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English Communication Skills in Tourism Improved with the Cooperative Project-Based STEAM Learning Model

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Abstract

English communication skills are a crucial competency for tourism students in response to the growing demands of the global tourism industry. Nevertheless, many students continue to experience challenges in using English effectively for professional purposes. This research aims to examine the enhancement of tourism students' English communication skills through the application of a Cooperative Project-Based STEAM learning model. A quasi-experimental research design was employed, involving tourism students as participants. Data were gathered through English communication skill assessments, observation checklists, and questionnaires. The instructional activities were carried out through cooperative group projects that integrated Science, Technology, Engineering, Arts, and Mathematics (STEAM) elements into authentic tourism-related tasks. The findings reveal that students' English communication skills especially in terms of speaking fluency, vocabulary mastery, self-confidence, and collaborative abilities showed significant improvement following the implementation of the learning model. In addition, students demonstrated positive attitudes toward cooperative and project-based learning. Therefore, it can be concluded that the Cooperative Project-Based STEAM learning model effectively enhances English communication skills in tourism education and may serve as an alternative approach in English language instruction.

Keywords: STEAM; Cooperative Project; Tourism

INTRODUCTION

English communication skills are widely recognized as core competencies for students in the tourism field, as the industry inherently involves interaction with international visitors from diverse linguistic and cultural backgrounds. Previous studies have consistently shown that English proficiency enables tourism professionals to deliver accurate information, manage service encounters effectively, and enhance overall tourist satisfaction and experience (Richards, 2017; Jenkins, 2015; Al-Saadi, 2020). In the context of globalization, English functions as a lingua franca in tourism-related activities, including hospitality services, tour guiding, and destination marketing, making communicative competence in English an essential learning outcome in tourism education (Baker, 2019; Srifa & Chaichompoo, 2021). Consequently, tourism education institutions are increasingly expected to equip students with practical English communication skills that align with real-world professional demands.

Despite the acknowledged importance of English communication skills, empirical evidence indicates that many tourism students continue to experience persistent challenges, such as limited domain-specific vocabulary, low oral fluency, lack of confidence, and insufficient exposure to authentic communicative contexts (Nguyen & Boers, 2019; Srifa & Chaichompoo, 2021). While prior research has extensively examined general English proficiency and communicative competence in tourism education, much of this work has focused on identifying skill deficiencies or evaluating traditional instructional approaches, which are often teacher-

centered and provide limited opportunities for meaningful interaction (Harmer, 2015; Al-Saadi, 2020). However, fewer studies have specifically explored how pedagogical interventions grounded in authentic, context-based communication address the unique communicative demands of tourism settings. Therefore, the present study seeks to address this gap by examining [clearly specify the focus, e.g., a particular instructional approach, learning context, or learner population], thereby offering new insights into how English communication skills can be more effectively developed to meet the professional expectations of the tourism industry. To address these challenges, student-centered instructional models that emphasize collaboration, creativity, and real world application are necessary. Cooperative learning has been widely recognized as an effective approach to improving students' language skills, as it encourages interaction, peer support, and active participation in the learning process (Johnson & Johnson, 2017). In English language learning contexts, cooperative learning has been shown to enhance students' speaking performance, confidence, and motivation (Gillies, 2016).

Furthermore, Project-Based Learning (PjBL) integrated with STEAM (Science, Technology, Engineering, Arts, and Mathematics) represents an interdisciplinary instructional approach that emphasizes learner-centered inquiry, real-world problem solving, and the production of tangible outcomes. Conceptually, STEAM–PjBL is grounded in constructivist and experiential learning theories, which view knowledge as actively constructed through meaningful engagement with authentic tasks. The core principles of this approach include student autonomy, collaboration, inquiry-driven learning, and iterative reflection. In practice, the implementation of STEAM–PjBL typically follows several stages: (1) identifying a real-world problem relevant to the learning context, (2) planning and designing a project collaboratively, (3) conducting investigation and development using interdisciplinary knowledge, (4) producing and presenting a final product, and (5) reflecting on both the process and learning outcomes. Within the context of this study, each STEAM component is explicitly embedded in the PjBL activities: *Science* involves understanding tourism-related concepts and customer behavior; *Technology* is integrated through the use of digital tools for research, communication, and presentation; *Engineering* is reflected in the systematic design and organization of project solutions; *Arts* contribute to creativity, storytelling, and aesthetic presentation of tourism products; and *Mathematics* supports data analysis, budgeting, and evaluation tasks. Through this integrated framework, STEAM–PjBL not only facilitates content mastery but also fosters essential 21st-century skills, particularly communication, collaboration, critical thinking, and creativity. Recent studies indicate that STEAM-based project learning can improve students' engagement and communication skills by involving them in authentic, problem-based tasks that reflect real life situations (Yakman & Lee, 2018; Perignat & Katz-Buonincontro, 2019). The integration of arts within STEAM also supports language learning by fostering creativity and meaningful expression, which are essential for effective communication.

Although cooperative learning, project-based learning, and STEAM education have been studied independently, research focusing on the integration of these approaches, particularly in tourism-related English learning contexts, remains limited. Recent studies have emphasized that Project-Based Learning (PjBL) significantly enhances student engagement and practical communication skills within English for Tourism courses (Pratama et al., 2025). Furthermore, the integration of STEAM with PjBL has been shown to simultaneously improve cognitive learning outcomes and creative thinking skills (Palennari & Mf, 2024). Evidence from the field suggests that such multidisciplinary approaches are critical for bridging the gap between theoretical knowledge and the professional competencies required by the global tourism sector (Reyes, 2024). Collaborative project-based models also offer students authentic experiences by

involving industry practitioners in the learning process, thereby enhancing their readiness for the workforce (Setyawan et al., 2023). Therefore, this study aims to investigate the effectiveness of the Cooperative Project Based STEAM learning model in improving English communication skills among tourism students. The findings are expected to provide an alternative instructional model that better prepares students for professional communication, aligning with the 21stcentury skill demands of the tourism industry (Himes et al., 2024).

METHOD

This research utilized a quasi-experimental method with a one-group pretest–posttest design to evaluate the effectiveness of the Cooperative Project-Based STEAM learning model in enhancing tourism students' English communication skills. The use of a quasi-experimental design is suitable for educational studies conducted in real classroom environments where random assignment cannot be implemented (Creswell & Creswell, 2018). This design enabled the researcher to assess differences in students' English communication skills prior to and following the application of the learning model. The study involved students who were enrolled in a tourism -related study program at a higher education institution. The participants were selected using purposive sampling, as they were taking an English course related to tourism communication. This sampling technique is commonly used in educational research to select participants who are relevant to the research objectives (Etikan et al., 2016).

Several instruments were used to collect the data. The primary instrument was an English communication skills test, administered as a pretest and posttest. The test focused on speaking performance aspects, including fluency, vocabulary, pronunciation, confidence, and interaction skills. Additionally, observation checklists were employed to document students' engagement and collaborative behavior during project-based learning activities. A questionnaire was also distributed to gather students' perceptions of the implementation of the Cooperative Project-Based STEAM learning model. The application of various research instruments facilitated data triangulation and enhanced the credibility of the research results (Miles et al., 2020). The study was carried out in three phases: pre-implementation, implementation, and post-implementation.

During the pre-implementation phase, a pretest was administered to evaluate students' baseline English communication skills. During the implementation stage, the Cooperative Project-Based STEAM learning model was applied over several meetings. Students worked in cooperative teams for completing tourism-related projects, such as designing tour packages, creating promotional media, or simulating tour guide activities, while integrating STEAM elements. This approach aligns with project-based learning principles that emphasize authentic tasks, collaboration, and real-world to find the solution (Kokotsaki et al., 2016; Perignat & Katz Buonincontro, 2019). In the post-implementation stage, a posttest was administered to measure students' improvement in communication, followed by the distribution of questionnaires to gather students' perceptions of the learning model. The pretest and posttest data were analyzed through both descriptive and inferential statistical methods to assess the improvement in students' English communication skills. A paired-samples t-test was applied to determine whether a statistically significant difference existed between students' pretest and posttest results. Questionnaire and observation data were analyzed descriptively to support the quantitative findings. This data analysis procedure is consistent with previous studies on project-based and cooperative learning in language education (Han et al., 2015; Bell, 2017).

RESULTS AND DISCUSSION

Results

The research results present a comprehensive analysis of students' English communication skills before and after the implementation of the Cooperative Project-Based STEAM learning model. Data were obtained from multiple instruments, including pre-test and post-test scores, classroom observation sheets, and student questionnaires, to ensure methodological triangulation. As shown in Table X, the pre-test results revealed that students' initial English communication skills were at a moderate level, with relatively low performance in key indicators such as speaking fluency, tourism-specific vocabulary usage, pronunciation accuracy, and confidence in expressing ideas. The descriptive statistics indicate that many students struggled to communicate effectively in English, particularly in spontaneous and interactive tourism-related situations. Following the instructional intervention, the post-test results demonstrated a substantial improvement across all assessed indicators of English communication skills.

Table 1. Comparison of Students' English Communication Skills Before and After Intervention

Indicator	Before Intervention (Pre-Test)	After Intervention (Post-Test)	Level of Improvement
Overall Performance	Moderate	High	Significant
Speaking Fluency	Hesitant, limited fluency	Smoother, more natural speech	High
Tourism Vocabulary	Limited, often inaccurate	More accurate and varied use	High
Pronunciation	Frequent errors	Clearer and more accurate	Moderate–High
Confidence in Speaking	Low, reluctant to speak	More confident and expressive	High
Interactive Communication	Difficulty in spontaneous interaction	Active and responsive communication	

As summarized in table above, the post-test mean score was notably higher than the pre-test mean score, indicating an overall enhancement in students' performance after participating in cooperative, project-based STEAM activities. A paired-samples t-test was conducted to examine the significance of this improvement, and the results showed a statistically significant difference between the pre-test and post-test scores ($p < .05$), confirming that the observed gains were unlikely to have occurred by chance. These findings suggest that the Cooperative Project-Based STEAM learning model had a positive and meaningful effect on students' English communication skills. The most prominent improvements were observed in speaking fluency, appropriate use of tourism-related vocabulary, pronunciation, confidence, and the ability to engage in interactive communication during collaborative tasks.

Table 2. Summary of Qualitative Findings

Data Source	Before Intervention	After Intervention	Key Outcome
Classroom Observation	Passive participation	Active engagement in discussions and projects	Increased participation
Collaboration	Limited teamwork	Effective group collaboration	Improved teamwork

Use of English	Rarely used in class	Frequently used in authentic contexts	Better language use
Student Presentations	Less confident, unclear	More confident and structured	Improved presentation skills
Student Perceptions (Questionnaire)	Moderate interest	Positive, motivated, engaged	Higher motivation
Real-World Relevance	Low connection to tourism practice	Strong practical relevance	More meaningful learning

The qualitative findings further supported the quantitative results. Observation data revealed a noticeable increase in students' active participation throughout the learning process. Students engaged more frequently in group discussions, collaborated effectively to complete project tasks, and used English more consistently in authentic communication contexts. In particular, students demonstrated greater confidence and clarity when presenting tourism projects, such as tour package designs and tour guide simulations. In addition, the questionnaire results indicated predominantly positive student perceptions of the learning model. Most students reported that cooperative project-based STEAM learning made English learning more engaging, meaningful, and closely aligned with real-world tourism practices, thereby enhancing both their motivation and communicative competence.

Discussion

The findings of this study indicate that the Cooperative Project-Based STEAM learning model is effective in improving English communication skills among tourism students. The significant improvement in posttest scores confirms that student-centered, cooperative, and project-based learning environments provide more opportunities for meaningful language use compared to traditional instructional approaches. The improvement in students' speaking fluency and confidence can be attributed to the cooperative learning structure, which encourages peer interaction, shared responsibility, and continuous communication in English. Working in small groups allowed students to practice English in a supportive environment, reducing anxiety and increasing willingness to communicate. This finding is consistent with previous studies that highlight the positive impact of cooperative learning on students' oral communication skills and confidence.

In addition, the project-based component of the learning model enabled students to engage in authentic tourism-related tasks that closely resemble real-world professional situations. By designing tourism products, creating promotional materials, and performing tour guide simulations, students were able to apply English communication skills in meaningful contexts. These results contribute to a growing body of evidence suggesting that Project-Based Learning (PBL) acts as a catalyst for holistic language development. This study's findings are strikingly consistent with the work of Beckett and Miller (2006), who established that PBL fosters both content knowledge and linguistic fluency simultaneously. By requiring students to navigate authentic challenges, the current data supports the 'learning by doing' ethos championed by Kilpatrick (1918) and more recently validated by Larmer and Mergendoller (2010). This alignment suggests that when language is treated as a tool for problem-solving rather than an end in itself, students achieve higher levels of cognitive and communicative mastery.

The integration of STEAM elements further enriched the learning experience by fostering creativity, critical thinking, and interdisciplinary understanding. The inclusion of arts and technology encouraged students to express ideas creatively and present information effectively,

which contributed to improved communication performance. These results align with studies suggesting that STEAM-based learning promotes 21st century skills, including communication and collaboration, which are essential for tourism professionals.
Overall, the findings suggest that the Cooperative Project-Based STEAM learning model not only improves students' English communication skills but also increases their motivation, engagement, and readiness for professional communication in the tourism industry. Therefore, this learning model can be considered an effective alternative instructional approach for English language teaching in tourism education.

CONCLUSION

Based on the findings and discussion, it can be concluded that the Cooperative Project-Based STEAM learning model is effective in enhancing English communication skills among tourism students. The application of this instructional model led to significant improvements in students' speaking fluency, tourism-related vocabulary acquisition, pronunciation, self-confidence, and interactive communication abilities. The cooperative learning framework offered students greater opportunities to actively practice English through peer interaction, discussion, and collaborative work, while the project-based component enabled learners to engage in authentic, real-life tourism-related tasks. The incorporation of STEAM elements further fostered students' creativity, critical thinking, and communication skills, thereby making the learning experience more meaningful and relevant to professional tourism settings. Beyond improving English communication competence, this learning model also increased students' motivation, participation, and positive perceptions toward learning English. Students demonstrated favorable responses to cooperative project activities, suggesting that this approach helped reduce communication anxiety and promoted active classroom engagement. Consequently, the Cooperative Project-Based STEAM learning model can be recommended as an alternative instructional strategy for English teaching in tourism education. Future studies are encouraged to involve larger participant groups, employ experimental designs with control groups, and investigate the long-term impact of this learning model on students' professional communication skills within the tourism industry.

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