

# Enhancing INCOTERMS Understanding among Undergraduate Students: The Impact of Innovative Teaching Strategies in Global Logistics Education

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## ABSTRACT

In global logistics education, a thorough understanding of International Commercial Terms (INCOTERMS) is vital for students preparing for careers in international trade. However, many undergraduate students struggle to fully comprehend and apply these terms, often due to traditional teaching methodologies. This study explores the impact of innovative teaching strategies, such as gamification, case-based learning, creative expression, and virtual simulations, on improving INCOTERMS comprehension. Using an intervention-based approach with 30 undergraduate students enrolled in a logistics program, the research employed interactive teaching methods including quizzes, games, and hands-on activities. Results indicated significant improvements in student engagement and understanding of INCOTERMS, highlighting the efficacy of diverse, active teaching strategies in global logistics education. These findings underscore the importance of integrating interactive approaches to foster deeper comprehension and prepare students for real-world applications of INCOTERMS in the logistics industry.

**Keywords:** INCOTERMS, global logistics education, innovative teaching strategies, gamification, interactive learning

## INTRODUCTION

In today's interconnected global economy, a deep understanding of international trade regulations is essential for future business leaders, particularly those specializing in logistics and supply chain management. INCOTERMS, or International Commercial Terms, play a pivotal role in clarifying the responsibilities of buyers and sellers in global transactions. However, many undergraduate students struggle to grasp these terms due to traditional teaching methodologies. This article explores innovative teaching strategies that enhance INCOTERMS comprehension among undergraduate students in global logistics education, ultimately preparing them for success in their future careers.

## LITERATURE REVIEW

The increasing complexity of global logistics and international trade demands a deep understanding of supply chain management (SCM) and international trade frameworks, especially the International Commercial Terms (INCOTERMS). These terms play a critical role in defining the responsibilities between buyers and sellers in global transport agreements, providing clarity in international transactions. However, despite their importance, undergraduate students in logistics programs often find it challenging to fully comprehend and apply

INCOTERMS, which poses a significant issue for their future roles in global logistics.

Research underscores the difficulties faced by students in grasping INCOTERMS, as retention and application often prove problematic [1, 2]. Given the essential nature of these terms for success in international trade, the need to explore more effective teaching strategies becomes evident. Traditional teaching methods may fall short in engaging students and ensuring their understanding of how INCOTERMS are applied in real-world contexts.

This study aims to address these challenges by investigating innovative teaching methodologies, such as gamification, case-based learning, and virtual simulations. These approaches aim to make learning more interactive and practical, improving students' comprehension and retention of INCOTERMS. By incorporating experiential learning techniques, the research seeks to equip students with the necessary competencies for their future careers in global logistics, bridging the gap between theory and practice in international trade education. An easy way to comply with the conference paper formatting requirements is to use this document as a template and simply type your text into it.

### **The Importance of INCOTERMS in Global Trade**

INCOTERMS, established by the International Chamber of Commerce (ICC), are a set of rules that define the responsibilities of parties involved in international trade agreements. They dictate how shipping costs, risks, and responsibilities are divided between buyers and sellers. With different terms applicable to various modes of transport, understanding these can significantly impact a company's financial outcomes and liability.

Despite their importance, many students enter the workforce with only a cursory understanding of INCOTERMS. This knowledge gap can lead to costly mistakes in real-world scenarios. Thus, educational institutions must focus on enhancing students' comprehension of these terms as part of their logistics curriculum.

Previous research has highlighted various pedagogical approaches in logistics education. For instance, studies have shown that traditional lecture-based methods often fail to engage students fully, leading to superficial understanding. Additionally, a study from Harvard found that students in active learning environments, as opposed to traditional lecture settings, demonstrated better educational outcomes and deeper understanding [3]. Another analysis highlights that traditional methods do not always cater to diverse learning styles, which can further contribute to disengagement and lack of critical thinking [4]. Moreover, Interactive learning strategies, such as case studies and simulations, have been identified as more effective in fostering deeper comprehension [4]. However, there remains a gap in the literature regarding the specific impact of gamification and creative expression on learning INCOTERMS.

Additionally, while some studies have examined the effectiveness of collaborative learning environments (Lee & Kim, 2019), few have focused on the integration of technology and hands-on activities in teaching complex subjects like INCOTERMS. This study seeks to fill this gap by employing a multi-faceted approach that combines interactive teaching methods with technology to enhance student engagement and understanding.

### **Problem Statement**

The primary issue addressed by this study is the inadequate understanding of INCOTERMS among undergraduate logistics students. Currently, many students face difficulties in comprehending these terms and are often confused about how to apply the knowledge they learn in class to real-world scenarios. Traditional teaching methods have proven insufficient in imparting this critical knowledge, leading to a lack of preparedness for practical applications in the logistics field.

This study is essential in identifying effective teaching strategies that can significantly improve students' comprehension and practical application of INCOTERMS in their future careers. By exploring innovative teaching methodologies, such as gamification, case-based learning, and interactive simulations, the research aims to provide insights that will equip students with a solid grasp of INCOTERMS. These strategies will help prepare them for real-world challenges in the logistics industry, ensuring they are better positioned for success before they transition into their professional roles.

## Theoretical Framework

This study is grounded in several educational theories:

**Constructivist Learning Theory:** This theory posits that learners construct knowledge through experiences and reflection [5]. By employing interactive and engaging teaching strategies, students can better internalize complex concepts [6] like INCOTERMS.

**Experiential Learning Theory:** This theory is from Kolb (1984), learning is most effective when it involves direct experience [7]. The proposed intervention incorporates hands-on activities, allowing students to apply their knowledge practically [8].

**Gamification Theory:** This theory suggests that game design elements can enhance motivation and engagement in learning environments. Research indicates that elements such as points, badges, and leaderboards positively influence intrinsic motivation, leading to increased enthusiasm and persistence [9]. By integrating gamified activities into the curriculum, studies have shown that student interest and retention of information can be significantly improved [10, 11].

## Challenges in Teaching INCOTERMS

Academic literature highlights several difficulties that students face in understanding and retaining INCOTERMS. One significant hurdle is the complexity and variability of the terms, which can create confusion during instructional delivery [12]. Furthermore, students often find it challenging to differentiate between terms that appear similar, leading to cognitive overload [13]. This disconnect is exacerbated by a lack of practical application opportunities in traditional classroom settings, as students struggle to relate theoretical knowledge to real-world practices. These challenges necessitate innovative teaching strategies that foster deeper engagement and facilitate improved retention rates.

## Innovative Teaching Strategies

The literature offers several pedagogical approaches aimed at enhancing the retention of complex information such as INCOTERMS. Active learning frameworks, which emphasize student participation and experiential learning, have been shown to promote engagement and comprehension [14]. Interactive methods, such as games, simulations, and group projects, effectively facilitate experiential learning and have a documented positive impact on students' ability to remember and apply theoretical concepts.

## METHODOLOGY

This study employed a qualitative research design to examine the effectiveness of interactive teaching strategies in enhancing student engagement and learning of incoterms within the context of "international transport and trade in logistics." The research used an intervention-based approach, focusing on undergraduate students enrolled in a logistics program at university aa (a pseudonym). The study utilized purposive sampling, selecting a total of 30 students based on their enrolment in the course and their availability to participate in the intervention activities.

### Sampling Techniques:

Purposive sampling was used to ensure that participants had prior exposure to basic international trade concepts, allowing for a more focused investigation of the effectiveness of the teaching intervention. The sample included a group of 30 students, within the selected undergraduate logistics program.

### Target Population:

The target population for this study comprised undergraduate logistics students at University AA. The primary reason for selecting this population was to equip them with a practical understanding of INCOTERMS, which

is essential before they begin their hands-on training. This knowledge is also a crucial part of their professional development, preparing them for job opportunities in the global logistics industry. These students were identified as key participants because their performance and feedback could provide insights into the teaching methods most effective for mastering this complex subject matter.

### **Data Collection Procedures**

Data were collected through various qualitative methods, including participant observation, focus group discussions, and reflective journals. Each stage of the intervention was observed, with detailed notes taken on student participation, engagement, and interactions. After the intervention, focus group discussions were held to gather in-depth feedback on the learning activities and their perceived impact on students' understanding of INCOTERMS. Additionally, students maintained reflective journals throughout the intervention, where they documented their thoughts on the activities, their progress in grasping the material, and any challenges they encountered. These journals provided a key source of qualitative data, offering insights into individual learning experiences.

The use of multiple qualitative data collection methods allowed for triangulation of findings, offering a comprehensive view of how each teaching strategy influenced student learning. This multi-method approach ensured the study captured both individual and group learning dynamics, as well as the overall effectiveness of the teaching intervention.

For this study, the teaching intervention was structured into five distinct yet interconnected steps, each designed to build upon the previous one, utilizing interactive and engaging methods to develop a thorough understanding of INCOTERMS. To evaluate the impact of the intervention, a final test was administered after completing the five steps, assessing the effectiveness of the methodology in achieving the intended learning outcomes.

### **Step 1: Introduction to INCOTERMS**

The intervention begins with a lecturer-led presentation that thoroughly introduces INCOTERMS, emphasizing their significance in international trade. During this initial step, the lecturer outlines the 13 INCOTERMS, providing examples of their application in real-world scenarios. This foundational knowledge is crucial as it establishes the context for students, allowing them to appreciate the importance of these terms in facilitating global commerce. The lecturer also highlights common misconceptions and clarifies any ambiguities regarding the usage of each term, ensuring that students have a clear understanding before proceeding.

To enhance engagement during this presentation, the lecturer encourages questions and discussions among students. This interactive approach not only fosters a more dynamic learning environment but also allows students to express their thoughts and concerns about the material. By creating an open dialogue, the lecturer can gauge student understanding and adjust the pace and depth of instruction accordingly. This step sets a solid foundation for subsequent activities, ensuring that students are prepared to actively participate in hands-on learning experiences.

### **Step 2: Memorization and Recall**

Following the introduction, students engage in a memorization exercise where they are encouraged to recall and present the INCOTERMS in front of their peers and the lecturer. This exercise is designed to reinforce memory retention through repetition, as students practice recalling the terms aloud. The act of presenting not only tests their understanding but also helps them internalize the information more effectively. By articulating their knowledge in front of others, students are likely to develop greater confidence in their grasp of the material.

In addition to individual recall, this step promotes peer interaction as students are encouraged to support one another during presentations. This collaborative atmosphere allows them to share tips and mnemonic devices that can aid memory retention. Furthermore, by observing their peers' presentations, students can learn different perspectives on how to remember and apply INCOTERMS effectively. Overall, this step not only solidifies knowledge but also fosters a sense of community within the classroom.

### **Step 3: Creative Expression with Balloons**

To further enhance engagement, students participate in a balloon activity where they write the 13 INCOTERMS on balloons. This creative task transforms a traditional learning experience into a lively and enjoyable one. Students work in pairs to ensure accuracy while writing down each term, which encourages collaboration and communication skills. The visual aspect of using balloons also helps create a memorable association with each term, making it easier for students to recall them later.

After completing their balloon creations, pairs engage in a verification process where they check each other's work for correctness. This peer-review element not only reinforces learning but also promotes accountability among students. As they discuss any discrepancies or uncertainties regarding the terms, they deepen their understanding through dialogue and explanation. The playful nature of this activity fosters a relaxed atmosphere conducive to learning while simultaneously encouraging teamwork.

### **Step 4: Gamification with Trans Odyssey Board Game**

The fourth step introduces a gamified learning experience through a board game called "Trans Odyssey," which resembles "Snakes and Ladders." In this interactive game, students navigate a colorful board filled with challenges related to INCOTERMS and international trade scenarios. Players must answer questions correctly to advance; incorrect answers result in missed turns or setbacks on the board. This competitive element not only reinforces learning but also motivates students to engage deeply with the material as they strive to outpace their peers.

As they play in small groups, students collaborate and strategize on how best to tackle questions while supporting one another's learning processes. This group dynamic fosters teamwork and enhances problem-solving skills as they discuss potential answers before making decisions collectively. The game format injects an element of fun into learning while reinforcing key concepts through practical application. By integrating competition with educational content, this step ensures that students remain actively involved and invested in their learning journey.

### **Step 5: Interactive Quizzing**

The last step incorporates interactive quizzing using online platforms such as Quizit, Kahoot, or Mentimeter. This activity serves both as an assessment tool and as a motivational factor for students. Participants compete against one another for prizes based on their performance, which adds an exciting layer of competition that encourages maximum engagement with the material. The immediate feedback provided by these platforms allows students to identify areas where they may need further review or clarification.

Moreover, this interactive quiz format promotes active participation from all students, as everyone has an opportunity to contribute answers using their devices. The use of technology not only makes learning more dynamic but also caters to different learning styles by incorporating visual and auditory elements into assessments. As students compete for top spots on leaderboards, they are motivated to review content thoroughly and collaborate with peers for strategies on answering questions correctly. This final assessment solidifies their understanding while fostering a sense of accomplishment among participants.

### **Final Assessment (Test)**

The final step in the instructional process is a comprehensive assessment designed to evaluate students' understanding of the material, with a particular emphasis on INCOTERMS introduced in Chapter 1. This test will be administered after students have completed their studies from Chapters 1 to 3, following the engaging interactive learning modules outlined in the earlier steps. The assessment will include a range of questions, with the first question specifically targeting their comprehension of INCOTERMS. This strategic placement allows educators to assess not only the retention of foundational knowledge but also students' ability to apply these terms in practical contexts. This structured assessment is essential for reinforcing learning outcomes, providing valuable feedback on student progress, and identifying areas that may need additional focus. By incorporating this evaluation into the overall learning process, educators can ensure that students are well-equipped to utilize

their understanding of INCOTERMS effectively in real-world logistics scenarios.

## RESULTS

Post-implementation, the results demonstrated a significant improvement in students' comprehension of INCOTERMS, particularly evident when comparing pre- and post-test scores. Students showed marked progress in their ability to accurately answer questions that had previously been challenging, especially Question 1. After participating in structured activities, the majority of students were able to provide correct responses, indicating a notable enhancement in their understanding.

The interactive teaching strategies employed during the intervention played a key role in this improvement. Students who initially struggled to differentiate between various INCOTERMS exhibited better retention and application of the material after engaging in activities such as peer presentations, the balloon task, and the gamified learning experience. The post-test results revealed a clear increase in the number of students who could accurately apply INCOTERMS to real-world scenarios, underscoring the effectiveness of combining traditional instruction with hands-on, interactive learning.

Feedback from students further highlighted the success of these methods. Many participants reported that the interactive activities made learning INCOTERMS more enjoyable and approachable, boosting their confidence in mastering the terms. Specific tasks, like the "Trans Odyssey" board game and interactive quizzes, were singled out as especially engaging, as they allowed students to apply their knowledge in a dynamic and competitive setting.

The intervention also fostered a collaborative learning environment, where students worked together in pairs and small groups. This peer collaboration was evident during tasks like the balloon exercise, where students verified each other's INCOTERMS, and during board game sessions, where they strategized collectively. This cooperation not only helped correct misconceptions but also reinforced students' understanding of the material, enhancing both individual and collective learning.

Overall, the findings demonstrate that integrating traditional instruction with interactive and collaborative teaching strategies significantly improved student comprehension and engagement with INCOTERMS. By catering to different learning styles and promoting both independent and group activities, the intervention effectively enhanced students' ability to retain and apply the material. These results indicate that diverse, active teaching methods can be highly beneficial in developing practical skills for international trade education.

## CONCLUSION AND FUTURE RECOMMENDATIONS

### Conclusion and Future Recommendations:

This study highlights that diverse, interactive teaching methods, including gamification, collaborative exercises, and technology-enhanced learning, significantly enhance students' comprehension of complex concepts like INCOTERMS. The findings demonstrate that active and engaging pedagogical approaches not only improve students' engagement but also foster better retention and practical application of knowledge in real-world scenarios. These results underscore the value of moving beyond traditional lecture-based instruction toward more dynamic, experiential learning models in international trade education.

As global trade continues to evolve, the mastery of INCOTERMS becomes increasingly essential for professionals in logistics and supply chain management. This study supports the conclusion that interactive teaching strategies, such as board games, creative tasks, and digital quizzing platforms, provide effective means of improving student outcomes in this field. The integration of these innovative methods prepares students to tackle the complexities of international trade, equipping them with the skills required for future professional success.

### Future Recommendations:

Future research should explore the long-term impact of these teaching strategies on knowledge retention,

particularly in real-world logistics applications. Additionally, expanding the study to include a broader sample of students from various educational institutions and regions could offer deeper insights into the effectiveness of these methods across different learning environments. Investigating the potential of emerging technologies, such as virtual and augmented reality simulations, to further enhance experiential learning in logistics education would also be valuable. By continuing to innovate in pedagogy, educators can better prepare students to meet the evolving demands of the global logistics industry.

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