International Journal of Research Studies in Education
2026 Volume 15 Number 9, 27-47

Exploring perspectives on English for professional development through innovative teaching strategies: A case study in vocational higher education

Hsu, Tsu-Chia Julia ✉
Lunghwa University of Science and Technology, Taiwan

ISSN: 2243-7703
Online ISSN: 2243-7711

Received: 20 January 2026 **Revised**: 25 February 2026 **Accepted**: 20 March, 2026 OPEN ACCESS
Available Online: 30 April 2026 **DOI**: 10.5861/ijrse.2026.26015

Abstract

This research investigates the integration of the Teams-Games-Tournament (TGT) model and the Padlet digital platform to enhance English for Professional Development (EPD) in a vocational university. This case study utilized a mixed-methods approach to evaluate the performance of 20 interdisciplinary students over one semester. Quantitative results from a paired-samples t-test revealed a statistically significant improvement in academic performance, with mean scores rising from 41.25 to 50.38 ($p < .01$). By contrast, scores on the English Learning Engagement Scale showed no statistically significant change ($p = .575$), likely attributable to the small sample size (N = 20) and the brevity of the single-semester intervention. Although scores on the English Learning Engagement Scale remained stable; likely due to the small sample size and the short intervention period, qualitative data from interviews and reflective journals indicated a marked reduction in learning anxiety and a proactive shift in student attitudes. A critical innovation in this study was the implementation of proficiency-based stratification and dynamic grouping. By leveling competition questions and reassigning students into competitive tiers (Upper-Intermediate to Lower-Intermediate) based on weekly progress, the instructor ensured task fairness and maintained student confidence. Furthermore, the use of Padlet facilitated a "flipped classroom" approach, allowing for prior knowledge construction and enhanced teacher-student interaction. Findings confirm that this hybrid, game-based collaborative environment fosters effective peer scaffolding and motivates non-English majors to master challenging workplace content. The study concludes that while innovative strategies significantly boost academic achievement and group cohesion, future research should involve larger cohorts and longer intervention periods to measure shifts in long-term psychological engagement. Additionally, the integration of Generative AI tools is recommended to align with evolving professional demands.

Keywords: Teams-Games-Tournament, Padlet, vocational education, collaborative learning, professional English

Exploring perspectives on English for professional development through innovative teaching strategies: A case study in vocational higher education

1. Introduction

Driven by the national “2030 Bilingual Nation” policy and the momentum of digital transformation, technical and vocational education (TVE) institutions in Taiwan have increasingly prioritized the core pedagogical values of “Practicality, Excellence, and Innovation.” The primary objective is to cultivate professional talents equipped with international competitiveness through enhanced English Medium Instruction (EMI) and specialized language training. However, despite these ambitious policy aspirations, most institutions are currently navigating significant structural challenges. The broader societal trend of declining birth rates, coupled with shifting socio-economic pressures, has induced a noticeable paradigm shift in student demographics and academic behaviors. Empirical observations within university settings reveal an increasing prevalence of unstable attendance and chronic tardiness, particularly in early morning sessions, often stemming from students’ prioritization of part-time employment or disrupted circadian rhythms.

These behavioral trends extend beyond individual shortcomings; they undermine the entire learning ecosystem. Chronic absenteeism creates what may be termed "information fragmentation": an accumulation of knowledge gaps that prevents students from building a coherent understanding of course content, ultimately producing a severe learning lag and eroding collective classroom engagement. Furthermore, the persistent lack of punctuality disrupts the pedagogical flow and deteriorates classroom order, causing a marked decline in collective concentration. For students, failing to establish rigorous learning habits during the foundational undergraduate years leads to a systemic decline in Learning Engagement. This disengagement not only hinders individual academic achievement but also erodes the collective learning atmosphere, posing a significant challenge to the successful implementation of bilingual education initiatives.

The primary motivation of this study stems from the urgent need to address the structural issues underlying the lack of learning engagement among TVE students, which academic literature consistently identifies as a critical barrier to instructional effectiveness (Yang et al., 2014; Chen, 2017). During the researcher’s tenure as both an advisor and instructor, it was observed that external distractions, such as smartphone dependency, combined with socio-economic factors like part-time work, significantly deplete students’ learning momentum. Consequently, traditional theory-oriented lecture methods have proven inadequate in maintaining student focus. There is, therefore, a pressing need to transition toward more interactive and dynamic pedagogical strategies, such as the Team-Games-Tournament (TGT) model to revitalize classroom participation and alleviate instructional resistance caused by absenteeism.

Furthermore, this research is driven by the ambition to construct a systemic support framework centered on the five dimensions of learning engagement: academic challenge, active and collaborative learning, student-teacher interaction, supportive campus environments, and interpersonal relationships. This study operates on the premise that student potential is limited not by cognitive ability, but by the degree of active participation. By systematically tracking and monitoring the learning trajectories of students via digital platforms, this project explores how active learning and peer interaction can serve as catalysts for academic recovery. The findings are intended to provide an empirical reference for the broader transformation of English language teaching, demonstrating that strategic, student-centered innovations can effectively enhance learning outcomes and foster a more resilient academic environment for students who may otherwise face academic abandonment.

This study is situated within the framework of a mandatory sophomore English course. It aims to evaluate the impact of innovative instructional designs on student outcomes through the following specific objectives:

- The first objective is to explore the effectiveness of the Team-Games-Tournament (TGT) model. By integrating heterogeneous grouping and structured competitive play, this study examines whether an increase in time spent within cooperative learning groups correlates positively with the development of students' interpersonal relationships and social interdependence.

- The second objective focuses on the integration of digital learning platforms, specifically Padlet, as a real-time feedback and interaction system. To stimulate intrinsic motivation and curiosity, the researcher provides digital "learning scaffolds" (unit worksheets) prior to class sessions. By leveraging the university's Learning Management System (LMS) to track behavioral metrics—such as login frequency, assignment submission times, discussion participation, and reading duration—this study investigates how increased online teacher-student interaction affects overall behavioral engagement both inside and outside the classroom.

- The final objective is to utilize a mixed-methods approach, including the English Learning Engagement Scale and in-depth interviews, to gain a comprehensive understanding of the class's learning trajectory.

2. Literature Review

This study explores the impact of such innovative pedagogical strategies on student developmental outcomes.

2.1 Learning Engagement

Learning engagement has long been a pivotal subject of inquiry and significance within the field of education. Over the past two decades, a primary focus for educators has been identifying the barriers and pedagogical challenges students encounter during the instructional process. Consequently, the mechanisms for increasing learning engagement have sparked extensive scholarly debate. The critical importance of this construct lies in its ability to provide insights into the student learning process, enabling researchers to track subsequent behavioral trajectories and developmental outcomes (Reeve et al., 2004). Such insights are essential for enhancing academic performance and mitigating dropout rates.

The concept of "learning engagement" encompasses a broad spectrum of domains and definitions. Synthesizing relevant literature (Tsai, 2005; Yang et al., 2014; Chen, 2017), it is observed that most existing studies employ quantitative methodologies. These research themes predominantly focus on the correlation between learning engagement and either academic achievement or attrition rates. For instance, studies targeting junior high school students in Changhua County demonstrate a significant positive correlation, suggesting that higher levels of learning engagement lead to superior academic achievement (Tsai, 2005; Hsueh, 2009). International research further supports this link, particularly in examining the relationship between student engagement and dropout behavior in secondary education (Archambault et al., 2009). Furthermore, international scholarship indicates an evolutionary shift in the measurement of this construct. Early research primarily focused on quantifying time spent on learning activities, such as homework duration. More recent scholarship, however, has shifted its focus toward students' broader participation in school-wide activities, their commitment to specific learning tasks, and the application of diverse cognitive strategies (Angell, 2009).

In recent years, domestic research has primarily concentrated on the factors influencing learning engagement (Chen, 2017), with a predominant focus on students under the age of 18. Furthermore, learning engagement has emerged as a critical instructional issue for students in specialized tracks, such as fine arts, physical education, and film and television programs. However, only a limited number of studies have specifically addressed learning engagement within physical education classes or other specialized vocational disciplines (Chen, 2017). Departing from the conventional focus on K-12 education, this study centers on students enrolled in "Workplace English," a cross-departmental general education course for non-English majors at a university of science and technology. The research explores learning engagement within this specific classroom context, with the objective of evaluating the resulting learning effectiveness from the learners' perspective.

The following sections synthesize and categorize the definitions and research scopes of "engagement" and "learning engagement" (see Tables 1 and 2). Additionally, the theoretical frameworks and scholarly insights underpinning this research are detailed below:

Table 1

Summarizes the theories, definitions, and key points of engagement proposed by scholars

Scholars (Year)	Definition and Connotation of "Engagement"
Yang et al. (2014)	Engagement encompasses an individual's cognitive and psychological dedication toward specific individuals or tasks, alongside behavioral participation and actual effort.
Hsueh (2009)	Engagement is broader than motivation. While motivation is a desire to achieve success in academic or specific tasks and students may perform well due to stimulated motivation, it does not necessarily imply that they are truly engaged in the learning process.
Furrer & Skinner (2003)	Engagement reflects people's enthusiasm for task participation and is associated with expressions of motivation (e.g., intrinsic motivation, self-determined extrinsic motivation, work orientation, and mastery motivation). It includes cognitive and psychological dedication, as well as behavioral participation and actual effort.
Connell & Wellborn (1991)	Individuals become engaged when their psychological needs are satisfied, manifesting through anticipated emotions, behaviors, and cognitions.

Table 2

Summary of theoretical frameworks on learning engagement

Scholars (Year)	Definition and Connotation of Learning Engagement
Chen (2017)	1. It is a prerequisite for effective learning experiences. 2. It aids in immediate course content mastery and benefits long-term academic pursuits. 3. It is malleable and improvable; thus, institutional interventions must be carefully considered. 4. It provides immediate feedback, allowing teachers to evaluate the effectiveness of their motivational efforts.4. Provides immediate feedback, allowing teachers to know if their efforts to motivate students are truly effective.
Tsai (2014)	Learning engagement is based on the frequency of a student's focused versus distracted behaviors during class.
Wang (2011)	It refers to the status of school activities that allow students to achieve high-level thinking and development, including the degree of participation in coursework and interaction with peers, teachers, and the institution.
Reeve & Tseng（2011）	While behavioral, emotional, and cognitive engagement predict learning outcomes, agentic engagement; stressing student self-advocacy and proactive contribution, while further emphasizes autonomous learning.
Chen (2010)	Coursework engagement is a learning process characterized by the intention to focus on learning tasks, attentiveness in participation, and the emotional quality accompanying the effort.
Lee (2009)	Coursework engagement is defined as students utilizing cognitive and self-regulatory strategies, while valuing school-related performance and fulfilling institutional requirements.
O'Donnell et al. (2009)	Learning engagement refers to the behavioral intensity, emotional quality, and personal investment (time and effort) during learning activities.
Kuh (2003)	Learning engagement denotes students' individual behaviors, feelings, and thought processes during learning. Most crucially, it involves the effort, time, and energy students invest in educationally purposeful activities.
Cocea (2007)	Learning engagement must be an active cognitive process where students proactively learn within meaningful educational environment activities.
Glanville & Wildhagen (2007)	It refers to students' behavioral and psychological involvement in school curricula. As a general concept encompassing various attitudes and behaviors, the breadth of engagement makes it a powerful construct for understanding educational outcomes.
Marzano (2007)	Learning engagement is defined as students' focused participation in classroom activities; the degree of engagement reflects the level of immersion in instructional content, which is key to learning input.
Tsai (2006)	Coursework engagement refers to students utilizing cognitive and self-regulatory strategies, while valuing school-related performance and fulfilling institutional requirements.
Reeve (2006)	Learning engagement encompasses students' focused behaviors and emphasizes three core roles: emotional, cognitive, and oral expression. When engagement is manifested through comprehensive concentration, positive emotions, and personal opinion-sharing, it becomes the primary motivation for student learning and development.

Table 2 … continued

Scholars (Year)	Definition and Connotation of Learning Engagement
Fredricks et al. (2004)	Engagement is categorized into behavioral, cognitive, and emotional dimensions, significantly impacting instructional design and practice. This holistic approach enhances learning outcomes by addressing various facets of the student experience, creating an inclusive environment that meets diverse student needs.
Skinner & Belmont (1993)	Behavioral engagement is characterized by persistent involvement in learning activities, including selecting challenging tasks, demonstrating resilience, and maintaining concentration and effort during academic missions.
Lau & Roeser (2002)	Defines engagement through emotional responses, academic focus, and learning frequency. The context of learning engagement is composed of exam-related engagement, classroom engagement, and extracurricular engagement.
Finn (1989)	Emotional engagement is divided into two concepts: "Identification" and "Valuation." The former refers to the feeling of being an important member of a group; the latter represents appreciation for the collective achievements of that group.
Finn (1989，1993)	Behavioral engagement is categorized into four levels of increasing intensity, ranging from passive compliance to active institutional governance: 1. Compliance with basic behavioral requirements (e.g., punctuality, preparation, and responding to questions). 2. Proactive classroom participation (e.g., initiating dialogue with teachers, seeking help when struggling, and performing extra tasks). 3. Voluntary participation in extracurricular school activities (e.g., clubs, academic competitions, and workshops). 4. Participation in school governance (e.g., curriculum goal-setting and administrative oversight). Compiled by the author (Adapted from Yang et al., 2014)

2.2 English Learning Engagement Scale

This study utilizes the English Learning Engagement Scale for university of science and technology students (adapted from Yang et al., 2014). The scale explores learners' attitudes toward challenges, the psychological strategies employed during learning, and their resilience when facing academic failure. The instrument is rooted in the classification proposed by Fredricks et al. (2004), which categorizes "Learning Engagement" into three sub-dimensions: behavioral engagement, emotional engagement, and cognitive engagement. These dimensions are outlined as follows:

Drawing on Fredricks et al.'s (2004) tripartite framework, the English Learning Engagement Scale used in this study measures three interrelated dimensions. *Behavioral engagement* captures observable effort and participation, such as attendance, assignment completion, and voluntary extracurricular involvement. *Emotional engagement* reflects students' sense of belonging and their affective responses toward peers, instructors, and course content; a student who feels cared for is more willing to participate actively. *Cognitive engagement* refers to the depth of psychological investment in learning, including the use of self-regulatory strategies and mastery-oriented thinking. Together, these three dimensions provide a multidimensional portrait of how students relate to their learning environment.

While the framework by Fredricks et al. (2004) provides a comprehensive foundation, scholars have increasingly recognized the necessity of addressing the diverse needs of different learner populations. For instance, adult learners, influenced by their prior experiences and professional responsibilities, may require distinct strategies to maintain their willingness to engage (Gutierrez et al., 2013). This underscores the vital importance of flexible instructional design to accommodate various educational contexts and learner requirements. Furthermore, Wang (2021) advocates for the inclusion of a fourth dimension: Agentic Engagement (also referred to as proactive or primary-motive engagement). Psychometric research supports the existence of this fourth construct alongside the traditional behavioral, emotional, and cognitive dimensions (Fredricks et al., 2004; Jimerson et al., 2003; Reeve & Tseng, 2011). Reeve argues that the first three dimensions reflect a somewhat passive or one-dimensional interaction between the student and the learning environment. In contrast, Agentic Engagement, as proposed by Reeve and Tseng (2011), which describes students who proactively influence the subjects they learn, their learning conditions, and the classroom environment. These students engage in continuous, high-quality interaction with

instructors and participate actively throughout the learning process. Examples include posing questions, expressing ideas or needs, and providing input on learning objectives. Through these interpersonal interactions, educators can observe the learner's proactive performance and active feedback within the pedagogical trajectory (Wang, 2021; Zhang, 2015). In addition, Reeve (2013) highlights agentic engagement as a novel construct in the study of learning engagement. Its development is closely linked to self-regulated learning, enabling students to adjust their focus and utilize metacognitive strategies effectively (Wang, 2021; Heckhausen et al., 2019; Pintrich, 2000).

Research further suggests that construct validity analysis can be conducted by comparing models with and without the agentic dimension. Learning engagement has a potential correlation with both academic achievement (Lee & Smith, 1993) and problem behaviors (Caraway et al., 2003). Findings indicate that higher levels of engagement lead to superior academic outcomes and a corresponding decrease in problematic behaviors (Wang, 2021). Beyond academic achievement, studies emphasize that a positive learning environment; constituted by healthy teacher-student relationships, a conducive classroom climate, and a robust collaborative atmosphere, is positively correlated with students' behavioral and emotional engagement. This environment further promotes positive learning behaviors (Furlong et al., 2003). Consequently, a higher frequency and longer duration of participation in learning activities are directly associated with better student performance (Chen, 2017; Kuh et al., 2005).

2.3 The Teams-Games-Tournament (TGT) model of Cooperative Learning

The researcher intentionally selected a Cooperative Learning (CL) framework to catalyze interaction among students from diverse academic backgrounds, fostering Positive Interdependence; a crucial dynamic for achieving the study's interpersonal development goals. Transitioning from theory to "Learning-by-doing" is a complex process; thus, meticulous preparation, the utilization of scaffolded worksheets, and the cultivation of social interaction skills are essential components of each phase. Within the CL paradigm, strategies such as Jigsaw II, TGT, and Student Teams-Achievement Divisions (STAD); as advocated by the Slavin school, which offer structured, step-by-step procedures. A primary advantage of these models is their ability to provide Equal Opportunities for Success for students with varying levels of academic proficiency (Chen & Yeh, 2007). Originally developed by Slavin in 1980, TGT is a robust, evidence-based cooperative strategy. The process begins with Heterogeneous Grouping, where students are placed in teams with diverse backgrounds and abilities. Following internal group discussions and peer-assisted practice, students apply their knowledge through various games or competitive formats (e.g., quizzes, board games, or rapid-response activities). Finally, teams enter a tournament-style cycle where accumulated scores and advancement serve as incentives for sustained participation.

In practice, TGT operates through a cyclical "Group Study—Individual Competition—Team Recognition" mechanism. By linking team honor to individual performance, TGT fosters spontaneous engagement. This arrangement not only consolidates disciplinary knowledge but also cultivates core competencies such as peer assistance and teamwork. This study's integration of intra-group cooperation and inter-group competition aims to leverage this dynamic to enhance student motivation. The synergy between cooperative learning and competitive gaming effectively stimulates intrinsic motivation and fosters habits of sustained engagement (Tauer & Harackiewicz, 2004), ultimately leading to improved learning outcomes.

This study optimizes the cooperative learning design to respond to the demands for autonomous and deep learning. A hallmark of TGT is its ability to infuse the classroom with a sense of enjoyment, transforming potentially monotonous academic tasks into engaging activities. While instructors may initially find the procedural complexity challenging, mastery is achieved through repeated practice. A key feature is the Homogeneous Tournament Table, wherein students compete against peers of similar ability levels. This ensures a sense of fairness while allowing students to contribute meaningfully to their original heterogeneous team's total score. Furthermore, the model is flexible; for instance, if class sizes fluctuate, tournament groups can be adjusted to three-person units (Chen & Yeh, 2007).

Compared to other cooperative strategies, the core advantage of TGT lies in its use of competition as the primary driver of learning momentum. It is particularly effective for subjects with clear structural content, such as language learning and public speaking; where specific tasks can be designed. This strategy effectively boosts student engagement and classroom interaction in the short term, thereby significantly enhancing overall instructional effectiveness. To foster a mindset of self-transcendence and continuous progress, this study implements an inter-group competition framework. Student performance is evaluated at the end of each session, with rewards provided the following week to incentivize achievement. Furthermore, the curriculum instills a philosophy of personal capacity building to prevent egocentric intra-group competition, thereby strategically enhancing the collective performance of the entire team (Rudow & Hautaluoma, 1975).

The TGT model, developed by DeVries and Slavin in 1978, stands as a cornerstone of cooperative learning strategies (Slavin, 1995). A key feature of TGT is its dynamic re-leveling mechanism based on individual performance. For instance, if Student A achieves a higher competitive score compared to the previous session, they are promoted to a tournament table with a higher proficiency level. Conversely, if Student B's score declines, they are moved to a lower proficiency table. Students whose scores remain stable are retained at their current level. To ensure the integrity of the cooperative structure, the instructor must pre-arrange these assignments to prevent students from the same cooperative team from competing against each other at the same tournament table (Chen & Yeh, 2007). The core philosophy of this research is consistent with the fundamental principles of TGT. In pedagogical practice, the strategic integration of gaming and competitive elements into cooperative learning frameworks has been shown to effectively enhance student motivation and engagement. The simplified implementation steps for TGT are illustrated in Figure 1.

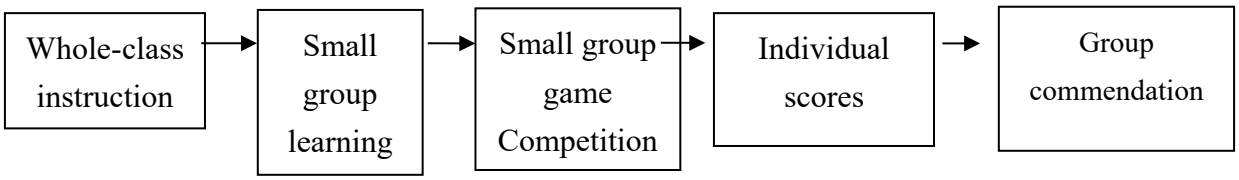

Figure 1. Simple Implementation Steps of TGT

3. Methods

3.1 Research Design

The framework of this study is divided into two primary sections: instructional design and research methodology. The former encompasses the introduction and practical application of digital learning platforms, alongside core themes such as curriculum development and classroom management mechanisms. The latter provides a comprehensive detailing of the research instruments and analytical tools employed in this study. Each section is elaborated upon as follows

Integrating digital instruction into the curriculum - This study implements a technology-enhanced learning environment throughout the pre-class, in-class, and post-class phases. The primary digital architecture centers on Padlet, utilized for its versatile collaborative features. The researcher developed customized digital canvases aligned with course objectives, supplemented by communication tools such as LINE and Google Forms. Secondary support systems include the institutional E-learning platform, Google Drive, ChatGPT, and other auxiliary digital tools and open-source software, such as Kahoot. The Padlet digital canvas was strategically selected to advance pedagogical goals for students from diverse interdisciplinary backgrounds—specifically those specialized in Digital Gaming, Cultural and Creative Industries, Film and Media, and Computer Programming. Padlet allows instructors to create customized digital boards tailored to specific instructional content. A key feature utilized in this teaching practice is its visual storyboard capability, which functions as a cloud-based canvas for real-time collaboration and content sharing.

Students can engage in division of labor and collaborative tasks seamlessly across online and offline environments. Most importantly, the platform enables them to share ideas, group-authored texts, and creative concepts while serving as a gallery to showcase their final projects (Ministry of Education, 2025). This fosters mutual inspiration between groups and facilitates the sharing of collective outcomes. Furthermore, Padlet supports a wide array of media formats, including text, images, videos, and documents; providing a dynamic space for students to express themselves and engage with the curriculum. By enhancing collaboration, creativity, and the overall learning experience across various educational settings, Padlet functions as a multifunctional digital tool. It establishes a collaborative learning environment that encourages active participation, critical thinking, and creativity. The platform ensures compatibility with current educational technology standards and offers a user-friendly interface for both instructors and students (Ministry of Education, 2025). Following this framework, the researcher integrated digital elements into all classroom activities, including the digital presentation of learning objectives, the cultivation of a digitized classroom environment, adherence to multimodal instructional principles, and the requirement for students to incorporate digital tools into their assignments.

3.2 Instructional Design

The instructional design for the "Workplace Professional English (II)" course (hereafter referred to as "the Course") encompasses the development of modular curriculum units, the implementation of instructional strategies, and the assessment of learning effectiveness, as elaborated below.

Curriculum Unit Design - The designated textbook for this course is *Business English Book 2*. The instructor has developed a comprehensive conceptual framework consisting of 12 thematic modules. The conceptual map for the curriculum unit design is illustrated in Figure 3-1, covering the following units:1. Workplace Ethics Cases; 2. Games (University Reality Board Games) / Pre-test; 3. The Commute; 4. Public Relations; 5. Business Trip; 6.Guest Speaker Presentation (I); 7.Field Trip (Corporate Visit Experience); 8. Recruiting and Training Staff; 9. E-business; 10. Let's Party (Office Parties); 11. Guest Speaker Presentation (II); 12. Post-test & Questionnaire.

Implementation of Instructional Strategies - The adaptation of the TGT model primarily manifests in the design of competitive tasks. Question items are categorized based on students' English proficiency levels within the class to ensure that team members are not consistently assigned tasks that are excessively difficult or mismatched with their current linguistic abilities. Prior to designing the game-based assessments, the instructor classifies questions into three levels: Standard, Intermediate-Advanced, and Advanced. These tasks can be derived from customized worksheets or existing exercises in the course materials and are assigned to students through a random draw (Chen & Yeh, 2007). Crucially, the integration of competitive gaming elements not only enhances the enjoyment of learning but also facilitates effective revision. Following multiple sessions of the tournament, the instructor adjusts student placements based on their accumulated performance points to reflect changes in individual proficiency. Specifically, if Student A shows improvement in points compared to the previous session, they are reassigned to a higher-proficiency group. Conversely, if Student B's points decline, they are moved to a lower-proficiency group, while Student C, whose points remain stable, continues in their original group. Additionally, to prevent students from the same cooperative team from frequently being grouped together in the tournament tables, the instructor performs real-time adjustments as necessary (Chen & Yeh, 2007).

Assessment of Learning Effectiveness - The assessment of learning effectiveness is centered on English Proficiency Tests (Pre-test and Post-test). As part of the university-wide second-year "Workplace Professional English" curriculum, these tests are administered at the beginning of the semester and following the midterm examination to establish a basis for measuring students' academic progress within a single semester. The assessments are conducted in Week 2 and Week 14, respectively. All test items are derived from the curriculum content covered during the research period. The examination is divided into two sections with a total duration of one hour:

- Workplace English Listening Comprehension (15 minutes; 25% of the total score)

- Workplace English Reading Comprehension (45 minutes; 75% of the total score)

The tests are graded out of a maximum of 100 points. The researcher subsequently organizes and analyzes the score distributions from these pre- and post-tests to evaluate the overall pedagogical impact.

3.3 Instructional Design and Planning

Instructional Objectives and Methodology - The design of this course is aimed at enhancing the fundamental proficiency and professional English skills required by university students in the workplace. The curriculum follows a progressive pedagogical sequence, moving from sentence pattern exercises to paragraph construction, with the goal of enabling students to produce clear, well-structured professional writing. Furthermore, the course seeks to identify and address the concerns students harbor regarding workplace readiness, thereby reducing individual workplace anxiety. By providing tailored workplace learning materials and guidance, the instructor helps students define their professional directions, understand industry trends early, and strengthen their competitiveness in the global job market.

The primary objective is to equip students with the essential English communication skills needed for their future careers. The curriculum includes mastering workplace terminology, simulating job-seeking scenarios, drafting resumes, and demonstrating presentation and problem-solving skills. The instructor's innovative pedagogical strategy primarily integrates TGT; a cooperative learning model, which is supported by digital learning platforms to investigate student engagement. The significance of measuring learning engagement lies in its ability to provide insights into the learning process and facilitate the longitudinal tracking of behavioral and developmental outcomes (Reeve et al., 2004). Extensive research has confirmed that high engagement stabilizes and enhances learning effectiveness while reducing dropout rates. Consequently, this course aims to bolster students' workplace English proficiency and professional competitiveness.

The specific objectives of this course are planned as follows: 1: To encourage full student participation in Cooperative Learning through the TGT strategy and to evaluate the impact of group dynamics on students' interpersonal relationships within the classroom. 2: To utilize the digital teaching platform (Padlet) to increase channels for teacher-student interaction and to assess its influence on students' overall learning effectiveness. 3: To utilize the English Learning Engagement Scale and qualitative interviews within the existing university-wide second-year "Workplace Professional English" course to understand the variations in behavioral, cognitive, and emotional engagement among the students.

Weekly Curriculum Schedule and Learning Environment - This research centers on an elite vocational leadership and management class for second-year students at the General Education Center of a private university of science and technology in Northern Taiwan. This advanced-level class (equivalent to CEFR B1 and B2 levels) is a unique, interdisciplinary cohort within the university-wide "Workplace Professional English" program. The course, "Workplace Professional English (II)," is conducted through small-class instruction with 20 students.

The instructional timeline is structured as follows:

Week 1: Introduction to foundational concepts and the innovative pedagogical strategy, accompanied by the administration of the pre-test questionnaire. Week 2: Implementation of a "University Reality" board game experience to diagnose the learning needs and establish the professional English objectives for these second-year students. Week 3: Collaborative development of learning plans and finalization of the curriculum roadmap. Weeks 3–16: Implementation of planned learning activities, including a mid-term progress review to adjust subsequent learning trajectories. Weeks 17–18: Evaluation of team and individual final outcomes, incorporating both summative and formative assessments, alongside the administration of the post-test English Learning Engagement Scale. The innovative pedagogical strategy spans 14 weeks (from Week 3 to Week 16), with two instructional hours per week. The course trains students to utilize interaction techniques inherent in Cooperative Learning. During class sessions, team members are assigned to competitive tournament tables to practice interpersonal

communication and social skills—such as face-to-face interaction, group processing, individual accountability, interpersonal and small-group social skills, and positive interdependence. These skills are cultivated to prepare students for senior-year internships and future career transitions. To gain comprehensive insights into student engagement, including behavioral, situational, and cognitive factors; the researcher utilizes a variety of internal and external activities. These include corporate visits, English learning competitions, group discussions, and a digital learning portfolio log via an Instant Feedback System. Additionally, reflective journals, activity worksheets, and peer evaluation checklists are employed to provide the instructor with a multi-dimensional understanding of the students' learning engagement.

Student Grading and Learning Effectiveness Assessment Tools - The primary purpose of student grading and assessment is to refine instructional methods and curriculum planning, allowing for real-time adjustments to ensure students receive the most appropriate learning support. This can be achieved through multimodal formative assessments, which incorporate diverse evaluative dimensions such as worksheets, oral presentations, and written reports (Zou & Kao, 2018). Formative assessment is characterized by three key features: it is intentional, responsive, and mutually beneficial to both teachers and students. According to Heritage (2007), the goal of formative assessment is to design varied activities that bridge the gap between teaching and learning, providing instructors with immediate opportunities for assistance and feedback. These assessment activities must be learner-centered, fostering active student participation throughout the learning process and supporting continuous academic improvement (Zou & Kao, 2018).

Conversely, when an instructor seeks to evaluate learning outcomes at a specific point in time, summative assessment is employed. This type of assessment typically utilizes paper-and-pencil tests or other quantitative measures to represent results, focusing predominantly on disciplinary knowledge. Summative assessments are generally administered during mid-terms or finals to determine whether students have achieved predetermined learning objectives. In skill-based courses, such as physical education, where a student must demonstrate ball-handling skills, or music, where a student performs on the piano; the instructor's subjective evaluation focuses on the learner's technical fluency (Zou & Kao, 2018).

Summative assessments should carefully reflect the scope of the curriculum covered during the instructional period. To ensure that the teaching scope across different disciplines aligns with learning objectives, test design should involve rigorous discussion and peer review among all participating faculty. This process confirms that the English sentence structures and vocabulary used in the exam have been thoroughly taught and frequently utilized by both teachers and students. Furthermore, allowing students to respond in Chinese when they are unable to express themselves in English can enhance the reliability and validity of subject-matter testing (Zou & Kao, 2018). The following are the specific student grading and learning effectiveness assessment tools used in this study.

Table 3-1
Summative Assessment Schedule

	Summative assessment	Date/Week
1	Online Learning Assessment System	Week 1
2.	Pre-test Scale & Questionnaire	Week 2
3.	Midterm Examination	Week 9
4	Online Learning Assessment System (Post-test)	Week 16
5	Final Scale Questionnaire & Final Examination	Week 17~18

Table 3-2
Formative Assessment Items

	Formative assessment	Date/Week
1.	Team learning portfolios, online assignments, group self-evaluation, peer-review data, Padlet activities, and feedback/comments via Google Instant Feedback System.	Week 2~17
2	Teacher's instructional journals, auxiliary data from online instant feedback systems, and records of encouragement for participation in internal/external campus competitions and national contests.	Week 2~17
3	Qualitative data from focus group and individual interviews	Week 14~17

3.4 Research Design and Implementation Planning

Research Framework - This study utilizes a mixed-methods research approach to analyze the data collected through innovative pedagogical strategies. By examining the learning trajectories guided by the instructor, this research aims to understand the impact and outcomes of these strategies on student learning effectiveness and to propose concrete practical applications. The research framework and instruments employed in this project include open-ended interviews, modular learning worksheets, and feedback forms. In alignment with the research objectives, the framework incorporates student learning outcomes, interaction processes, and various other forms of academic data.

Research Questions - Based on the aforementioned research background, motivations, and literature review, this empirical study designs an innovative pedagogical strategy for a Workplace Professional English course. Through the framework of Teaching Practice Research, this study investigates the effectiveness of these innovative strategies. The specific research questions are as follows:

- Research Question 1: How does the increased time spent in group activities, facilitated by the TGT instructional design, influence changes in students' interpersonal relationships?
- Research Question 2: How does the increased frequency of teacher-student interaction, facilitated by the Padlet digital learning platform, impact the learning effectiveness of the students?
- Research Question 3: How do students' learning outcomes correlate with variations in their behavioral, cognitive, and emotional engagement, as measured through the English Learning Engagement Scale?

Research Participants and Setting - The research setting is a mandatory general education course, "Workplace Professional English" (hereafter referred to as "the Course"), at a university of science and technology in Northern Taiwan. The participants primarily consist of second-year students from various non-foreign language departments within interdisciplinary specialized programs. The class meets for two hours per week. Because these students belong to interdisciplinary cohorts, their academic backgrounds and peer groups differ from conventional fixed-class structures; they do not necessarily share the same classmates across all their courses. This study adopts a learner-centered approach, aiming to assist students in developing comprehensive English listening and speaking proficiency.

Observationally, many students tend to rush to part-time jobs or return home immediately after class. At the beginning of the semester, students generally exhibited a lack of social and collaborative skills within the campus environment. To address this, the course integrates cooperative learning techniques—such as face-to-face discussions, positive interdependence, and group dynamics—to cultivate and develop the social competencies required for the workplace.

Research Methods and Instruments - To evaluate learning effectiveness, this study utilizes the English Learning Engagement Scale, along with midterm and final grades from the 2023 academic year. Additionally, relevant qualitative data are incorporated, including: Modular learning worksheets, student interviews, teacher's instructional journals, teaching evaluations and feedback, and many others.

Research Instruments and Data Collection Tools

- Instructional Journals During the pedagogical process, the instructor monitors student inquiries and group discussions to document the learning trajectory via instructional journals. these records allow for a nuanced understanding of the differences and similarities in individual learning engagement within cooperative teams. Under the instructor's guidance, these journals serve as a reflective tool to evaluate student learning outcomes.
- Interviews Through semi-structured student interviews, the instructor gathers objective insights into the

students' engagement status. The resulting interview data are systematically organized and analyzed using qualitative methods to provide depth to the research findings.

- English Learning Engagement Scale for Vocational University Students This study utilizes a validated scale as a primary quantitative instrument. The scale consists of 17 items categorized into three dimensions: behavioral engagement, emotional engagement, and cognitive engagement. The instrument demonstrates high internal consistency, with Cronbach's alpha coefficients of .870 for behavioral engagement, .844 for emotional engagement, and .891 for cognitive engagement; the overall scale reliability is .928. The scale employs a 5-point Likert scale, ranging from "Strongly Agree" to "Strongly Disagree." Higher scores indicate more learning engagement, while lower scores represent diminished engagement (Yang, Wu, & Zhou, 2014).

- Padlet Instant Interaction System Padlet serves as a vital hub for teacher-student interaction. It is used to collect student feedback, host classroom worksheets, manage attendance records, and organize group rosters. The instructor can also prepare pre-class quizzes and monitor real-time participation via group lists. Before the conclusion of each session, assignments are posted to the system to gauge student engagement. Post-class, the platform supports autonomous learning and unit-based effectiveness assessments. Furthermore, students can access modular curriculum materials through Padlet, while the Microsoft Teams system provides post-class support for online feedback, allowing the instructor to monitor the students' ongoing learning status.

- Supplemental Qualitative Data To ensure a comprehensive evaluation, additional qualitative materials are collected, including peer- and self-evaluation forms, teacher's pedagogical research logs, and institutional teaching evaluations and feedback.

Research Implementation and Instructional Phases

The instructional model of this study integrates Cooperative Learning (TGT) and Online Instant Feedback Systems (including the institutional e-learning platform and Padlet). After clarifying curriculum requirements and conducting a situational analysis of the current teaching environment, the researcher addressed identified pedagogical issues through innovative teaching methods. This involved preparing the instructional setting and developing a curriculum model tailored to the thematic units mentioned previously. The effectiveness of the course implementation was evaluated according to the following stages:

- Initial Diagnosis (Week 2): In this stage, the researcher diagnosed students' learning needs to establish specific objectives and determine the learning direction. Problem contexts were clarified through the administration of the English Learning Engagement Scale (for content validity construction) and qualitative interviews. Based on the researcher's pedagogical philosophy and relevant theories, instructional materials were compiled, learning activities were designed, and assessment methods were defined.

- Mid-term Implementation: This stage focused on real-world classroom dynamics, such as teacher-student interaction, student performance, learning engagement, learning attitudes, and online feedback. Learning activities proceeded according to the plan, accompanied by critical reflections based on qualitative data. The researcher conducted a mid-term review of learning progress and adjusted subsequent plans, concluding with a personal pedagogical reflection at the end of the semester.

- Final Effectiveness Evaluation: Toward the end of the semester, the effectiveness of the curriculum was assessed through the post-test English Learning Engagement Scale, summative evaluation results, student feedback forms, teacher course evaluations, questionnaire results, and instructional observation logs. Finally, the outcomes of this research project were organized for public sharing and scholarly peer review.

3.5 Data Processing and Analysis

Quantitative Data Analysis - Data obtained from the English Learning Engagement Scale were coded and entered into a computer database. Statistical processing and analysis were conducted using SPSS 22.0 for Windows. To describe the fundamental characteristics of the data and compare outcomes, statistical methods such as independent samples t-tests, means (M), and standard deviations (SD) were employed.

Qualitative Data Analysis - Comprehensive data collected through various methods, including instructional plans and classroom observation logs; which underwent a rigorous process of multiple readings, categorization, comparison, and organization. These findings were further cross-referenced with open-ended interviews, modular learning worksheets, and feedback forms.

Verification of Reliability and Validity - To enhance the reliability and validity of the findings, this study employs data and methodological triangulation. This involves the cross-verification of individual and group-level data through multiple evaluative lenses. The triangulation of data sources incorporates various supporting materials, including individual and group worksheets, team reports, video assignments, and pre- and post-course questionnaires and feedback forms. Methodological triangulation involves the synthesis of observational records, semi-structured interviews, and quantitative questionnaire analysis. Furthermore, the following strategies were implemented to strengthen the credibility and rigor of the results:

- Member Checking: Supplementary interviews were conducted to allow participants to verify and refine their statements, thereby ensuring the accuracy and credibility of the qualitative data.
- Peer Debriefing: The researcher utilized group feedback forms and peer observation sheets to evaluate each instructional unit. This external peer-review mechanism enhances the confirmability of the study.
- Expert Review: Collaborative experts in the field were consulted to provide objective feedback and evaluations of all research instruments and preliminary results, thereby increasing the content validity of the study.
- Researcher Reflection: Through the meticulous maintenance of a pedagogical teaching portfolio, the researcher engaged in continuous self-reflection to avoid ambiguity and ensure that the findings were detailed and specific.

3.6 Research Ethics

Principle of Informed Consent - During the first week of the semester, the researcher formally informed the students that this course would be integrated with a Teaching Practice Research project. The researcher explained the scope and objectives of the study and invited the students to participate. It was explicitly communicated that while students who consented would have their data included in the final analysis, their decision to participate (or decline) would have no impact on their academic grades or learning rights.

Principle of Anonymity and Confidentiality - To ensure the protection of all participants, all personally identifiable information (PII) is removed during the drafting of the research report. Participant identities are replaced with unique codes (e.g., Student A, Student B) to maintain strict confidentiality.

4. Result

4.1 Changes in Interpersonal Relationships Through TGT

The scoring mechanism for TGT instructional activities was established through collaborative discussions between the instructor and the students to align with class-specific needs. In this model, game-based competitions

replaced traditional weekly quizzes, effectively substituting the standard assessment mechanism with TGT activities. This cooperative learning approach successfully fostered a proactive learning atmosphere throughout the entire class. Based on empirical findings, the results of student learning can be summarized into the following three key points:

Group Activities Enhance Engagement and Stimulate Critical Thinking - Students emphasized the critical role of group work, noting that the collaborative structure significantly enhanced their learning experience. One student (GD) reflected on the benefits of group dynamics:

> *I feel that grouping is very important and helpful. The main benefit this semester was being more active in my thinking during lectures. In the past, I might have just let others do the work, but now I feel like I should contribute my part. Through discussions and keeping class records with others, I've seen an improvement in my grades, and the atmosphere has become much more lively.* (GD/M/age 21/team 2/ I).

Many students observed that the current instructional approach was "much more interesting than before" and that "grouping was used to increase the fun of the class." The **TGT** model effectively stimulated student interest and "greatly enhanced interaction between teachers and students, as well as among peers." Furthermore, students felt that the method "could also stimulate thinking" by adding an element of enjoyment to the sessions. Consequently, students expressed sentiments such as, "*I really look forward to coming to class*," while another student, Wei, mentioned experiencing "*unprecedented joy and relaxation.*" Overall, more than half of the students frequently noted—either in their learning journals or during interviews—that group interaction and competitive games inadvertently increased the fun of the class, making the learning experience far more enjoyable.

Increased Group Activity Time: Fostering Proactive Sharing of Perspectives - The transition from traditional instruction to a collaborative model significantly impacted student initiative. One student, CH, highlighted the contrast between semesters:

> *This semester's English class is completely different from the last. While last semester followed a conventional lecture format, this semester utilizes group-based activities to enhance engagement. This approach has stimulated our interest in the subject, greatly increased interaction between the instructor and peers, fostered a healthy sense of competition, and encouraged everyone to become more proactive.* (CH/M/20/team 1/Week 14/R).

Overall, students demonstrated a marked improvement in their performance throughout the semester. This progress manifested in several ways:

<u>*Discovery of Learning Methods*</u>: Students reported finding effective ways to study, which led to better outcomes. Fu noted, "My English has improved; through the group competitions and rapid-response rounds, I've started actively searching for answers and participating."

<u>*Reduced Anxiety in Peer Collaboration*</u>: Wen mentioned that academic performance improved because "*discussing and answering questions with team members reduced the pressure significantly*."

<u>*Adaptation and Self-Expression*</u>: Some students initially found the new format unfamiliar but eventually adapted. Xin stated, "*At first, I wasn't used to this teaching style, but over time I adjusted and felt empowered to share my views courageously.*"

<u>*Balancing Challenge and Comfort*</u>: Finally, Lin observed that although the "*curriculum became slightly more challenging, the overall atmosphere remained comfortable; balancing academic pressure with a playful element that relieved stress*."

Increased Group Activity Time: Correlation with Improved Academic Performance - The qualitative

feedback indicates a positive correlation between increased group interaction and enhanced learning outcomes. One student, Fu, summarized the experience concisely:

> *My English has improved... I have gained a great deal from this course.* (FU/M/age 19/team 3/I).

Similarly, Wen observed a noticeable improvement in academic results compared to the previous semester:

> *My grades this semester are better than last semester's. At the very least, there is much less pressure when discussing and answering questions with my teammates, and the entire process is significantly more enjoyable.* (WEN/F/age 20/team 2/Week 14/R).

Furthermore, student performance throughout the semester demonstrated a consistent strengthening of learning effectiveness. This trend was manifested in several key areas:

Active Engagement in Inquiry: Fu noted that their English proficiency improved because the competitive nature of the *"rapid-response rounds*" (buzz-in sessions) motivated them to "actively search for answers and participate."

Psychological Safety and Peer Support: Wen emphasized that the peer-discussion framework mitigated the anxiety typically associated with answering questions, leading to a more favorable academic outcome.

4.2 The Impact of Increased Teacher-Student Interaction via Digital Learning Platforms (Padlet) on Learning Effectiveness

Enhanced Interaction and Improved Learning Outcomes through Platform Engagement - Prior to each weekly session, the instructor prepares modular learning worksheets and posts them in advance on the learning platform. By uploading preparatory materials before class and encouraging students to browse them, the instructor helps students build prior knowledge, which in turn stimulates their learning motivation during the actual lessons. Furthermore, students are encouraged to utilize the organized Padlet platform to manage their learning records, allowing the instructor to make real-time adjustments to the instructional pace based on student progress. The overall effectiveness of this cooperative learning approach is summarized below:

One student (BO) highlighted the utility of the platform and the supplementary communication tools:

> *You really need to check the assignment area on the learning platform. You have to review the materials yourself before class starts. Also, the Line reminders for the final exam review were very helpful* (BO/M/age 21/team 2/ I).

> *Padlet files will be better...* (FU/M/age 19/team 3/ I).

> *The teacher's teaching method, through practice on the learning platform's learning sheets, to improve one's own abilities* (MEI/F/age 20/team 1/ I).

Student BO noted the importance of pre-class preparation, stating, "*Before class starts, you have to go back and review [the materials] yourself.*" By uploading instructional data prior to each session, the instructor encourages students to browse the content in advance. This strategy enables students to establish prior knowledge (schema) for upcoming lessons or to conduct a comprehensive review of previous course content, thereby ensuring a continuous and well-tracked learning process.

Student Feedback on Padlet Interaction and Digital Assignment Submission - Regarding the use of the Padlet platform for classroom interaction and digital assignment submission, students provided the following feedback during interviews and in the open-ended questionnaire:

> *The instructor integrated much more Padlet-based interaction into the curriculum this semester.*

> *Although the course content became slightly more challenging, the overall classroom experience remained comfortable. The atmosphere balanced academic pressure with a touch of playfulness, which helped soothe our spirits during the more demanding parts of the lessons* (Lin/F/20/team 3/ I).

Regarding the utilization of the Padlet learning platform, more than half of the 20 students in the class reported using the system "at least once a week" or "whenever an assignment was due." This usage pattern was consistent across all cooperative teams. For instance, Lin from Team 3 noted that "*the instructor integrated much more Padlet-based interaction this semester; while the course became slightly more challenging, the overall classroom experience remained comfortable*." Similarly, Jie from Team 3 mentioned that they "*periodically checked for new assignments and reviewed the instructional content provided by the instructor.*"

These qualitative responses indicate that members of each team maintained regular and consistent engagement with the Padlet platform, characterized by frequent access for instructional materials and the timely submission of digital assignments.

Improvement in Learning Effectiveness as Evidenced by English Course Test Results - In this university-wide second-year Workplace Professional English course, the instructor integrated Padlet digital platform functionalities starting from the second week. To evaluate learning effectiveness, pre- and post-tests covering curriculum content were administered in Week 2 and Week 14, respectively. All test items were derived from the instructional materials used during the research period and were categorized into two primary domains: Workplace English Listening Comprehension (25%) and Workplace English Reading Comprehension (75%), for a total score of 100 points. The data indicate that one student was absent for the pre-test, and two were absent for the post-test. Analysis of the valid data reveals that the class average rose from 41.25 on the pre-test to 50.38 on the post-test. On average, the students' scores increased by 9.13 points, demonstrating a marked improvement and a statistically significant advancement in overall learning effectiveness. Individual student score distributions for both the pre-test and post-test are detailed in Table 4-1.

Statistical Analysis of Pre-test and Post-test Scores A comparison of the students' English course performance revealed that the pre-test mean score was 41.25 (Standard Deviation; SD = 15.33), while the post-test mean score rose to 50.38 (SD = 15.82). A high positive correlation was observed between the two sets of scores. The paired-samples t-test demonstrated that the difference between the pre-test and post-test scores reached statistical significance, $t(15) = -3.92$, $p < .01$.The 95% confidence interval for the mean difference ranged from [-14.09, -4.16]. These results indicate that the post-test scores were significantly higher than the pre-test scores ($p < .01$). Consequently, it can be concluded that there is a significant improvement in academic performance between the beginning and the end of the course (as detailed in Table 4-1).

Table 4-1

Paired-Samples t-test of Pre-test and Post-test

Item	Mean(M)	Standard Deviation	Difference	*t*
Pre-test	41.25	15.33	–9.13	–3.92**
Post-test	50.38	15.82		

**$p < .01$

4.3 The Impact of Increased Teacher-Student Interaction on Learning Effectiveness and Behavioral, Cognitive, and Emotional Engagement

Results of the English Learning Engagement Scale - The researcher utilized the English Learning Engagement Scale to measure changes in student engagement across three dimensions. A paired-samples t-test was conducted to determine if there were statistically significant differences between the pre-test and post-test scores. The results are summarized in Table 4-2 below.

Table 4-2

Summary of Pre-test and Post-test Comparison of the English Learning Engagement Scale

Item	Mean (M)	Standard Deviation (SD)	*t* value	Degrees of Freedom (df)	Significance (*p*-value)
Total Pre-test Score	67.45	9.64	-0.570	19	.575
Total Post-test Score	66.25	9.34			
Behavioral Engagement (Pre-test)	25.80	3.49	-1.919	19	.085
Behavioral Engagement (Post-test)	24.05	3.93			
Emotional Engagement (Pre-test)	16.30	2.56	0.260	19	.798
Emotional Engagement (Post-test)	16.45	3.32			
Cognitive Engagement (Pre-test)	25.35	4.92	0.368	19	.717
Cognitive Engagement (Post-test)	25.75	3.89			

Note: The higher the score, the greater the perceived engagement. The measurement was on a 5-point Likert scale.

Based on the results of the pre-test and post-test (as shown in Table 4-2), a comparative analysis was conducted across the three dimensions of behavioral engagement, emotional engagement, and cognitive engagement. Overall, the paired-samples t-test yielded a result of t = -0.57 with a p-value of .575 ($p > .05$), indicating no statistically significant difference ($p < .05$). The degrees of freedom (df = 15) reflect the 16 students with valid scores on both assessments, as one student was absent for the pre-test and two were absent for the post-test, yielding a smaller effective sample than the engagement scale analysis (df = 19, N = 20). These findings suggest that while the innovative pedagogical strategy implemented during the research period did not negatively impact students' learning effectiveness, instructional methods, or access to learning resources in the Workplace Professional English course, it also did not demonstrate a significant quantitative improvement in students' direct English learning engagement.

In summary, the adapted TGT model allows for the stratification of weekly competition tasks based on varying levels of difficulty. Within these cooperative teams, members with diverse English proficiencies are assigned to competitive tables, effectively replacing traditional testing with game-based assessments. Furthermore, individual quiz scores derived from these competitions serve as components of the overall student evaluation. The lack of statistically significant differences in the pre- and post-test results of the English Learning Engagement Scale (Table 4-2) may be attributed to several factors. First, the class size was limited to 20 students, a factor exacerbated by the small number of interdisciplinary students during the final add/drop period. Second, as a Workplace Professional English course, the curriculum difficulty increased significantly during the implementation of the innovative pedagogical strategy in the second semester. Despite this, positive shifts were observed in other areas; most notably, students' attitudes toward English learning showed marked improvement. However, since the participants are from non-foreign language departments, many lacked confidence in their linguistic abilities. When students were assigned to competitive tables and encountered more challenging questions, they occasionally experienced a loss of confidence. Furthermore, the analysis revealed no significant gender differences, suggesting that English learning persistence is independent of gender and that learning outcomes remained consistent across both male and female students. Most importantly, student feedback regarding the workplace professional English course was overwhelmingly positive. Rather than exhibiting negative attitudes, most students reported that the course had become more engaging. Through discussion and interaction with peers, the overall effectiveness of cooperative learning led to a significant improvement in final grades for the majority of students.

Several underlying causes may explain these outcomes: Stability of Internal Variables: Behavioral, emotional, and cognitive engagement are internal variables heavily influenced by pre-existing learning attitudes, habits, and external support systems. A single-semester intervention may be too brief to produce significant shifts in these stable psychological traits. Gender Invariance: The results indicate that both male and female students approached the instructional activities with similar attitudes, confirming that gender was not a determining factor in

engagement changes. Sample Size Constraints: The results of the pre- and post-tests may be limited by the small class size (N=20). Compared to larger cohorts of 50 or more students, which provide greater statistical power, a small-class setting makes it more difficult to demonstrate statistically significant shifts in engagement within a short timeframe.

4.4 Discussion

Regarding the impact of TGT on interpersonal relationships, a key finding emerged: traditional competition formats often lead to "tied scores" among mixed-level students, potentially stalling engagement. To address this, the instructor implemented proficiency-based question stratification. By "leveling the questions according to student ability" (Reflective Journal, Week 12), the study ensured fairness and variety in classroom challenges. Furthermore, the instructor utilized dynamic grouping by analyzing weekly cumulative points. Students were reassigned into competitive tiers; such as Upper-Intermediate, Intermediate, and Lower-Intermediate, to ensure everyone worked within their Zone of Proximal Development (ZPD). While these adjustments successfully enhanced group cohesion, the study highlights a critical caveat: instructors must maintain a clear difficulty threshold between tiers. Preventing content overlap is essential to avoid a "ceiling effect" (disproportionately high scores), thereby preserving the diagnostic value of the competition and ensuring that high-proficiency students remain sufficiently challenged.

Furthermore, the absence of a statistically significant shift in the English Learning Engagement Scale (RQ3) does not necessarily signal ineffectiveness. As Fredricks et al. (2004) note, behavioral, emotional, and cognitive engagement are stable psychological constructs shaped by pre-existing habits and social histories — shifts in these dimensions typically require sustained, multi-semester interventions. The present study's single-semester design, combined with its small interdisciplinary cohort (N = 20), constrained statistical power. Nonetheless, the qualitative data tell a complementary story: students reported reduced anxiety, proactive attitude changes, and improved peer relationships, indicators of the kind of agentic engagement described by Reeve and Tseng (2011). Future studies should therefore adopt a mixed longitudinal design to capture the delayed, cumulative effects of game-based cooperative learning on engagement variables.

5. Conclusion and Future Recommendations

Research Summary and Impact - This teaching practice research successfully implemented innovative strategies tailored for interdisciplinary students. By integrating the TGT model with a hybrid digital environment via Padlet, the instructor fostered a collaborative atmosphere where students served as peer scaffolds for one another. The empirical results confirm that increased group interaction not only improves interpersonal relationships and class cohesion but also leads to a marked advancement in academic performance. Students demonstrated a high level of acceptance toward these innovations, proving that a dynamic, interactive classroom—both physically and in the cloud—effectively motivates non-English majors to master workplace professional English.

Future Research and Pedagogical Suggestions

- Expansion of Scope: To better understand the long-term effects of these strategies, future studies should consider extending the intervention duration and increasing the sample size. This would help mitigate the impact of small class sizes and diverse student backgrounds on statistical variables.
- Platform Diversification: To further enhance peer interaction, instructors may explore additional digital learning management systems, such as the TronClass platform, to provide varied learning channels.
- Generative AI Integration: Future iterations of this course should pilot the structured incorporation of generative AI tools, such as AI-assisted writing feedback or chatbot-based vocabulary practice within the existing TGT framework. Crucially, this integration must be paired with explicit instruction in AI

literacy, helping students critically evaluate AI-generated content and use these tools as complements to, rather than replacements for, collaborative peer learning. Given Taiwan's broader "2030 Bilingual Nation" policy context, equipping vocational students with both English proficiency and responsible AI competency represents a forward-looking pedagogical priority.

Acknowledgements - This study is part of the final report for the MOE Teaching Practice Research Program. The author would like to express sincere gratitude to the Ministry of Education (MOE) for their generous financial support and resources.

Funding Information: This research was supported by the Project Proposal for MOE Teaching Practice Research Program, Grant No. PGE1123781.

6. Reference

Angell, C. (2009). Research on the relationship between student engagement and academic outcomes. *Journal of Educational Psychology, 22*(4), 154–172.

Archambault, I., Janosz, M., Morizot, J., & Pagani, L. S. (2009). Adolescent behavioral, affective, and cognitive engagement in school: Relationship to school dropout. *Journal of Vocational Behavior, 74*(3), 323–340. https://doi.org/10.1016/j.jvb.2009.01.002

Caraway, K., Tucker, C. M., Reinke, W. M., & Hall, C. (2003). Self-efficacy, goal orientation, and fear of failure as predictors of school engagement in high school students. *Psychology in the Schools, 40*(4), 417–427. https://doi.org/10.1002/pits.10092

Chen, J. R., & Yeh, J. Q. (2007). Xiǎobān chángyòng de jiàoxué fāngfǎ: Hézuò xuéxí [Common teaching methods for small classes: Cooperative learning]. Centre for Development and Research in Small Class Teaching, The Hong Kong Institute of Education.

Chen, J. Z. (2017). *An exploration of English learning experiences of students in a high school physical education class* [Unpublished master's thesis]. National Chung Hsing University.

Cocea, M. (2007). *Assessment of automated learner engagement from log files* (Unpublished doctoral dissertation). University of Hertfordshire, UK.

Connell, J. P., & Wellborn, J. G. (1991). Competence, autonomy, and relatedness: A motivational analysis of self-system processes. In M. R. Gunnar & L. A. Sroufe (Eds.), *Self-processes and development: The Minnesota symposia on child psychology* (Vol. 23, pp. 43–77). Lawrence Erlbaum Associates, Inc.

Finn, J. D. (1989). Withdrawing from school. *Review of Educational Research, 59*(2), 117–142. https://doi.org/10.3102/00346543059002117

Finn, J. D. (1993). *School engagement and students at risk.* National Center for Education Statistics.

Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research, 74*(1), 59–109. https://doi.org/10.3102/00346543074001059

Furlong, M. J., Whipple, A. D., St. Jean, G., Simental, J., Soliz, A., & Punthuna, S. (2003). Multiple contexts of school engagement: Moving toward a unifying framework for educational research and practice. *The California School Psychologist, 8*(1), 99–113. https://doi.org/10.1007/BF03340899

Furrer, C., & Skinner, E. (2003). Sense of relatedness as a factor in children's academic engagement and performance. *Journal of Educational Psychology, 95*(1), 148–162. https://doi.org/10.1037/0022-0663.95.1.148

Glanville, J. L., & Wildhagen, T. (2007). The measurement of school engagement: Revisiting Reliability and Validity. *School Psychology Quarterly, 22*(3), 319–345.

Gutierrez, K. E., Anderson, T. K., & Liddell, S. L. (2013). Engagement and persistence in adult learners: The role of prior experience and professional identity. *Journal of Continuing Higher Education, 61*(2), 85–97.

Heckhausen, J., Wrosch, C., & Schulz, R. (2019). Agency and motivation in adulthood and old age. *Annual Review of Psychology, 70*, 191–217. https://doi.org/10.1146/annurev-psych-010418-103043

Hsueh, R. H. (2009). *The relationship among academic modesty, learning engagement, and academic*

achievement [Unpublished master's thesis]. National Taipei University of Education.

Jimerson, S. R., Campos, E., & Greif, J. L. (2003). Toward an understanding of definitions and measures of school engagement and related terms. *The California School Psychologist, 8*(1), 7–27. https://doi.org/10.1007/BF03340893

Kuh, G. D. (2003). What we're learning about student engagement from NSSE: Benchmarks for effective educational practice. *Change: The Magazine of Higher Learning, 35*(2), 24–32.

Kuh, G. D., Kinzie, J., Schuh, J. H., & Whitt, E. J. (2005). *Student success in college: Creating conditions that matter.* Jossey-Bass.

Lau, S., & Roeser, R. W. (2002). Cognitive abilities and motivational processes in high school students' situational engagement and achievement in science. *Educational Assessment, 8(*2), 139–162.

Lee, V. E., & Smith, J. B. (1993). Effects of school restructuring on the achievement and engagement of middle-grade students. *Sociology of Education, 66*(3), 164–187. https://doi.org/10.2307/2112726

Lee, Y. C. (2009). *A study on junior high school teachers' expectations, classroom goal structures, achievement goals, and academic engagement* [Unpublished master's thesis]. National Changhua University of

Marzano, R. J. (2007). *The art and science of teaching: A comprehensive framework for effective instruction*. Association for Supervision and Curriculum Development.

Ministry of Education. (2025). Classroom digital content and teaching software. Promotion Plan for Improving Digital Learning in Primary and Secondary Schools. https://www.sdc.org.tw/product/padlet

Newmann, F. M., Wehlage, G. G., & Lamborn, S. D. (1992). The significance and assessing dimensionality and measurement invariance across race and ethnicity. *Educational and Psychological Measurement, 67,* 1019-1041. Boston: Allyn & Bacon.

O'Donnell, A. M., Reeve, J., & Smith, J. K. (2009). *Educational psychology: Reflection for action* (2nd ed.). John Wiley & Sons.

Pintrich, P. R. (2000). The role of goal orientation in self-regulated learning. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 451–502). Academic Press. https://doi.org/10.1016/B978-012109890-2/50043-3

Reeve, J. (2006). Teachers as facilitators: What autonomy-supportive teachers do and why their students benefit. *Elementary School Journal, 106*(3), 225–236.

Reeve, J. (2013). How students create motivationally supportive learning environments for themselves: The concept of agentic engagement. *Journal of Educational Psychology, 105*(3), 579–595. https://doi.org/10.1037/a0032690

Reeve, J., & Tseng, C. M. (2011). Agency as a fourth aspect of students' engagement during learning activities. *Contemporary Educational Psychology, 36*(4), 257–267. https://doi.org/10.1016/j.cedpsych.2011.05.002

Reeve, J., Jang, H., & Carrell, D. (2004). Enhancing students' engagement by increasing teachers' autonomy support. *Motivation and Emotion, 28,* 147-169. https://doi.org/10.1023/B:MOEM.0000032312.95499.6f

Rudow, E. H., & Hautaluoma, J. E. (1975). Effects of cooperation, competition, and person-centeredness on group performance and satisfaction. *The Journal of Social Psychology, 97*(1), 135–136. https://doi.org/10.1080/00224545.1975.9923337

Skinner, E. A., & Belmont, M. J. (1993). Motivation in the classroom: Reciprocal effects of teacher behavior and student engagement across the school year. *Journal of Educational Psychology, 85*(4), 571–581. https://doi.org/10.1037/0022-0663.85.4.571

Slavin, R. E. (1995). Cooperative learning: Theory, research, and practice. sources of student engagement. In F. M. Newmann (Ed.), *Student engagement and achievement in American secondary schools* (pp. 11-39). New York: Teachers College Press.

Slavin, R. E. (2005). *Educational psychology: Theory and practice* (W. C. Chang, Trans.). Xuefu Publishing. (Original work published 2003).

Tauer, J. M., & Harackiewicz, J. M. (2004). The effects of cooperation and competition on intrinsic motivation and performance. *Journal of Personality and Social Psychology, 86*(6), 849–861.

https://doi.org/10.1037/0022-3514.86.6.849

Tsai, C.L. (2006). *A study on the relationship among school climate perception, interpersonal relationships, school engagement, and academic achievement of junior high school students in Changhua County* [Unpublished master's thesis]. National Changhua University of Education.

Tsai, P. C. (2005). *A study on the relationship among learning environment, learning engagement, and academic achievement of junior high school students in Changhua County* [Unpublished master's thesis]. National Changhua University of Education.

Tsai, W.-R. (2014). Exploring the current teaching situation of the interactive response system applied to "Management Mathematics" in universities. *Journal of Education Science, 13*(2), 75–96.

Wang, C. C. (2011). *A study on the relationship between student learning engagement and learning confidence at Tamkang University* [Unpublished master's thesis]. Tamkang University.

Wang, J.-H. (2021). Yǒuxiào tíshēng xuéshēng zìzhǔ xuéxí dòngjī yǔ xuéxí tóurù de lǐlùn jīchǔ [The theoretical basis for effectively enhancing students' autonomous learning motivation and engagement]. *Nantou Education and Culture, 38*, 10–13.

Yang, C. H., Wu, M. L., & Zhou, B. B. (2014). Development of the English Learning Engagement Scale for students in universities of science and technology. *Meiho University Journal, 33*(1), 1–16.

Zhang, C. C. (2015). Exploring the learning engagement of junior high school students by grade and gender. Taiwan *Educational Review Monthly, 4*(1), 143–146.

Zou, W. L., & Kao, S. M. (Eds.). (2018). *Exploring CLIL: A resource book for content and language integrated learning*. Bookman.