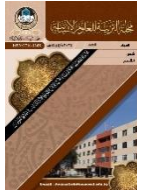




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The role of cross-cultural collaborative learning via digital platforms in improving the communicative competence of English language learners

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Abstract

This study aimed to examine the role of cross-cultural collaborative learning via digital platforms in improving the communicative competence of English language learners in the fourth grade of science, using a descriptive correlational approach on a sample of 148 students. The results showed higher levels of collaborative learning and communicative competence among the sample, and revealed statistically significant differences attributable to gender, school type, and experience in using digital platforms. A positive correlation was also found between cross-cultural collaborative learning and communicative competence. In light of these results, the study recommended the integration of cross-cultural digital collaborative learning activities into English language teaching, given their effective impact on enhancing communicative competence and developing cultural awareness among learners

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مجلة علمية فصلية محكمة، تصدر عن كلية التربية للعلوم الإنسانية / جامعة الموصل



دور التعلّم التعاوني عبر الثقافات عبر المنصات الرقمية في تحسين الكفاءة التواصلية لمتعلمي اللغة الإنجليزية

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الملخص

معلومات الارشفة

هدفت هذه الدراسة إلى فحص دور التعلم التعاوني عبر الثقافات من خلال المنصات الرقمية في تحسين الكفاءة التواصلية لمتعلمي اللغة الإنجليزية في الصف الرابع العلمي، باستخدام المنهج الوصفي الارتباطي على عينة مكونة من 148 طالباً وطالبة. أظهرت النتائج مستويات مرتفعة من التعلم التعاوني والكفاءة التواصلية لدى أفراد العينة، وكشفت عن وجود فروق ذات دلالة إحصائية تعزى لمتغيرات الجنس، ونوع المدرسة، والخبرة في استخدام المنصات الرقمية. كما وجدت علاقة ارتباطية موجبة بين التعلم التعاوني عبر الثقافات والكفاءة التواصلية. وفي ضوء هذه النتائج، أوصت الدراسة بدمج أنشطة التعلم التعاوني الرقمي عبر الثقافات في تدريس اللغة الإنجليزية، نظراً لأثرها الفعال في تعزيز الكفاءة التواصلية وتنمية الوعي الثقافي لدى المتعلمين.

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Research introduction:

Technological developments and digital transformation in education have led to a rethinking of the design of educational environments for foreign languages, including English, so that the learning process is no longer limited to the transfer of knowledge or the mastery of linguistic rules, but now requires the creation of integrated digital learning platforms that support interaction, communication, and creativity (King Salman International Arabic Language Academy, 2025; Alsewaidi, 2020). Studies indicate that the effective integration of digital tools, including interactive platforms and digital media, provides learners with opportunities for open and continuous learning, enhances their ability to interact with multimedia content, and thus develops their writing, critical thinking, and creative skills (Reda, 2023; Abdulhak & Abdul Aal, 2025).

Also, the World Intellectual Property Report (World Intellectual Property Organization, 2022) clarifies that innovation and new technology have recently been important drivers of education development, as digital space facilities have limitless opportunities for the interactive production of knowledge. Moreover, the Arab Center for Educational Research in the Gulf States (2025) asserts that with education digital transformation, facilities for collaborative learning, as well as opportunities for student-teacher interactions, have been available through flexible multimedia digital spaces. Conversely, the importance of integrating digital learning skills with creative thinking processes while enhancing knowledge society, as well as motivating students to innovate, is highlighted in Arab educational studies, as outlined in Khashah & Tanahi, 2017, as well as Manal Al-Balqasi, 2025). E-learning challenge research (2022) has indicated that a well-structured online learning environment needs to be developed considering the needs of learners as well as adopting new educational values to achieve a greater communication efficiency to

minimize the learning difficulties created by cultural differences (Hurn et al., 2013; Kecskes, 2014; Thomas, 1983; Ishii, 1990; Okamoto et al., 2002; O'Brien et al., 2007).

Cross-cultural communication is currently identified as an important theme linked with foreign language learning, particularly English, due to the rapid

changes brought by globalization and technology regarding human interaction patterns and foreign learning patterns. Language learning is no longer limited to acquiring grammatical structures or vocabulary, but has become linked to the ability to use language in a way that is appropriate for different cultural contexts, known as cross-cultural communicative competence (Hurn & Tomalin, 2013: 4–7; Kecskes, 2014: 12).

Collaborative digital environments have contributed to reshaping the concept of linguistic interaction by providing open learning opportunities that enable learners to communicate directly with individuals from diverse cultural backgrounds, which contributes to enhancing cultural awareness and reducing communicative failure resulting from cultural misunderstanding (Thomas, 1983: 92; Ishii, 1990: 49). Some early studies suggest that the use of collaborative techniques in language learning contributes to improving intercultural communication through the construction of shared meaning and linguistic negotiation in real interactive contexts (Okamoto et al., 2002: 167; O'Brien et al., 2007: 126).

In this context, cross-cultural collaborative learning via digital platforms has emerged as a promising educational approach, combining the principles of collaborative learning, project-based learning, and technology-supported cultural interaction. Recent research has confirmed that technology-enhanced project-based learning makes a contribution to enhancing cross-cultural skills among foreign language students through authentic interaction, teamwork, and cultural identity formation online (Syzenko & Diachkova, 2020:414; Pudikova et al., 2019: 48).

Systematic reviews also indicated that electronic technology, such as collaborative platforms, multimedia, and virtual reality technology, is actively involved in facilitating a cross-cultural learning processes, and developing emotional intelligence and cultural presence on the part of the learner (Shadiev et al., 2021a: 1404; Shadiev et al., 2021b: 2920). This is supported by the view of Bauman (2016), who finds that students' attitudes to using technology in cross-cultural communication become more positive when technology is related to actual communication and cultural content.

Nevertheless, the efforts and the momentum in conducting research in this area,

some studies reveal that the effectiveness in cross-cultural e-learning is not necessarily a product or a result obtained by applying technology in a simple manner, but needs deliberate design in teaching and learning within the boundaries of cultural considerations and using technology for the purpose of communication in the context of digital platforms and beyond the superficial communication from a linguistic perspective (Sun, 2012: 23, Lifintsev & Wellbrock, 2019: 6). The relevance and validity in carrying out educational research studies to examine the effectiveness of the impact of cross-cultural collaborative learning in improving the communicative competence of English language learners cannot be overemphasized.

Research Problem

Despite the tremendous increase in digital platform usage in English language learning and teaching, English language learning and teaching practices in those learning environments are dominated by the linguistic nature of English language in terms of grammar and vocabulary

without regard to pragmatics and culture. In this context, Macnamara (2004) pointed out that the weak link between scientific research and educational application in the field of cross-cultural communication leads to limited educational outcomes.

Numerous studies show that English language learners, despite having an acceptable level of linguistic competence, they face difficulties in using the language appropriately in multicultural communication situations due to a lack of real interactive experience and poor awareness of different cultural contexts (Toprak & Genc-Kumtepe, 2014: 140; Ochieng & Price, 2010: 452). Thomas (1983) showed that communicative failure is often the result of misunderstanding cultural values and norms, rather than purely linguistic errors.

Although educational literature points to the effectiveness of technology-supported collaborative learning in developing cross-cultural competence, most studies have focused on general cultural competence or cultural awareness, without delving into the study of communicative competence as a practical ability to use language in real communicative contexts (Shadiev et al., 2021a: 1406; Farida et al., 2024: 336).

In addition, there is a clear research gap in the Arabic literature addressing the impact of cross-cultural collaborative learning via digital platforms in English language education, especially in light of the requirements of global citizenship and education for cultural understanding (UNESCO, 2022: 18).

Accordingly, the problem of the current research is defined as the need for a systematic scientific study that reveals the impact of cross-cultural collaborative learning via digital platforms on improving the communicative competence of English language learners, through the use of interactive digital activities based on genuine cooperation and communication between cultures, thereby contributing to bridging the gap between linguistic competence and communicative competence and enhancing the effectiveness of language teaching in contemporary educational contexts. The research question is therefore defined as follows:

What is the role of cross-cultural collaborative learning via digital platforms in improving the communicative competence of English language learners?

The following questions branch off from the main question:

- What is the level of cross-cultural collaborative learning via digital platforms among fourth-grade science students learning English?
- What is the level of communicative competence among fourth-grade science students learning English?

Research hypotheses

The current research assumes the following:

- There are statistically significant differences at the significance level (0.05) in the level of cross-cultural collaborative learning via digital platforms among fourth-grade science students learning English, attributable to variables such as gender, type of school, and experience using digital platforms.
- There are statistically significant differences at the significance level (0.05) in the level of communicative competence among English

language learners in the fourth grade of science, attributed to the variables of gender, type of school, and experience in using digital platforms.

- There is a statistically significant correlation between the degree of learners' participation in cross-cultural participatory digital activities and their level of communicative competence.

Significance of the research

The significance of this research stems from two aspects, theoretical and practical, as follows:

- It contributes to deepening the scientific understanding of the concept of communicative competence in the context of cross-cultural learning, and links it to collaborative learning via digital platforms, an aspect that has not received sufficient attention in previous studies, which have mostly focused on general cultural competence or cultural awareness.
- It enriches the educational literature in the field of teaching English as a global language of communication by providing a theoretical framework that integrates the linguistic dimension with the cultural-pragmatic dimension.
- Its findings contribute to the development of English language teaching practices by designing participatory digital learning activities that take into account authentic cultural interaction and contribute to reducing communicative failure among learners.
- The results can help language teachers and curriculum designers use digital platforms in a conscious educational way that supports the requirements of cross-cultural communication and is consistent with the trends in education for global citizenship.

Research objectives

The current research aims to:

- Determine the level of communicative competence among English language learners in light of their participation in cross-cultural participatory digital learning activities.
- To analyze the nature of the relationship between the degree of digital

participatory interaction and the level of communicative competence among learners.

- To provide recommendations and suggestions based on the research findings that can be used in the design of digital learning environments that support cross-cultural communicative interaction.

Research Limitations

The current research has the following limitations:

- Topic limitations: The research is limited to studying the impact of cross-cultural collaborative learning via digital platforms on improving communicative competence, without addressing other language skills such as grammar or vocabulary in isolation from the communicative context.
- Human limitations: The research is applied to a sample of learners of English as a foreign language.
- Spatial limitations: The research is conducted in an educational environment that relies on interactive digital platforms that provide opportunities for collaborative learning and cross-cultural communication.
- Temporal limitations: The research is conducted during the academic year (2025/2026).

Procedural Terms and Definitions

First: Cross-cultural collaborative learning: Cross-cultural collaborative learning is defined as a learning style based on interaction and cooperation between learners from different cultural backgrounds, aimed at building shared knowledge and promoting mutual understanding through structured educational activities based on communication and dialogue (Hurn & Tomalin, 2013:

6; O'Brien et al., 2007: 126). This type of learning emphasizes the use of cultural differences as an asset in education that adds to the development of learners' communication competency (Toprak & Genc-Kumtepe, 2014: 136).
Procedural learning: Cross-cultural collaborative learning in this research refers to an electronic learning activity where English language learners engage

with learners of diverse cultures in digital learning platforms. The indicators here measure the extent to which the learners have taken part in these collaborative learning processes.

Second: Digital platforms: Online platforms: Online platforms are defined as the electronic setting that allows interaction, communication, or sharing of knowledge between users while facilitating collaborative learning styles by using communication synchrony or asynchrony (Bauman 2016: 195; Lifintsev & Wellbrock 2019: 4). These platforms are an effective medium for supporting cross-cultural learning when designed with cultural sensitivity in mind (Sun, 2012: 21). Procedurally: In this research, digital platforms refer to e-learning environments used to implement cross-cultural collaborative learning activities, which include tools for discussion, teamwork, and content sharing, and are employed according to a specific educational plan.

Third: Cross-cultural communication: Cross-cultural communication is defined as the process of exchanging meanings between individuals belonging to different cultures, influenced by the values, beliefs, linguistic patterns, and context of each culture (Hurn & Tomalin, 2013: 2; Ishii, 1990: 48). This concept emphasizes the importance of cultural awareness to avoid misunderstandings and communicative breakdown (Thomas, 1983: 93). Procedurally: Cross-cultural communication in this research refers to the level of learners' ability to interact linguistically with peers from different cultures in collaborative digital activities, and in their linguistic responses and communicative behavior.

Fourth: Interactional competence: Interactional competence refers to the learner's ability to use language appropriately in a social and cultural context by choosing linguistic forms appropriate to the communicative situation and understanding the implicit intentions and cultural norms governing the interaction (Thomas, 1983: 94; Kecskes, 2014: 14). Pragmatic competence is one of the core components of communicative competence in foreign language teaching. Procedurally: Communicative competence is defined in this study as the score obtained by the learner on a communicative competence assessment tool designed for this purpose, which measures their ability to use English appropriately in cross-cultural communicative situations.

Fifth: Learners of English as a foreign language: Learners of English as a

foreign language are individuals who learn English in an educational environment where the language is not used as a language of daily communication (Lee, 2021: 9). Procedurally: In the current study, this term refers to individuals in the study sample who receive their formal education in English within a formal educational environment and participate in cross-cultural collaborative learning activities via digital platforms.

Theoretical Framework

First: Cross-cultural collaborative learning: Collaborative Learning is an educational concept that concentrates on knowledge building using social interactivity and teamwork whereby students engage in solving problems, sharing experiences, and co-creating meaning together. This concept has transformed over recent years and acquires a cross-cultural dimension in light of developments in digital spaces offered by advances in ICTs that created unprecedented possibilities for interactivity among students with varying cultural backgrounds (O'Brien et al., 2007: 125).

The underlying assumption of cross-cultural collaborative learning is that contact with the “cultural other” leads to a refashioning of the learner's knowledge of language and culture through the process of meaning negotiation, comparison of communication patterns, and marking of contextual differences (Hurn & Tomalin, 2013:8). According to Kecskes (2014), such contact leads to an improvement of the learner's communication competence since the learner is subjected to real-life communication situations involving linguistic choices tied to the cultural context.

Recent research has confirmed that technology-enhanced collaborative project-based learning helps develop cultural awareness skills and communication skills through collaboration opportunities for students (Syzenko & Diachkova, 2020: 415; Pudikova et al., 2019: 49). Findings from a study by Toprak & Genc-Kumtepe (2014) proved that through international e- projects, students can get beyond stereotypes and thus can achieve a better understanding of cultural differences in language learning environments.

Second: Digital platforms in cross-cultural learning: Digital platforms play a crucial role in the revolution of learning environments. This is because the platforms create flexible learning environments that enable collaboration and

the exchange of knowledge beyond geographical and cultural environments. It is evident from the literature that the digital platforms are not just tools; rather, the platforms are learning environments that socially affect the type of linguistic and cultural engagement of the learners (Bauman, 2016: 194).

According to Lifintsev and Wellbrock (2019), cross-cultural digital communication necessitates intentional design of learning platforms that consider differences in cultures in terms of styles of communication, modes of expression, and management of dialogues. Sun (2012) adds that failure to consider the dimension of culture in the design of learning technologies could result in learning technologies that are ineffective, even if they have advanced technological features.

Peer-reviewed literature has revealed that web-based technologies, which support synchronous as well as asynchronous communication, are useful for improving cross-cultural learning experiences when utilized for meaningful participation, like group discussions, collaborative projects, as well as multimedia content sharing (Shadiev et al., 2021a: 1403). Moreover, the utilization of multimedia as well as virtual reality has been revealed to positively impact the feelings of cultural presence as well as the understanding of diverse contexts of communication during linguistic communication (Shadiev et al., 2021b: 2921).

Third: Discourse competence in English: Discourse competence covers a range of abilities fundamental to communicative competence and may be referred to as “language use in a social and cultural context.” It encompasses implicit meanings, linguistic form, and interpreting meaning in terms of context (Thomas 1983: 91). Chomsky argues that not enough emphasis has been placed on a contextual or practical understanding of a language if effective communication is to be achieved (Chomsky 1980).

According to Kecskes (2014), English communicative competence is more important as an International Communication Language, since various cultural patterns meet together, and the learners are expected to be pragmatically flexible and capable of adapting to the different situations of communication. Pragmatic failure is regarded as the most challenging situation English language learners encounter, since it could cause some misunderstanding even

if the construction of the sentence was correct (Thomas, 1983: 95).

It was found that in order to acquire communications competence, learners should be exposed to real-life communications for which purposes exceed the scope of classroom activities, including interacting with people of diverse cultures, according to Lee (2021: 44).

In this context, cross-cultural collaborative learning via digital platforms plays an important role as an effective gateway that links language use to cultural context and contributes to the development of linguistic negotiation skills and the understanding of implicit meanings in communication.

Research methodology: The current research adopted a descriptive correlational approach, as it is appropriate for the nature of the study, which aims to reveal the relationship between cross-cultural collaborative learning via digital platforms and students' level of communicative competence in English, without interfering with or experimentally controlling the variables. This approach is suitable for studying educational phenomena as they are in reality and analyzing the relationships between their variables in a scientifically accurate manner.

Research community and sample: The research community consisted of fourth-year science students studying English in secondary schools during the academic year in which the research was conducted.

The research sample was carefully selected from fourth-year science students and included 148 male and female students, all of whom had experience in using digital educational platforms. This sample accurately reflects the research community in terms of number and educational characteristics. The sample was distributed according to the variables studied as follows:

Table (1): Distribution of sample items according to the variables studied

Variable	Categories	The number	Ratio
Gender	Male	72	48.6%
	Female	76	51.4%
School Type	Public	80	54.1%
	Private	68	45.9%

Digital Platform usage Experience	Less than 2 years	60	40.5%
	More than 2 years	88	59.5%

Research tools: To achieve the research objectives, the following two tools were used:

First: Cross-cultural collaborative learning scale via digital platforms The cross-cultural collaborative learning scale via digital platforms was designed based on relevant educational literature, and drawing on previous studies that addressed technology-supported collaborative learning and cross-cultural communication, such as the study by O'Brien et al. (2007) and the study by Shadiev et al. (2021), with the paragraphs adapted to suit the educational environment and research sample.

The initial version of the scale consisted of 30 items expressing: "digital collaborative interaction – cross-cultural cooperation – exchange of cultural experiences – use of digital platforms in linguistic communication," and adopted a five-point Likert scale.

Psychometric characteristics of the scale

- **Reliability of the reviewers:** The scale was distributed to reviewers who were experts on English language teaching methods, educational technologies, measurement, or evaluation to ensure that the wording used was linguistically correct, that items fitted dimensions well, and were understood clearly to sample persons. Amendments were made through feedback from reviewers, including deletions or modifications of some paragraphs.
- **Scale stability using Cronbach's alpha:** According to the stability coefficient, the results showed that the coefficient reached a high value, indicating that the scale enjoys a high degree of internal consistency.
- **Midpoint stability:** The stability of the scale was also verified using the midpoint method, where the paragraphs of the scale were divided into two equal halves, then the correlation coefficient between them was calculated and corrected using the Spearman-Brown equation, and the stability value was high and statistically acceptable.

Second: The English Language Competence Scale: The English Language Competence Scale was developed based on the theoretical framework of

communicative competence, drawing on the studies of Thomas (1983) and Kecskes (2014), as well as recent studies on communicative competence in digital environments. The scale included items that measure the learner's ability to use language appropriately in cultural and communicative contexts.

The 30 items of the scale represent: "appropriateness of expression to the context – understanding implicit meanings – use of language in cross-cultural situations – avoidance of communicative failure," and a five-point Likert scale was used.

Psychometric characteristics of the scale:

- **Reliability of reviewers:** The scale was presented to a group of reviewers specializing in English language teaching, applied linguistics, and educational measurement to verify its apparent reliability and suitability for the research objectives, and the proposed modifications were made to ensure measurement accuracy.
- **Scale reliability using Cronbach's alpha:** The reliability coefficient was 0.85, which is a clear result indicating that the scale is robust and reliable, providing a high degree of confidence in its use.
- **Half-half stability:** Stability was measured by dividing the data into two halves, then adjusting the correlation coefficient using the Spearman-Brown formula, and the result was 0.86, which is within statistically acceptable levels.

Statistical methods used in the research

The research relied on certain statistical methods to process the data clearly:

- Arithmetic means and standard deviations to understand the nature of the different variable levels.
- Pearson's correlation coefficient to determine the relationship between cross-cultural collaborative learning and communicative competence.
- Cronbach's alpha coefficient: to ensure the reliability of the research tools.
- The split-half method and Spearman-Brown formula to verify the consistency and reliability of the tools used.

Verification and interpretation of research results

First: Answering the research questions:

First: The main question: What is the role of cross-cultural collaborative learning via digital platforms in improving the communicative competence of English language learners? To answer the main question, the overall results of the cross-cultural collaborative learning scale via digital platforms and the English communicative competence scale were analyzed by calculating the arithmetic mean, standard deviation, and percentage, and overall assessment to determine the level of each variable and indicate the nature of the role that digital collaborative learning plays in improving the communicative competence of fourth-grade science students.

Table (2) Arithmetic mean, standard deviation, percentage, and evaluation of the total score for the two research measures (n = 148)

Scale	Arithmetic Mean	Deviation Standard	Percentage	Assessment
Intercultural Collaborative Learning	3.87	0.54	77.4%	High
Pragmatic competence in English	3.79	0.58	75.8%	High

The results in Table 1 indicate that intercultural collaborative learning via digital platforms was at a high level, and that English language skills in real-life situations also performed well. This

shows that digital collaborative learning plays a clear role in improving language communication skills in everyday life. These findings were in agreement with other studies conducted by O'Brien et al. (2007) and Shadiey et al. (2021), in which digital-based intercultural communication increased communication abilities and overcame challenges in communication.

Second: sub-question 1: To what extent is there cross-cultural collaborative learning through online means among fourth-grade science English language learners? To establish this, data from the sample group on the cross-cultural collaborative scale comprised of 30 items laid out on three axes was compiled on the basis of arithmetic mean, standard deviation, percentage, and rating.

Table (4) Arithmetic mean, standard deviation, percentage, and evaluation of the communicative competence scale statements

	Mean	deviation	Percentage	Ratin g		Mea n	Deviatio n	Percentage	Ratin g		Mean	Deviatio n	Percentage	Ratin g
1	3.86	0.60	77.2	High	1	3.78	0.63	75.6	High	21	3.82	0.59	76.4	High
2	3.75	0.65	75.0	High	1 2	3.88	0.57	77.6	High	22	3.90	0.56	78.0	High
3	3.73	0.66	74.6	Aver a ge	1 3	3.79	0.62	75.8	High	23	3.84	0.58	76.8	High
4	3.76	0.64	75.2	High	1 4	3.91	0.55	78.2	High	24	3.85	0.59	77.0	High
5	3.77	0.63	75.4	High	1 5	3.83	0.60	76.6	High	25	3.89	0.57	77.8	High
6	3.74	0.66	74.8	Aver a ge	1 6	3.80	0.62	76.0	High	26	3.86	0.58	77.2	High

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7	3.92	0.54	78.4	High	1 7	3.81	0.61	76.2	High	27	3.78	0.63	75.6	High
8	3.84	0.59	76.8	High	1 8	3.78	0.57	77.4	High	28	3.75	0.65	75.0	High
9	3.90	0.56	78.0	High	1 9	3.82	0.60	76.4	High	29	3.79	0.62	75.8	High
1 0	3.88	0.57	77.6	High	2 0	3.85	0.59	77.0	High	30	3.83	0.60	76.6	High

The findings from Table 3 suggest that there is a high magnitude of communicative competence among English learners, meaning that they are able to use it effectively when engaging in cultural communication contexts. The findings are consistent with studies cited in Kecskes (2014), which suggested that authentic communication was key to developing this aspect. The idea was supported by Lee (2021).

Second: Testing the hypotheses

Hypothesis 1: There will be statistically significant differences at the .05 level of cross- cultural collaborative learning in terms of the variables (Gender, Type of school, Experience with the use of digital platforms). To test this hypothesis, an independent samples t-test was used.

Table (5) Results of the T-test for the level of collaborative learning according to demographic variables

Variable	T-value	Significance level	Score
Gender	2.14	0.034	Function
School type	2.89	0.004	Function
Digital platform experience	3.21	0.001	Function

The results showed clear differences in favor of students with more experience in using digital platforms, as well as in favor of private school students. This was in tandem with the findings of Bauman (2016) and the study of Farida et al. (2024) in which the digital arena and the experience of technology significantly helped in the improvement of collaborative learning.

Second hypothesis: There exist significant differences at the 0.05 significance level in the level of pragmatic competence due to the variables (gender, type of school, experience in the use of digital platforms). The data required in this hypothesis has been gathered by administering an adapted questionnaire that determines pragmatic competence. For the analysis of the data that has been gathered, a T-test shall be conducted to identify differences among

various groups regarding the variables of gender, type of schools, and experience in platforms. The data shall be interpreted according to the significance level (.05) regarding the significance of the differences that have been observed in the below table:

Table (6) Results of the t-test for trading competence level

Variable	T-value	Significance Level	Score
Gender	1.98	0.048	Function
School Type	2.67	0.008	Function
Platforms Usage Experience	3.45	0.000	Function

The results indicate that experience in using digital platforms plays an

important role in raising the level of efficiency in communication and interaction. This is supported by the findings of Thomas (1983) and Shadiev et al. (2021), who found that communication via electronic forms significantly helped to eliminate errors or failure in communication.

Hypothesis 3: There exists a statistically significant correlation between the level of involvement in shared online tasks and the level of pragmatic competence. This hypothesis was tested for correlation using the Pearson correlation coefficient, and the result is presented below:

Table (7) Pearson's correlation coefficient between collaborative learning and pragmatic competence

Variables	Correlation coefficient (r)	Significance level
Collaborative learning × Competence Pragmatics	0.71	0.000

When we see that the correlation coefficient is high, this indicates a strong and direct relationship between the two variables. What this means is that there is a clear positive effect of increased involvement in cross-cultural collaborative learning in achieving a higher pragmatic proficiency. Findings from similar research by authors such as O'Brien et al. in 2007, as well as Syzenko & Diachkova in 2020, supported the confirmation that digital collaborative interaction is a fundamental factor in achieving pragmatic competence.

Conclusions

Having studied the results of the investigation and having statistically correlated the findings, we have been able to draw several key conclusions:

- Fourth-year science students have shown a significant degree of collaboration in learning that amalgamates various cultures through online platforms. It is apparent that the interactive online learning environment has emerged as a valuable resource that encourages learning in collaboration with openness to cultural diversity.
- The findings also indicated that the language proficiency of the students in English was very good, which implies that the students are able to manage the language well.
- The findings indicated a positive link between collaborative learning across

different cultures and levels of practical language ability. What it shows is that more opportunities to participate and interact digitally will result in better English language ability.

- Results of the T-test in the study indicate that the level of cross-cultural collaborative learning was found to be significant, and the differences obtained were based on the gender of the learners and the type of school attended and the level of familiarity with digital platforms for learning. This indicates that the process of learning using digital platforms is significantly influenced by personal and institutional factors.
- The findings established a distinct difference in the level of communicative competence in English language skills, which depended on the gender of the student, the type of school attended, and experience with technology in participating in activities on digital platforms. This affirms that experience and learning environment play an important role in developing language skills.
- This study has also proved that online tools remain not only technical devices in education, but also carry significant educational and cultural importance by assisting students to develop practical communication skills and enhance their cultural awareness. This is in accordance with current scenarios in language education.

Recommendations:

Consequent upon the findings of the research work, the following points emerge as important:

- Involving intercultural participatory learning via online platforms in English language education at the preparatory level, since it is very effective in improving communication skills.
- The training should be specialized for English teacher training, targeting how to design participatory tasks in the digital age that consider cultural and communicative factors, instead of training them in grammar in isolation.
- Incorporate interactive digital platforms into learning curricula as crucial learning tools rather than mere learning aids.

Suggestions

There are various suggestions for future studies, based on the findings and limitations of this research, including:

- Experimental research into the assessment of the effect of collaborative

learning programs, which combine cultures, on improving various language skills, whether it be fluency or developing public speaking.

- Other suggestions also include conducting such research at different levels of education, middle school, or even university levels, to check if these results can be generalized across a bigger age and educational level.
- Emotional issues, such as the increase in motivation to learn a foreign language and changed attitudes toward other cultures, are also possible to be investigated with respect to cross- cultural digital collaborative learning.
- Finally, it is important to compare the effectiveness of multiple types of educational programs in this field for further understanding and development.

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