

# Cooperative Learning Practices in Technology and Livelihood Education among Public High School Teachers

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## Abstract

This study examined the cooperative learning practices of Technology and Livelihood Education (TLE) teachers in public high schools in City District 1 of Quezon City during School Year 2024–2025. Anchored in Social Constructivism and guided by the Input-Process-Output model, the study aimed to assess teachers' professional views and current teaching practices related to cooperative learning and to determine whether significant differences existed when respondents were grouped according to selected profile variables. A descriptive research design was employed. Data were gathered from 97 randomly selected TLE teachers out of a population of 128 using an adapted Cooperative Learning Implementation Questionnaire for teachers, which underwent validation and pilot testing and demonstrated acceptable reliability. The data were analyzed using frequency, percentage, weighted mean, Mann-Whitney U Test, Kruskal-Wallis Test, and Dunn Test. The findings showed that most respondents were female, held Teacher I to Teacher III positions, used Taglish as the language of instruction, and were mainly teaching Family and Consumer Science and Information and Communications Technology. Think-pair-share and role-playing emerged as the most commonly used cooperative learning methods. The study further revealed that TLE teachers demonstrated a high level of cooperative learning practice in terms of both their professional views and their current teaching practices. In particular, teachers strongly recognized the value of cooperative learning in increasing student enthusiasm, improving social skills, and supporting academic achievement, motivation, and self-esteem. No significant differences were found in cooperative learning practices when respondents were grouped according to sex, years of teaching, language of instruction, teaching position, TLE specialization, and methods of cooperative learning being practiced. A significant difference was identified only in current teaching practices when respondents were grouped according to the number of years in implementing cooperative learning, indicating that actual and sustained use of cooperative learning strengthened classroom practice. The study concluded that cooperative learning was widely and positively practiced among TLE teachers and recommended professional development initiatives, curriculum support, school-based program implementation, and further studies on cooperative learning methods. The study aligns with SDG 4 (Quality Education), with additional relevance to SDG 8 (Decent Work and Economic Growth) and SDG 17 (Partnerships for the Goals) due to its focus on instructional quality, employability-related skills, and collaborative learning. Its sustainability impact lies in strengthening educational and institutional sustainability through improved pedagogy, teacher development, and the promotion of collaborative competencies relevant to school, work, and community life.

**Keywords:** Cooperative Learning, Current Teaching Practices, Descriptive Research, Professional Views, Public High Schools, Social Constructivism, Technology and Livelihood Education, TLE teachers

## 1. Introduction

Teaching shapes both individual development and broader social outcomes, and student achievement is closely tied to the quality of teaching practice. In this context, cooperative learning is identified as a teaching strategy in which students work in small groups and become responsible not only for their own learning but also for the learning of their peers. In TLE, this strategy is particularly relevant because the subject develops practical competencies in areas such as dressmaking, commercial cooking, housekeeping, electronics servicing, entrepreneurship, and other specializations under Industrial Arts, ICT, Home Economics, and Agri-Fishery Arts. Since TLE is a skills-based subject, cooperative learning may strengthen both interest and competence through shared task performance and peer interaction. The study was also grounded in evidence that cooperative learning can improve student outcomes. In a 2024 study, Dacles and Evangelio explored the effectiveness of a cooperative learning strategy designed to enhance the performance of Grade 7 students in Technology and Livelihood Education at Sagayan National High School. Their findings showed significant improvement in student performance and suggested that cooperative learning may help address learning deficiencies while enriching educational practice. On this basis, the present study focuses on cooperative learning as a

mechanism for delivering quality education and assessing its practice in TLE through teachers' professional views and current teaching practices.

The reviewed literature consistently characterizes cooperative learning as a structured form of group learning in which students pursue shared goals under teacher guidance. It is associated with stronger academic performance, deeper thinking, longer retention, improved communication, social skills development, and better preparation for teamwork beyond school. Diverse perspectives in collaboration are also seen as beneficial to innovation and performance, while classrooms that use cooperative approaches are described as more supportive, interactive, and learner-centered. Several cited sources reinforce these benefits. As noted by Clifford (2021), collaborative learning teams reach higher levels of thinking and retain information longer than students who work alone. Murphy (2019) explained that working with others promotes personal growth, while McDaniel (2019) pointed out that team experience can help individuals discover new capacities about themselves. Brame & Biel (2015) further emphasized that small-group work improves comprehension and transferable skills through peer-to-peer instruction. Together, these perspectives support the argument that cooperative learning goes beyond ordinary group work because it depends on shared responsibility, positive interdependence, and meaningful engagement. The reviewed studies also highlight the importance of teacher preparation and structure in the success of cooperative learning. Teachers need to organize group size, composition, roles, responsibilities, and expected behaviors so that interaction becomes productive and goal-oriented. Literature on teacher perspectives shows that cooperative learning helps teachers function as facilitators while enabling students to assume greater ownership of learning. This arrangement supports both academic and non-cognitive outcomes, including motivation, relationship-building, critical thinking, and problem-solving. Luberger (2023) explained that teachers who plan cooperative learning lessons well can help students develop decision-making skills, while Baloch and Brody (2017) showed that cooperative learning can positively impact students' achievement, motivation, relationship skills, critical and creative thinking, problem-solving, and other outcomes.

At the local and national levels, the literature shows that cooperative learning has been used effectively in Philippine classrooms. Studies on mathematics and TLE reported positive effects on student performance when cooperative strategies were implemented, including improved academic achievement and more positive learner attitudes. In TLE specifically, the reviewed studies suggest that students benefit when instruction moves beyond lecture and incorporates collaborative and task-based methods, including small-group work, discussion, demonstration, project-based learning, and game-based learning. At the broader level, literature from international sources also supports cooperative learning as a valuable pedagogical practice. Research involving teachers in Poland found that cooperative learning supports both academic and social development and can be successfully managed when teachers organize student interaction according to its principles. The review likewise refers to international perspectives on teamwork, collaboration, and diverse thinking as drivers of innovation and effectiveness. These local, national, and global discussions position cooperative learning as a relevant and adaptable approach across educational systems, with particular relevance for a practical field such as

The study is anchored in Social Constructivism as introduced by Lev Vygotsky, which emphasizes the importance of culture, language, society, and interaction in learning. This view holds that knowledge is actively constructed through social engagement rather than passively received. In relation to cooperative learning, students build understanding through interaction, shared goals, and mutual support. Teachers with students who cooperate see improvements in social skills and teamwork skills, and well-planned cooperative learning lessons can improve students' decision-making skills. (Foster, 2020). Conceptually, the study uses the Input-Process-Output model. The inputs include the respondents' profiles and the level of cooperative learning practices based on teachers' professional views and current teaching practices. The process involves data gathering through survey questionnaires and analysis using statistical tools. The intended output is a training program and modular guide for TLE teachers in practicing cooperative learning. This framework links teacher characteristics and practices to program development, making the study both descriptive and intervention-oriented.

Although the literature broadly supports cooperative learning, the study identifies a need to examine how it is actually practiced in TLE among public high school teachers in a specific educational setting. Existing studies commonly emphasize student achievement and general instructional value, but fewer discussions focus on the level of cooperative learning practices in TLE as viewed by teachers themselves and reflected in their present classroom practices. The present study addresses this gap by concentrating on teachers in public high schools in City District 1 of Quezon City during School Year 2024–2025. The rationale of the study is further strengthened by the practical nature of TLE and the variability in how cooperative learning is used. Since TLE includes multiple areas of specialization and requires active, skill-based, and contextualized instruction, examining how teachers understand and implement cooperative learning is necessary. The study also seeks to determine whether differences exist in the level of cooperative learning practices when teachers are grouped according to profile variables. These concerns justify the study and support the development of a training program and module for TLE teachers.

This study most clearly aligns with SDG 4 – Quality Education because it focuses on improving teaching strategies, strengthening teacher capability, and enhancing student learning through cooperative and interactive instruction. By

examining how TLE teachers practice cooperative learning and by proposing a training program and modular guide, the research supports efforts to improve the quality, inclusiveness, and effectiveness of classroom instruction. The study also has relevance to SDG 8 – Decent Work and Economic Growth because TLE prepares learners for livelihood, employability, and practical workplace-related competencies. Cooperative learning in TLE supports teamwork, communication, accountability, and problem-solving, which are essential workplace skills. In addition, the study may be linked to SDG 17 – Partnerships for the Goals in the educational sense, since cooperative learning itself is grounded in collaboration, shared responsibility, and collective achievement within the school environment.

The study contributes to educational sustainability by promoting a teaching approach that can improve learner engagement, deepen understanding, and support long-term instructional quality. Since the proposed output includes teacher training and modular support, the study also contributes to institutional sustainability by offering a basis for professional development, curriculum support, and improved pedagogical practice in public schools. It also has value for socio-economic sustainability because TLE is directly connected to practical skills, livelihood preparation, and work-related competencies. Strengthening cooperative learning in this field helps students develop not only technical abilities but also interpersonal and collaborative skills needed in future employment and community participation. Finally, the study supports community and human development sustainability by fostering teamwork, empathy, responsibility, and social interaction among learners, which are essential for both school success and broader social functioning.

## 2. Materials and methods

### 2.1 Research Design

The study used a descriptive research design. It was intended to describe behaviors and outcomes without establishing cause-and-effect relationships and specifically focused on the level of cooperative learning implementation in teaching Technology and Livelihood Education. The design was considered appropriate because the study sought to explain and understand the importance of cooperative learning practices in public high schools based on the variables identified in the investigation. Survey questionnaires were distributed to TLE teachers, who provided responses regarding their profile, opinions, and teaching practices related to cooperative learning.

### 2.2 Research Setting

The study was conducted in public high schools in City District 1 of Quezon City during School Year 2024–2025. The setting specifically covered junior high schools within the district where TLE teachers were assigned and where the researcher secured permission to administer the survey.

### 2.3 Respondents

The respondents were TLE teachers from public high schools in City District 1 of Quezon City. They were randomly selected from different junior high schools in the district. The total population consisted of 128 teachers, from which 97 respondents participated in the study. The sample was drawn from Balingasa High School, Ernesto Rondon High School, Eulogio Rodriguez Jr. High School, Judge Juan Luna High School, Masambong High School, Pugad Lawin High School, Quezon City Science High School, San Francisco High School, San Jose High School, and Sergio Osmena Sr. High School. These respondents manually answered the survey questionnaires. The target population of the study comprised all TLE teachers in the public high schools of City District 1 of Quezon City. Sample size was determined using Cochran's Formula, followed by finite population correction. Based on the computation using a 95% confidence level, 0.50 estimated proportion, and 0.05 margin of error, the final sample size was 97 teachers from a population of 128. The study used probability sampling, specifically proportional random sampling, to ensure representativeness of the respondents across the participating schools. The manuscript described proportional random sampling as an effective and widely adopted technique for representative processing of queries (Nguyen T.D. et al., 2019).

### 2.4 Research Instruments

The researcher used an adapted survey questionnaire to gather the needed data. The instrument was the cooperative learning implementation questionnaire (CLIQ) for teachers derived from the questionnaire created by Gisbert, D.D., Seuba, M.C., and Flores-Coll, M. (1998). The first part collected respondents' profile information, including gender, years of teaching, language of instruction, teaching position, number of years implementing cooperative learning, TLE specialization, and cooperative learning methods mostly used. The second part measured teachers' professional views on cooperative learning, while the third part covered current teaching processes. The second and third parts contained a total of 53 statements used to assess the level of cooperative learning practices in public high schools. The instrument used a 5-point Likert scale ranging from 1 to 5, where 5 was the highest score and indicated that the respondent "strongly agree[d]" with the statement. For both domains, the scale was interpreted from lowest to highest level of cooperative learning practices. The questionnaire was validated by three master teachers from various districts in Quezon City, and their comments led to modifications in the instrument. It also underwent pilot testing with 30 participants. Reliability was tested using Cronbach's alpha computed through SPSS version 23, and the result was greater than 0.70, indicating excellent reliability and acceptable consistency of the questionnaire.

## 2.5 Data Collection

Before data collection, the researcher submitted the required UREC forms and documents to secure research ethics clearance from the PUP-University Research Ethics Center (UREC). After receiving clearance, the researcher wrote to the Schools Division Office of Quezon City to request permission to conduct the survey among TLE teachers in District 1. Similar letters were also sent to school principals to obtain approval. After permissions were granted, the researcher manually distributed the adapted CLIQ questionnaire to the respondents and collected the accomplished questionnaires a few weeks later to provide sufficient time for response.

## 2.6 Data Analysis

The gathered data were processed using statistical software. Frequency and percentage were used to describe the profile of the respondents. Weighted mean was used to interpret the level of cooperative learning practices. To test differences in cooperative learning practices across groups, the study used the Mann-Whitney U Test and the Kruskal-Wallis Test. The Mann-Whitney U Test was described as a non-parametric procedure for comparing two groups without assuming normal distribution and for determining whether the difference between group medians is statistically significant (Anonymous, 2025). The Kruskal-Wallis Test was used as a rank-based non-parametric tool for comparing more than two independent groups. When significant differences were found after the Kruskal-Wallis Test, Dunn Test was applied as a post hoc procedure for pairwise comparison.

## 2.7 Ethical Considerations

The study observed research ethics requirements prior to data collection by obtaining clearance from the PUP-University Research Ethics Center (UREC). It also secured institutional permission from the Schools Division Office of Quezon City and from the principals of the participating public high schools before the questionnaires were administered.

## 3. Results and Discussion

### 3.1. Demographic Profile of Respondents

#### 3.1.1 Sex

Most of the respondents were female, with 72 teachers or 74.23% of the total sample, while 25 teachers or 25.77% were male. This shows that the TLE teaching force in the selected public high schools in Quezon City District 1 was predominantly female. This profile suggests that TLE in the study area was more commonly staffed by women, which may reflect the strong representation of teachers handling areas such as Family and Consumer Science. The result also helps situate the interpretation of cooperative learning practices within the demographic composition of the respondents.

#### 3.1.2 Years of Teaching

Most respondents had already spent 2 to 5 years in teaching service, accounting for 38.14%, followed closely by those with 6 to 15 years of teaching experience at 37.11%. A smaller number had served for 25 years or more, while only a few were relatively new in the profession. These results indicate that the respondents were largely composed of teachers with early to mid-level teaching experience. This means that many of them had already developed classroom exposure substantial enough to form professional judgments and teaching practices related to cooperative learning.

#### 3.1.3 Language of Instruction in Teaching TLE

The majority of respondents used Taglish as their language of instruction in teaching TLE, representing 82.47% of the sample, while 17.53% used English. No respondent reported using only Tagalog. This finding shows that bilingual classroom communication was the dominant practice among TLE teachers in the study area. Since TLE is a practical and skills-oriented subject, the use of Taglish may help teachers communicate concepts in ways that are more accessible and contextually meaningful to students.

#### 3.1.4 Teaching Position

Most respondents held Teacher I to Teacher III positions, comprising 91.75% of the total sample. Only a small number were Master Teachers, and just one respondent held a Head Teacher position. This means that the study largely reflects the cooperative learning practices of classroom-based teachers rather than school-level supervisors or senior instructional leaders. As such, the results strongly represent day-to-day instructional realities in TLE classrooms.

#### 3.1.5 TLE Specialization

In terms of specialization, most respondents were teaching Family and Consumer Science, followed by Information and Communications Technology, while Industrial Arts had the smallest representation. This distribution suggests that the findings were shaped mainly by teachers working in specializations that commonly involve practical, performance-based, and collaborative classroom tasks. Such subject characteristics make cooperative learning particularly relevant in TLE instruction.

### 3.1.6 Number of Years in Implementing Cooperative Learning

The respondents differed in the length of time they had been implementing cooperative learning. The broader summary of the study indicates that many had used cooperative learning for 2 to 4 years, while a substantial number had already implemented it for more than 8 years. A smaller group had used it for less than two years, and some did not practice it at all. This variation in implementation experience is important because it provides a basis for examining whether familiarity and sustained use of cooperative learning are associated with differences in classroom practice. The later statistical results showed that this was the only profile variable that produced a significant difference in one of the study domains.

### 3.1.7 Methods of Cooperative Learning Mostly Used

Among the cooperative learning methods, think-pair-share was the most commonly used, accounting for 43.30% of the respondents. It was followed by role-playing at 16.49%, peer tutoring at 15.46%, and round robin at 10.31%. Group investigation, reciprocal questioning, jigsaw or puzzle, and other methods were used by fewer respondents. These findings show that teachers tended to favor cooperative learning techniques that are easy to organize and highly adaptable to classroom instruction. The dominance of think-pair-share and role-playing suggests a preference for practical, participatory, and discussion-based strategies in TLE teaching.

## 3.2. Level of Cooperative Learning Practices in Technology and Livelihood Education

### 3.2.1 Teachers' Professional Views on Cooperative Learning

The results showed a high level of cooperative learning practices based on teachers' professional views. The respondents agreed with the implementation of cooperative learning in schools, with the strongest agreement found in the statement that using cooperative learning increases students' enthusiasm for learning, followed by the view that teachers understand cooperative learning well enough to implement it successfully. The study summary also states that teachers believed cooperative learning enhances students' social skills. These results indicate that TLE teachers generally held favorable professional perceptions toward cooperative learning. Their positive views suggest that they recognize its value not only for academic engagement but also for social development and effective classroom interaction. This is consistent with the theoretical position of the study that cooperative learning promotes social skills, teamwork, and decision-making through structured interaction (Foster, 2020).

### 3.2.2 Current Teaching Practices

The results further showed that current teaching practices obtained the highest level of cooperative learning practice, with a grand mean of 4.36 interpreted as strongly agree. The respondents strongly agreed that sharing personal teaching practices among colleagues is important and increases student learning, and that taking the comments, suggestions, or advice of colleagues improves instructional practice, both with mean scores of 4.44. They also agreed that in a typical cooperative learning activity, students complete shared group tasks, although this received the lowest mean of 4.20. Teachers also strongly agreed that they implement cooperative learning to increase academic achievement, improve social skills, motivate students, and raise students' self-esteem. These findings suggest that cooperative learning was not only positively viewed in principle but was also reflected in actual teaching practice. The strong emphasis on collegial sharing and feedback points to a collaborative professional culture among TLE teachers, while the lower rating for completion of shared group tasks may imply that classroom implementation still varies in consistency. The result also supports the view that cooperative learning encourages motivation and active engagement. As noted in the study, this finding is related to Tran (2019), which suggested that cooperative learning creates higher student motivation than lecture-based teaching. Working collaboratively in groups can enhance student relationships and improve learning attitudes, self-esteem, self-belief, consistency, and purposeful actions.

## 3.3. Differences in the Level of Cooperative Learning Practices When Grouped According to Profile Variables

### 3.3.1 Sex

When grouped according to sex, the results showed no significant difference in cooperative learning practices. For teachers' professional views on cooperative learning, the Mann-Whitney U result had a p-value of 0.742, while current teaching practices had a p-value of 0.158. Both values exceeded the 0.05 level of significance. This means that male and female respondents did not significantly differ in how they viewed or practiced cooperative learning. The result implies that cooperative learning practices in TLE were not determined by sex, but were more likely shaped by professional experience and classroom context.

### 3.3.2 Years of Teaching

When respondents were grouped according to years of teaching, no significant differences were found. The p-value for teachers' professional views on cooperative learning was 0.493, while the p-value for current teaching practices was 0.921. Both exceeded the 0.05 significance level. This indicates that the length of teaching experience alone did not significantly affect the respondents' level of cooperative learning practices. Whether relatively new or more experienced in the profession, teachers showed generally similar views and practices regarding cooperative learning.

### 3.3.3 Language of Instruction

No significant difference was found when respondents were grouped according to language of instruction. The p-value for teachers' professional views was 0.067, and the p-value for current teaching practices was 0.937, both above the 0.05 level of significance. This suggests that whether teachers used English or Taglish in teaching TLE, their cooperative learning practices remained statistically comparable. Language choice in instruction did not appear to create a meaningful difference in the implementation of cooperative learning.

### 3.3.4 Teaching Position

The analysis also showed no significant differences when respondents were grouped according to teaching position. The p-value was 0.115 for teachers' professional perspectives and 0.51 for current teaching practices, both of which exceeded 0.05. This means that cooperative learning practices were similar across Teacher I-III, Master Teacher, and Head Teacher categories. Teaching rank did not substantially influence how respondents perceived or applied cooperative learning in TLE.

### 3.3.5 Number of Years in Implementing Cooperative Learning

A significant difference was identified only when respondents were grouped according to the number of years in implementing cooperative learning, particularly in the domain of current teaching practices. The Kruskal-Wallis H-Test yielded  $H = 11.277$  with a p-value of 0.024, indicating statistical significance at the 0.05 level. Teachers who had used cooperative learning for 2 to 4 years and those who had implemented it for more than 8 years attained the highest scores, while those who had used it for less than two years and those who did not practice it attained the lowest percentages. This result indicates that actual experience in using cooperative learning matters in shaping present teaching practices. The more teachers had implemented cooperative learning over time, the more strongly this was reflected in their classroom methods. Unlike general teaching experience or rank, direct exposure to cooperative learning itself appears to strengthen practical application.

### 3.3.6 TLE Specialization

When grouped according to TLE specialization, no significant differences were found. The p-value was 0.970 for teachers' professional views and 0.121 for current teaching practices, both higher than the 0.05 significance level. This indicates that teachers from Family and Consumer Science, Information and Communications Technology, and Industrial Arts did not significantly differ in their cooperative learning practices. The strategy appears applicable across TLE specializations despite differences in subject content.

### 3.3.7 Methods of Cooperative Learning Being Practiced

No significant differences were found when respondents were grouped according to the cooperative learning methods they practiced. The Kruskal-Wallis H-Test results showed p-values that exceeded the 0.05 significance level. This suggests that although teachers preferred different cooperative learning methods, these variations did not produce statistically meaningful differences in their overall level of cooperative learning practice. What mattered more was not the specific method chosen, but the broader and sustained implementation of cooperative learning itself.

## 3.4. Dunn Test: Pairwise Comparison

The Dunn Test pairwise comparison was conducted to determine where the significant differences lay for the number of years in implementing cooperative learning based on current teaching practices. The results showed a significant difference between teachers who did not implement cooperative learning and those who had used it for 2 to 4 years. A significant difference was also found between those who did not implement cooperative learning and those who had already used it for more than 8 years. These results reinforce the earlier finding that implementation experience is the key distinguishing factor in current teaching practices. Teachers who had actual and sustained experience using cooperative learning demonstrated stronger classroom practice than those who did not use it at all, highlighting the practical importance of continued exposure and application of cooperative learning strategies in TLE instruction.

## 4. Conclusion & Recommendations

The study concludes that Technology and Livelihood Education teachers in public high schools in City District 1 of Quezon City generally demonstrated a high level of cooperative learning practice based on both their professional views and current teaching practices. Most respondents were female, held Teacher I to Teacher III positions, commonly taught Family and Consumer Science and ICT, largely used Taglish as medium of instruction, and most frequently applied think-pair-share and role-playing. The findings further showed that no significant differences existed in the level of cooperative learning practices when respondents were grouped according to profile variables except for the number of years in implementing cooperative learning, where significant differences appeared in the domain of current teaching practices, particularly between those who did not implement cooperative learning and those who had used it for 2 to 4 years and for more than 8 years.

Based on the conclusions, it is recommended that the Schools Division Office of Quezon City organize professional development trainings and workshops for TLE teachers and include cooperative learning sessions in the In-Service Training (INSET) Program; that TLE curriculum developers integrate gender equality into the curriculum; that TLE chairpersons help teachers cope with other specializations and include related workshops in Learning Action Cell sessions; that all TLE teachers employ cooperative learning strategies in their lessons; that school administrators introduce a cooperative learning program with a corresponding guide or module for classroom application; and that future researchers conduct similar studies exploring other cooperative learning methods and the significant differences identified in this study.

The study was limited to TLE public high school teachers in City District 1 of Quezon City during School Year 2024–2025 and focused only on cooperative learning practices among teachers from different grade levels in the participating public high schools. Its scope was confined to the respondents' profile, teachers' professional views, and current teaching practices related to cooperative learning.

### Compliance with ethical standards

The authors declare no conflict of interest. This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors and was self-funded. Ethical clearance was obtained from the PUP-University Research Ethics Center (UREC) prior to data collection. Permission to conduct the study was also secured from the Schools Division Office of Quezon City and from the principals of the participating public high schools. The authors express their gratitude to the participating schools and the Technology and Livelihood Education teachers for their cooperation and valuable participation in the study.

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