence (items 3, 4, 5, 6, and 10), (4) interaction enjoyment (items 9, 12, 15), (5) and interaction attentiveness (items 14, 17, and 19). Besides this scale, the intervention contained some reflection activities which were adopted as progress tasks, namely, intercultural incidents analysis, and stereotypes posters.

The study also adopted a focus group discussion (FGD) after completing the intervention and administering the ISS posttest. FGD is a data collection procedure that is identical to an interview, yet it is done with a group of people under the supervision of a monitor who guides the discussion on a specific topic. It joins people who have been through the same situation to converse about and reflect on their personal experiences (Cohen et al., 2018; Bryman, 2012). This method allowed the research to gain deep insights into the application of AI in intercultural education. The questions of the FGD followed the Kirkpatrick 4 levels model of course evaluation (1959): reaction, behaviour, learning, and result. Participants had to reflect on their reactions to the experience, their changed behaviours, what they learned from it and the overall outcomes of the experience (Tomkin et al., 2002). That is, the FGD is built on these 4 levels to let participants reflect on their shared experience of learning through Gemini's chatbot.

3.4 Procedures of Data Analysis

The study contained both quantitative and qualitative procedures of data analysis. The analysis of the ISS fell under the quantitative one. Both descriptive and inferential statistics using SPSS version 26 were conducted. Descriptively, both pre and posttests had their central tendency (the mean) calculated. Inferentially, the Wilcoxon signed-ranks test for related samples was run. The choice of this test coincides with the fact that the study contains only one group not two or more, that is, it is not relevant to opt for tests for independent samples like the T-test or the Mann-Whitney U test which are used to contrast results between two groups or more while the study contains one sample. Therefore, the choice of this test is deemed statistically relevant. For the FGD, qualitative thematic analysis is adopted.

3.5 The Experiment

The quasi-experiment of this scrutiny covered 8 sessions, 2 hours per each. Six major themes were covered: (1) Understanding culture and cultural practices, (2) delimiting one's cultural identity, (3) revising one's held stereotypes and prejudices about oneself and the imagined other, (4) navigating verbal and non-verbal codes across cultures, (5) negotiating diverse cultural values and norms worldwide, (6) the variability of worldviews worldwide. Personalized learning lay in the impulses of this experiment, i.e., classroom discussions were based on the input and output learners generated as a result of their interaction with Gemini's AI chatbot. Learners, under the supervision of the researcher, were asked to insert particular input into their chatbot, that is, they were not control-free at the onset of the treatment, gradually, they had the free will to insert their own input; in both stages, learners were always asked to share their output with their colleagues to be discussed and evaluated. Their input

most of the time contained some questions on cultural knowledge, for instance, they asked the ChatGPT to provide them with cultural practices/traditions of diverse cultures, analysis of particular intercultural situations, or comparison between some cultural items, differences between weddings in Eastern and Western cultures for instance.

The small number of participants helped tremendously in reviewing all their output. Gemini's AI ChatGPT helped learners with sufficient cultural knowledge to understand the multifaceted quiddity of culture and various cultural practices, it helped them to realize their held stereotypes about themselves and others, and comprehend cultural divides and cultural values, norms, and worldviews variability worldwide. Learners with the assistance of Gemini's AI ChatGPT were able to negotiate cultural differences, analyse some critical intercultural incidents proposed by the AI chatbot, and engage in hypothetical cultural situations where they get to develop their intercultural skills. A case in point, when navigating the variability of verbal and nonverbal codes across cultures, the AI ChatGPT first provided learners with knowledge on the use of those codes followed by a lot of examples from different cultures, later learners were asked by the researcher to ask the ChatGPT for hypothetical situations where they can deploy their gained cultural knowledge. It is pivotal to note that the researcher always engaged the participants in critical discussions before, during, and after using the AI ChatGPT to help learners (de/re)construct their cultural knowledge, adjust their cultural attitudes, and gain some shades of critical cultural awareness. Learners were also provided with some reflection tasks to perform in and out of the classroom. Illustrating by, they were asked to prepare stereotypes posters on different stereotypes they held after completing the third theme, they were also given some critical intercultural incidents to analyse when the sixth theme was treated. These tasks are designated to allow learners to reflect on their gained set of intercultural competencies which would allow them to move from ethnocentrism to ethnorelativism states. Table 1 provides a synopsis of the content of the experiment.

Table 1. *Content of the Intercultural Course*

Unit	Objective(s)	Progress Tasks
1. Understanding culture and cultural practices	To help learners understand the complex nature of culture and the diversity of cultural practices worldwide.	********
2. Delimiting one's cultural identity	To help learners recognize their cultural identity and the cultural identities of others.	********
3. Revising one's held stereotypes and prejudices about oneself and the imagined other	To help learners recognize and revise stereotypes they have about themselves and people from other cultural backgrounds.	Stereotypes Posters
4. Navigating verbal and non-verbal codes across cultures	To familiarize learners with the diversity of verbal and nonverbal codes use across cultures.	********
5. Negotiating diverse cultural values and norms worldwide	To raise learners' awareness of cultural values/norms variability.	********
6. The variability of worldviews worldwide	To help learners comprehend the diverse perspectives different people have across cultures.	Analysis of Critical Intercultural Incidents

4. Results

The statistical analysis of the intercultural sensitivity scale (ISS) was carried out using the Statistical Package for Social Sciences (SPSS) version 26. Two phases of data analysis were executed. The first phase contained a descriptive analysis of the ISS pre and posttests in which the central tendency (Mean) of the test items was calculated. The results obtained from this statistical analysis are evaluated against an already existing evaluation scale proposed by Wattanavorakijkul (2020), see Table 2. The second phase of statistical analysis contained hypothesis-testing inferential statistics of the ISS posttest in which the Wilcoxon-signed rank test for related samples was performed to retain/refute the hypotheses of this inquiry. This section also includes data analysis and interpretation of the FGD following a qualitative thematic analysis.

Table 2.

Evaluation of Interval Means' Results

Interval Means	*Evaluation*
[1.00- 1.80[	Very low ICS
[1.81- 2.60[	Low ICS
[2.61- 3.40[	Moderate ICS
[3.41- 4.20[	High ICS
[4.21- 5.00[	Very High ICS

4.1 Descriptive Statistics of Intercultural Sensitivity Pretest

Table 3.

Descriptive Statistics of ICS Pretest

ICS Dimensions	*Central Tendency (Mean)*	*Evaluation*
Interaction engagement	2.78	Moderate ICS
Respect for cultural differences	3.13	Moderate ICS
Interaction confidence	2.24	Low ICS
Interaction enjoyment	3.3	Moderate ICS
Interaction attentiveness	2.28	Low ICS
Overall ICS	2.74	Moderate ICS

Table 3 demonstrates the results of participants' ICS level before the treatment. The obtained results for all ICS dimensions are restricted between low and moderate levels of ICS. Both interaction confidence (M=2.24) and interaction attentiveness (M=2.28) scored low compared to the other dimensions which scored moderately: interaction engagement (M=2.78), respect for cultural differences (M=3.13), and interaction enjoyment (M=3.3). As can be seen, participants of the study were not enjoying a good level of ICS as their overall ICS level before launching the treatment was moderate (M=2.74). These results highlight the need to foster this essential 21st-century skill.

4.2 Thematic Analysis of the Focus Group Discussion

The FGD took place after covering all themes of the intervention and before administering the ICS posttest. The FGD took approximately 50 minutes with six students who voluntarily chose to take part in the discussion. As mentioned earlier, the questions of the FGD were based on the four levels of Kirkpatrick's (1959) model of course evaluation: reaction, behaviour, learning, and overall outcome. The ultimate aim of the FGD is to allow learners to reflect on their modest experience of using AI in education, in general, and in intercultural education, in particular. It also allows for answering the second research question. Under the auspices of content analysis, four major themes have emerged from learners' FGD.

- *Appreciation of the Course Novelty and AI-based Learning*

The intercultural course dedicated to learners was novel to them. Despite having studied the module of civilization for three years, counting the year of the experiment, learners never had such a systematic intercultural education. As reported by a student, '*I have always thought that culture is something basic we know everything about it but now I can see how complex it is, maybe because we were never taught about it this way*'. Similarly, another student said, '*learning about culture and cultural differences was beneficial and interesting, it was an unexploited area by me, now am fully interested to know and learn more about this*'. As it is observed, intercultural education is seldom incorporated, if incorporated, in this EFL setting despite its promising role in preparing learners for international communication. The experiment, despite being conducted with a few number of students, was an opportunity to cultivate this area for those who undertook the treatment.

Learners also appreciated the use of AI in their classes. They are accustomed to using it out of class when they need scaffold, but never inside the classroom. Quoting a participant, '*the experience was really new and enjoyable, using Gemini ChatGPT was unexpected as AI is still not integrated into our classes; teachers tell us about its importance but they never include it'*. Learners also found the use of Gemini ChatGPT to be a good instructional strategy for learning about diverse cultures. They further highlighted that being monitored when using the bot is more effective than using it individually, a student said, '*I usually use Chatgpt, not Gemini for help, but for both cases, being monitored and having someone to discuss your search results with was a good thing that I enjoyed to the fullest*'. As noticed, the efficiency of AI use in EFL classes depends on the teacher's role as a monitor. Through this, the learning journey would offer similar learning opportunities for all learners, i.e., learners would receive/produce the same input/output as AI usually offers highly personalized learning which cannot be monitored distantly.

- *Acquisition of Cultural Knowledge*

The content of the treatment has ameliorated the cultural knowledge of participants. Prior to the treatment, learners had a basic understanding of the construct of culture and its elements. It was regarded by them that culture is restricted only to rituals and traditions. They were neither familiar with the ubiquitous nature of culture nor with the complexity of cultural identities. A participant reported, '*I personally thought that culture is the way we eat and dress, and our practices in fiestas and religious events'*. This superficial understanding of culture was somehow mitigated by the treatment as reported by a participant, 'I *am now more aware of what is culture and what is not, I got to know that culture is everything and everywhere, we are guided by our culture*'. Besides understanding the construct of culture and negotiating cultural identities, learners were able to know and understand elements of culture and their variability. They had to know how verbal and non-verbal codes differ across cultures, worldviews are not the same worldwide and values and norms are not shared by the human race. To illustrate, a student manifested, '*I did not know much about nonverbal codes, I used*

to think that we all exhibit similar codes in all situations', another one added, '*it is interesting to know that some norms, which we find desired, people think they are exotic and vice versa! Am finding such topics eye-opening*'. These shreds of evidence and many more mirror the efficiency of the treatment in cultivating learners' cultural knowledge. The latter is a bedrock component in intercultural education.

- *Adjustment of Cultural Attitudes*

A focal aim of the treatment was to adjust learners' negative attitudes and engender in them a sense of openness towards otherness, and respect for cultural and religious differences. The treatment, as reported by participants, influenced their empathy, tolerance, respect, and curiosity. These are the most important dimensions of cultural attitudes. A student reported, '*I used to laugh at Indians' wedding ceremonies that last very long, now I just find them normal; ours might seem exotic to them as well!*'. This response mirrors cultural respect as noted by Barrett (2024), cultural respect resides at the top of the attitudes' hierarchy. Besides cultural respect, curiosity was also engendered in learners as they found topics related to culture intriguing, a participant said, '*by now am very curious to explore other worldviews and beliefs, it is just I wanna make a touristic tour to discover all cultures and subcultures, and to converse with people from different cultures'*. It is praiseworthy to mention that having positive cultural attitudes resembles the first step in being interculturally sensitive, i.e., they allow learners to understand and accept cultural differences instead of judging them from the lens of their culture.

- *A move from Ethnocentrism to Ethnorelativism*

The cardinal aim of cultivating intercultural sensitivity is to help learners move from an ethnocentric state to an ethnorelative one. By being ethnorelative, one starts to consider the multiplicity of perspectives and does not evaluate other cultures from one's perspective. The FGD has revealed that learners gained some shades of ethnorelativism in which they started to put themselves in the shoes of others, a student said, '*it feels like there is number 9 between me and another person, he sees it as 6 and I see it as 9! Did you get me? This is how it feels to try to understand why people of X culture do this and that and what meaning do they attribute to their cultural practices, I think both options '9 and 6' are correct, we only need to understand what people see not what do we see! As commonly said: 'we all have the same eyes, but none of us has the same vision*'. This long quote from a participant reflects the good level of cultural awareness learners have developed. Another student added, '*not only when discussing culture, but the norm is to respect and understand diverse life perspectives. People on social media always make fun of cultural practices, including me myself sometimes, now I just wanna understand and coexist'*. On evaluating one's culture and other cultures, some learners maintained their reckoning that their culture is the best, a student said, '*well, I can tell that all cultures are unique, indeed, but still our Algerian culture is the best'*, this complexity of superiority vs inferiority is normal, everyone by nature thinks his/her culture is the best, yet such attitude must be surpassed because it blocks the line of communication in intercultural encounters. Others moved beyond this superficial judgment to embrace a critical and objective evaluation as noted by a student, '*if I detach myself from this talk, I'd say that nothing is perfect in life, including cultures, they all have good and bad aspects. I think cultures have to be understood and enjoy knowing about not judge if a culture is superior or inferior to another, such a comparison is unfair*'. Being ethnorelative echoes having a good level of intercultural sensitivity. This tendency helps learners develop positive cultural attitudes, gain cultural understanding and awareness, besides a set of intercultural skills they need in real intercultural encounters. These qualities are the forces set at play in intercultural communication as they ensure the success or the failure of such encounters.

4.3 Descriptive and Inferential Statistics of Intercultural Sensitivity Posttest

4.3.1 Descriptive Statistics of Intercultural Sensitivity Posttest

Table 4.

Descriptive Statistics of ICS Posttest

ICS Dimensions	***Central Tendency (Mean)***	***Evaluation***
Interaction engagement	3.38	High ICS
Respect for cultural differences	4.11	High ICS
Interaction confidence	3.36	Moderate ICS
Interaction enjoyment	4.13	High ICS
Interaction attentiveness	3.19	Moderate ICS
Overall ICS	3.63	High ICS

Table 4 proffers participants' ICS posttest descriptive results. As exhibited in the above table, all ICS dimensions received an increment in their central tendency value as results are restricted between moderate and high compared to the ones of the pretest which were restricted between low and moderate levels. Interaction confidence (M=3.36) and interaction attentiveness (M=3.19) moved from low ICS level to moderate ICS level. Although there is an improvement in these two dimensions still it is not sufficient. The remaining three categories: interaction engagement (M=3.38), respect for cultural differences (M=4.11), and interaction enjoyment (M=4.13) moved from moderate ICS level to high ICS level. None of the dimensions remained stalemate or moved to a very high ICS level. These results mirror the effect the treatment had on learners' intercultural sensitivity. The overall level of ICS at the termination of the treatment is high (M=3.63) with a moderate mean difference of (MD=0.89).

4.3.2 Inferential Statistics of Intercultural Sensitivity Pre and Posttest

To verify hypotheses, inferential statistics are run. For this inquiry, the Wilcoxon Signed-ranks test was adopted. The choice of this test aligns with the fact that this inquiry adopted a single case study in which the comparison is done for related not independent samples, i.e., between the same group before and after the treatment and not between two groups. The choice of this test is also related to its non-parametric nature. The ICS scale designed by Chen and Starosta (2000) is a 5-point Likert scale with options ranging from 'strongly agree' to 'strongly disagree'. This test yields ordinal data which is appropriately calculated by this chosen test. Within such tests, which are used in social sciences, a probability level is established. The probability level is P=0.05, that is, for 95% the results are caused by the researcher's manipulation of the dependent variable, and only for 5% results are coincidental. If the P value is bigger than 0.05 (P=>0.05) then there is no significant difference between the pre and posttest hence the alternative hypothesis is rejected, and if the P value is smaller than 0.05 (P= <0.05) then there is a great difference between pre and posttests results, thus, the alternative hypothesis is retained and the null one is rejected (Cohen et al., 2018). ISS inferential statistics are presented in the following table.

Table 5.

Wilcoxon Signed-ranks Test for ICS Pre and Posttest

	Mean Ranks	***Sum of Ranks***	***Z***	***Sig.***
Interaction engagement	13.56	127,31	-2,806	0,00(<0,05)
Respect for cultural differences	14.82	136,01	-2,961	0,00(<0,05)
Interaction confidence	15.78	141,36	-3,084	0,00(<0,05)
Interaction enjoyment	14.59	134,21	-2,921	0,00(<0,05)
Interaction attentiveness	13.46	126,99	-2,813	0,00(<0,05)
Overall ICS	14.44	132.77	-2.917	0,00(<0,05)

Table 5 proffers results from the Wilcoxon Signed-ranks test for ICS pre and posttest hypothesis-testing results. The P value for all ICS dimensions is smaller than 0.05 (P=0.00< 0.05). This result means that there exists a significant difference between the ICS level of participants before and after receiving the treatment. Therefore, the null hypothesis implying that using Gemini's AI ChatGPT would not cultivate ICS is rejected while the alternative one is retained. Hence, it can be said that using Gemini's AI ChatGPT in EFL classes- if adjusted to fit intercultural experiential learning- cultivates learners' intercultural sensitivity.

5. Discussion of Findings

This research aimed to divulge the effect of using Gemini's AI ChatGPT on third-year EFL learners at Gulema University intercultural sensitivity. Intercultural education is a vital facet of language learning. It helps learners acquire a set of intercultural competencies they need in their quest to be global citizens (Barrett & Golubeva, 2022). Nevertheless, intercultural sensitivity, as a major pillar in intercultural education is seldom cultivated in the Algerian EFL classroom (Sellami, 2025; Bennouioua, 2023). This study is then an opportunity to cultivate this area. To explain the cause/effect relationship between the aforementioned variables, both quantitative and qualitative instruments were deployed. The study followed a quasi-experimental mixed methods design. It adopted Chen and Starosta's (2000) intercultural sensitivity scale as pre and posttests, and a FGD after completing the treatment. At the onset of the treatment, and based on the results of the ICS pretest, learners initially demonstrated a moderate level of intercultural sensitivity (ICS). When dealing with the first themes of the treatment, learners manifested modest cultural knowledge in which they were not able even to provide an exhaustive definition of culture. They used to conceive culture as a set of practices people deploy in fiestas and ceremonies. Gradually, with the use of Gemini's AI chatbot, and with the guidance of the researcher, learners started to nurture their cultural knowledge along with adjusting their cultural attitudes. Earlier in the treatment, learners held some negative attitudes towards some cultural and religious backgrounds. Such tendencies were somehow adjusted as the treatment proceeded. It is worth noting that using the ChatGPT aside was not plausible, learners had continuously some critical discussions on the treated themes and some reflection tasks. Ultimately, they were not immersed in a personalized intercultural experience, instead, they were always guided and monitored by the researcher. This adopted procedure stems from the fact that the algorithms of such systems may hold biases and spread stereotypes which need to be dismantled and carefully considered by human oversight (Chen & Klimova, 2024). The use of Gemini's AI ChatGPT provided learners with an immersive cultural experience. This finding coincides with Khasawneh's

(2023) research findings on the use of AI in cultivating intercultural communication in which his study revealed that using AI to foster such complex competency is a transformative step towards an AI-based instruction for intercultural communication. Having learners engaged in tasks and talks using Gemini's ChatGPT helped them gain deep insights into the complexity of culture and its elements, discover their held stereotypes and prejudices, understand cultural values, norms, beliefs, worldviews, and many more. Although AI-generated tasks and talks offer learners the opportunity to immerse in diverse cultural contexts (McCallum, 2024), learners were always encouraged to question and negotiate with the researcher and their classmates about the output they received from the chatbot. Furthermore, learners also get to adopt an ethnorelative tendency as they were encouraged by the researcher to critically base their cultural judgments on explicit criteria and reasoning instead of basing them on their prior knowledge (Byram, 2021). At the end of the treatment, the ICS level of learners has moved from moderate to high. It did not go very high but there was a significant difference between the results of pre and posttests. Within the treatment, learners gained some intercultural competencies, namely, cultural knowledge, positive cultural attitudes, cultural awareness and understanding. Only the area of intercultural skills remained unexploited due to time constraints and the complexity of fostering such skills as they need real sociocultural settings to be practiced. Overall, this research contributed to retaining the alternative hypothesis implying that using Gemini's AI ChatGPT cultivates EFL learners' intercultural sensitivity.

After having delved into a thorough discussion of this research's key findings, it is worth acknowledging its limitations. The researcher is fully aware of the shortcomings of applying such an intervention with a single case study of 8 persons. Although the participants were not chosen based on specific criteria they had, it still hiders the generalization of this research findings and restricts them only to this small sample. That is, these findings cannot be generalized to the whole population of third-year EFL learners at Guelma University. Also, the issue of self-report data is highlighted. In such tests, the ICS test, accuracy is sometimes called into question. Learners might choose options which do not necessarily reflect their accurate state and/or attitudes. This limitation cannot be mitigated because the researcher is assumed to be objective when administering the pre and posttests for accurate and reliable results. Another limitation worth considering is the time frame of the intervention. Such interventions need time due to the complexity of cultivating intercultural competencies in instructional settings where learners do not have the opportunity to practice their gained knowledge in authentic sociocultural milieus. This limitation too can not be treated because it is above the control of the researcher due to some pedagogical considerations. Although objectivity is sought, it is often acknowledged in social sciences that complete objectivity is unattainable. While using Gemini's AI chatbot, the instructions on what input to insert and what questions to ask were always given to learners by the researcher. This means that the researcher, along with her system of beliefs, worldviews, and orientations, were always at play. The researcher tried to be objective, yet it is somehow impossible to fully eliminate objectivity in such interventions. Classroom discussions which were monitored by the researcher also contained possible bias due to the nature of research in social sciences, such shades of subjectivity could also possibly affect the design of this research content and analysis of its qualitative data, i.e., key findings from the FGD. These limitations, and possibly others which the researcher could not notice, must be carefully considered when replicating this work in other settings. They open opportunities for future research to address these gaps.

Based on these key findings, this scrutiny outlines a set of pedagogical recommendations on the incorporation of AI tools and cultivation of intercultural sensitivity in the Algerian EFL classroom:

- Although AI offers highly personalized learning, its use in the classroom must be monitored by the teacher to equally have learners enjoy the same learning opportunities and to protect them from mis/disinformation, possible bias, and harmful ideologies.
- Gemini's AI ChatGPT has proved to be a good learning tool in intercultural education, however, it should not be used aside. It needs to be backed up with reflection tasks, classroom discussions, and other learning materials.
- Using AI in education conditions having sufficient digital competencies to maintain effectiveness and establish solid ethical principles (Boumediene, 2025). Hence, EFL teachers are assumed to have such competencies when integrating AI into their classes.
- Pre and in-service teachers' training programmes should prepare teachers for the incorporation of AI-powered resources into their pedagogies (Pop & Marc, 2025).
- Research on the integration of AI chatbots in intercultural education is still in its infancy, hence, it is requested that this area be explored in different EFL classrooms, including the Algerian one.
- It was found in many local studies that Algerian EFL learners lack intercultural sensitivity. Due to the importance of this competence, it is highly recommended on the part of teachers to consider intercultural education in their courses to keep pace with the demands of this era.
- This research was an opportunity to investigate Gemini's ChatGPT on intercultural sensitivity. Thus, more research on the use of other AI tools to enhance this competence is desired.
- Teachers, too, must have high levels of intercultural sensitivity. Therefore, intercultural training for teachers is recommended. Teachers have to have such qualities and be trained on how to foster and assess them in their classes.

6. Conclusion

Artificial intelligence is a buzzword in recent scholarly debates. The advent of this technological system has reshaped and is still reshaping the teaching methodologies by offering learners tremendous learning opportunities. AI has opened new avenues for language educators. The aspirations AI adds to the language classroom are unprecedented. In a multicultural and plurilingual globe, individuals are required to have a set of intercultural competencies to communicate effectively and appropriately with people from diverse sociocultural backgrounds. At the crux of this hierarchy lies intercultural sensitivity which allows one to understand, empathise, and be open towards cultural diversity. This research aimed at using Gemini AI's ChatGPT to cultivate EFL learners' intercultural sensitivity. Having applied AI to nurture this area of competence has yielded positive results. Learners had the opportunity to acquire cultural knowledge, adjust their cultural attitudes, revise their held stereotypes and prejudices, become, somehow, ethnorelative, and gain some shades of cultural awareness. Ultimately, this research has contributed to the literature written on ICS cultivation. It offered a novel way of cultivating this complex competence. However, this small-scale research needs to be replicated in other contexts and with different populations and different AI chatbots to guarantee its effectiveness. The limitations of this study should also be treated in future studies on the use of AI in intercultural education.

References

Anderson, P. H., Lawton, L., Rexeisen, R. J., & Hubbard, A. C. (2006). Short-term Study Abroad and Intercultural Sensitivity: A pilot study. *International Journal of Intercultural Relations, 30*(4), 457–469.

Baidoo-Anu, D., & Ansah, L. O. (2023). Education in the era of generative artificial intelligence (AI): Understanding the potential benefits of ChatGPT in promoting teaching and learning. *Journal of AI*, *7*(1), 52-62.

Baker, W. (2022). *Intercultural and transcultural awareness in language teaching*. Cambridge University Press.

Barrett, M., & Golubeva, I. (2022). From intercultural communicative competence to intercultural citizenship: Preparing young people for citizenship in a culturally diverse democratic world. In T. McConachy, I. Golubeva & M. Wagner (Eds.), *Intercultural learning in language education and beyond: Evolving concepts, perspectives and practices* (pp. 124-180). Multilingual Matters.

Bennett, M. J. (1993). Towards ethnorelativism: A developmental model of intercultural sensitivity. In R. M. Paige (Ed.), *Education for the intercultural experience* (2nd ed., pp. 21-71). International Press.

Bennett, M. J. (2017). Developmental Model of Intercultural Sensitivity. In Y. Y. Kim & K. L. McKay-Semmler (Eds.), *The International Encyclopedia of Intercultural Communication* (pp.1–10). Wiley and Sons.

Bennett, T. (1986). The politics of 'the popular' and popular culture. In T. Bennett, C. Mercer, & J. Woollacott (Eds.), *Popular culture and social relations* (pp.6-21). Open University Press.

Bennouiua, H. (2023). Promoting intercultural sensitivity to achieve successful cross-cultural communication through the integration of critical incidents. Case of first year EFL students at Setif 2 University [Doctoral thesis, University of Setif 2, Algeria].

Bhawuk, D., & Brislin, R. (1992). The measurement of intercultural Sensitivity using the concepts of individualism and collectivism. *International Journal of Intercultural Relations*, 16, 413–436.

Boumediene, H. (2025). The AI Evolution in Higher Education: Enhancing Teaching with ChatGPT. *Journal of Studies in Language, Culture, and Society (JSLCS),* 8(1), 15-29.

Berrarbi, A., & Amrane, N. (2025). Enhancing EFL Learners' Critical Thinking through HumanCommunication and Human Discussion Activities in the Era of AI. *Journal of Studies in Language, Culture, and Society (JSLCS)*, 8(1), 266-281

Bryman, A. (2012) *Social research methods* (4th ed.). Oxford University Press.

Byram, M. (1997). *Teaching and Assessing Intercultural Communicative Competence.* Multilingual Matters.

Byram, M. (2008). *From foreign language education to education for intercultural citizenship: Essays and reflects*. Multilingual Matters.

Byram, M. (2021). *Teaching and assessing intercultural communicative competence: Revisited* (2nd ed.). Multilingual Matters.

Canale, M., & Swain, M. (1980). Theoretical bases of communicative approaches to second language teaching and testing. *Applied Linguistics, 1*(1), 1–47.

Chan, C. K. Y., & Tsi, L. H. (2023). The AI Revolution in Education: Will AI Replace or Assist Teachers in Higher Education? arXiv preprint arXiv:2305.01185.

Chelghoum, H., & Chelghoum, A. (2025). Artificial Intelligence in Education: Opportunities, Challenges, and Ethical Concerns. *Journal of Studies in Language, Culture, and Society (JSLCS)*, 8(1), 01-14

Chen, C., Haupert, S. R., Zimmermann, L., Shi, X., Fritsche, L. G., & Mukherjee, B. (2022). Global prevalence of post-coronavirus disease 2019 (COVID-19) condition or long

COVID: a meta-analysis and systematic review. *The Journal of Infectious Diseases*, *226*(9), 1593-1607.
Chen, G. M., & Starosta, W. J. (1996). Intercultural communicative competence: A synthesis. *Annals of the International Communication Association, 19*(1), 353-383.
Chen, G. M., & Starosta, W. J. (1997). Chinese Conflict Management and Resolution: Overview and Implications. *Intercultural Communication Studies*, 7, 1–14.
Chen, G. M., & Starosta, W. J. (2000). The development and validation of the intercultural sensitivity scale. *Human Communication*, 3, 1-15.
Chen, S., & Le, T. T. (2019). *Teaching of culture in English as an international language: An integrated model.* Routledge.
Cohen, L., Manion, L., & Marrison, A. K. (2018). *Research methods in education* (8th ed.). Routledge.
Coles, G. (2023). Google DeepMind Gemini AI release date: The world's new most powerful language model. PCguide.com. Retrieved from https://www.pcguide.com/apps/google-deepmind-gemini-release-date/
Dale, R., & Viethen, J. (2021). The automated writing assistance landscape in 2021. *Natural Language Engineering*, *27*(4), 511-518.
Dervin, F., & Clark, J. (2014). *Reflexivity in Language and Intercultural Education: Rethinking Multilingualism and Interculturality*. Routledge.
Farrokhnia, M., Banihashem, S. K., Noroozi, O., & Wals, A. (2023). A SWOT analysis of Generative AI: Implications for educational practice and research. *Innovations in Education and Teaching International*. https://doi.org/10.1080/14703297.2023.219584
Feng, A. (2009). Becoming interculturally competent in a Third Space. In A. Feng, M. Byram & M. Fleming (Eds.), *Becoming interculturally competent through education and training* (pp.71-89). Multilingual Matters.
Gashi, L. (2021). Intercultural awareness through English language teaching: The case of Kosovo. *Interchange, 52*(3), 357–375. https://doi.org/10.1007/s10780-021-09441-5
Guilherme, M. (2002). *Critical citizens for an intercultural world: Foreign language education as cultural politics*. Multilingual Matters.
Gupta, A., & Hathwar, D.(2020). Introduction to AI Chatbots. *International Journal of Engineering Research & Technology, 9*(7). 255-258.
Hagley, E. (2020). Effects of virtual exchange in the EFL classroom on students' cultural and intercultural sensitivity. *Computer-Assisted Language Learning Electronic Journal, 21*(3), 74-87.
Hamilton, L., Corbett-Whittier, C., & Lagrange, M. (2013). *Using case study in education research*. SAGE Publications.
Hammer, M. R., Bennett, M. J., & Wiseman, R. (2003). Measuring Intercultural Sensitivity: The intercultural development inventory. *International Journal of Intercultural Relations, 27*(4), 421–443.
Holliday, A. (2011). *Intercultural Communication and Ideology*. SAGE.
Khasawneh, M. A. S. (2023). The potential of AI in facilitating cross-cultural communication through translation. (2023). *Journal of Namibian Studies: History Politics Culture*, *37*, 107-130. https://doi.org/10.59670/jns.v37i.4654
Klimova, B., & Chen, J. H. (2024). The impact of AI on enhancing students' intercultural communication competence at the university level: A review study. *Language Teaching Research Quarterly*, 43, 102-120. https://doi.org/10.32038/ltrq.2024.43.06
Kramsch, C. (1993). *Context and culture in language education*. Oxford University Press.
Kramsch, C. (1998). *Language and culture*. Oxford University Press.
Kramsch, C. (2009) *The Multilingual Subject*. Oxford University Press.

Krasner, I. (1999). The role of culture in language teaching. *Dialogue on Language Instruction, 13*(2), 79-88.

Lee, K. F. (2018). *AI superpowers: China, Silicon Valley, and the new world order*. Houghton Mifflin Harcourt.

Lee, S., & Kim, H. (2019). Ethical Considerations in the Use of AI in Education. *International Journal of Applied Linguistics, 7*(3), 112-125.

Liddicoat, J., A. (2020). Teaching languages from an intercultural perspective. In, Arber, R., Weinmann, M., & Blackmore, J. (Eds.). (2020). *Rethinking Languages Education: Directions, Challenges and Innovations* (1st ed.). Routledge.

Liu, F. (2020). Intercultural Language Teaching Practice in EFL Classroom China--College English Instruction Based on Film The Proposal. *English Language Teaching, 13*(12), 83-90.

Liu, M. (2023). Exploring the Application of Artificial Intelligence in Foreign Language Teaching: Challenges and Future Development. In SHS Web of Conferences (Vol. 168). EDP Sciences. https://doi.org/10.1051/shsconf/202316803025

McCallum, L. (2024). New takes on developing intercultural communicative competence: using AI tools in telecollaboration task design and task completion. *Journal for Multicultural Education*, *18*(1/2), 153-172. https://doi.org/10.1108/JME-06-2023-0043

Newton, J., Yates, E., Shearn, S., & Nowitzki, W. (2010). Intercultural communicative language teaching: implications for effective teaching and learning (NO. 978-0-478-34248-2). Report to the Ministry of Education. http://www.educationcounts.govt.nz/publications/curriculum/76637/introduction

Nyaaba, M. (2023). Comparing human and AI's (GPT-4 and Gemini) understanding of the nature of science. https://doi.org/10.2139/ssrn.4661602

Oumeddour, S. (2023). The impact of technology-based instruction on enhancing learners' development of intercultural knowledge in foreign language classrooms. Case study: third year students of English at the Department of Letters and English Language, at the University of 8 Mai-1945- Guelma [Doctoral thesis, University of Khenchela, Algeria].

Perera, P., & Lankathilaka, M. (2023). Preparing to revolutionize education with the multi-model GenAI tool Google Gemini? A journey towards effective policymaking. *Journal of Advances in Education and Philosophy, 7*(8), 246–253.

Phakiti, A. (2014). *Experimental research methods in language learning.* Bloomsbury Publishing.

Pikhart, M. (2020). Intelligent information processing for language education: The use of artificial intelligence in language learning apps. *Procedia Computer Science,* 176, 1412- 1419. https://doi.org/10.1016/j.procs.2020.09.151

Pokrivcakova, S. (2019). Preparing teachers for the application of AI-powered technologies in foreign language education. *Journal of Language and Cultural Education, 7*(3), 135-153. https://doi.org/10.2478/jolace-2019-0025

Portakal, E. (2023). Google's Gemini AI review. Textcortex.com. https://textcortex.com/post/gemini-ai-review

Qoura, A. A. S., & Elmansi, H. M. (2023). Artificial intelligence in language education: Implementations and policies required. *Journal of Education Faculty, 11*(33), 348-395.

Risager, K. (2006). *Language and culture: Global flows and local complexity*. Multilingual Matters.

Risager, K. (2007). *Language and Culture Pedagogy: From a National to a Transnational Paradigm*. Multilingual Matters.

Saeidnia, H. R. (2023). Welcome to the Gemini era: Google DeepMind and the information industry. Library Hi Tech News. https://doi.org/10.1108/LHTN-12-2023-0214

Sellami, A. (2024a). Do EFL teachers in Algerian receive adequate training on how to promote 21st century skills in their classroom? *Academic Review of Social and Human Studies*, 16(2), 26-35.

Sellami, A. (2024b). Moving beyond essentialism: cultivating EFL learners' intercultural communicative competence through a non-essentialist paradigm of culture. *Ichkalat Journal, 13*(2), 412-424.

Sellami, A. (2025). Unveiling the world through stories: Fostering EFL learners' intercultural sensitivity through storytelling circles. *Journal of Languages and Translation, 5*(1), 227-245.

Shihatah, N. R. M. (2022). Employing artificial intelligence applications in the educational process. *Journal of the Egyptian Educational Computer Society, 10*(20), 205-214.

Simons, H. (2009). *Case study research in practice*. SAGE publications.

Smith, J., & Johnson, A. (2020). The Impact of Artificial Intelligence on Language Learning. *Journal of Educational Technology, 15*(2), 45-58.

Stone, P., Brooks, R., Brynjolfsson, E., Calo, R., Etzioni, O., Hager, G., Hirschberg, J., Kalyanakrishnan, S., Kamar, E., Kraus, S. & Leyton-Brown, K., (2016). Artificial intelligence and life in 2030. One Hundred Year Study on Artificial Intelligence: Report of the 2015-2016 Study Panel, Stanford University.

Straffon, D. A. (2003). Assessing the Intercultural Sensitivity of High School Students Attending an International School. *International Journal of Intercultural Relations, 27*(4), 487–501.

Team, G., Anil, R., Borgeaud, S., Wu, Y., Alayrac, J. B., Yu, J., et al. (2023). Gemini: A family of highly capable multimodal models.arXiv:2312.11805

Tirnaz, S., & Norafshan, M. H. (2020). Promoting intercultural sensitivity and classroom climate in EFL classrooms: The use of intercultural TV advertisements. *Learning, Culture, and Social Interaction*, 25, 1-16.

Tomalin, B., & Stempleski, S. (1994). *Cultural awareness (Resource books for teachers).* Oxford University Press.

Tomkin, P., Yarnall, J., & Kerrin, M. (2002). *Kirkpatrick and Beyond: A review of models of training evaluation* (No. 392). IES Research Network.

Tredinnick, L. (2017). Artificial intelligence and professional roles. Business Information Review, 34(1), 37-41. https://doi.org/10.1177/0266382117692621

Vera, F. (2023). Integrating Artificial Intelligence (AI) in the EFL Classroom: Benefits and Challenges. *Transformar, 4*(2), 66-77.

Wang, P. (2019). On defining artificial intelligence. Journal of Artificial General Intelligence,10(2), 1-37. https://doi.org/10.2478/jagi-2019-0002

Wattanavorakijkul, N. (2020). Measuring Intercultural Sensitivity of Thai University Students: Impact of their Participation in the US Summer Work and Travel Program. *Reflections, 27*(1), 81–102.

Zein, A. (2000). *Artificial intelligence and expert systems in libraries - an experimental introduction to expert systems in the field of references.* Academic Library.

Zhang, H. (2007). *Cross-cultural Foreign Language Teaching*. Shanghai Foreign Language Education Press.

Zhao, Q., & Nazir, Sh. (2022). English Multimode Production and Usage by Artificial Intelligence and Online Reading for Sustaining Effectiveness. Mobile Information Systems. Article ID 6780502, 1-16.

Appendix I: Intercultural Sensitivity Pre and Postest

Dear Students,

You are kindly requested to fill out this intercultural sensitivity test. The results of this test are to be used for research purposes only. On a scale of 1 to 5 (1=strongly disagree; 2=disagree; 3=neutral; 4=agree; 5=strongly agree), please pick the option that matches your opinion on the following statements.

1. I enjoy interacting with people from different cultures.
2. I think people from other cultures are narrow-minded.
3. I am pretty sure of myself in interacting with people from different cultures.
4. I find it very hard to talk in front of people from different cultures.
5. I always know what to say when interacting with people from different cultures.
6. I can be as social as I want to be when interacting with people from different cultures.
7. I do not like to be with people from different cultures.
8. I respect the values of people from different cultures.
9. I get upset easily when interacting with people from different cultures.
10. I feel confident when interacting with people from different cultures.
11. I tend to wait before forming an impression of culturally-distinct counterparts.
12. I often get discouraged when I am with people from different cultures.
13. I am open-minded to people from different cultures.
14. I am very observant when interacting with people from different cultures.
15. I often feel useless when interacting with people from different cultures.
16. I respect the ways people from different cultures behave.
17. I try to obtain as much information as I can when interacting with people from different cultures.
18. I would not accept the opinions of people from other cultures.
19. I am sensitive to my culturally-distinct counterpart's subtle meaning during our interaction.
20. I think my culture is better than other cultures.
21. I often give positive responses to my culturally distinct counterpart during our interaction.
22. I avoid those situations where I will have to deal with culturally distinct persons.
23. I often show my culturally-distinct counterpart my understanding through verbal or non-verbal cues.
24. I have a feeling of enjoyment towards differences between my culturally-distinct counterpart and me.