

Social Learning Strategy for Improving the Self-Efficacy and Common Competencies in Baking Among Grade 8 Students

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Abstract

This study examined how well the Social Learning strategy, particularly peer tutoring and cooperative learning, improved Grade 8 students' self-efficacy and common competencies in baking. A total of sixty (60) respondents came from two sections, one section with thirty students was exposed to peer tutoring, while the other section was exposed to cooperative learning. The four sources of self-efficacy- mastery experiences, vicarious experiences, social persuasion, and emotional and physiological states, as well as the common competencies in baking, including the use of tools and bakery equipment, perform mensuration and calculation, maintain tools and equipment, and practice occupational health and safety practices- were all examined.

The result showed that students' baking abilities and self-efficacy were improved by both peer tutoring and cooperative learning. Cooperative learning regularly produces larger and statistically significant increases. Cooperative learning provided regular mastery opportunities, many peer examples and more verbal reinforcement, while fear was reduced, leading to group-wide balanced advancement. Peer tutoring, while statistically less helpful for self-efficacy, was useful for weaker pupils and for personal growth. Paired sample t-tests validated significant increases in baking abilities under both approaches, and cooperative learning produced more consistent results. Peer tutoring remains a vital adjunct, especially when well managed. The combination of the two approaches provides a comprehensive framework for improving students' academic accomplishment and baking achievements.

Keywords: social learning; peer tutoring; cooperative learning; self-efficacy; common competencies

1. Introduction

The concept of public education is comparatively innovative and revolutionary. In the past two decades, pedagogical approaches have shifted from a teacher-centered instruction to student-centered orientation (Stapp, 2019). Schindler et al. (2017) assert that the need for an active-learning-based instructional approach is bolstered by strategies such as pair-share, cooperative education groups, and classroom activities that promote student involvement in behavioral, cognitive, and emotional domains.

Quality education is the foundation of a flourishing and progressing society. It teaches people the skills, knowledge, and attitudes they need to do well in life and make their communities better. It is really

vital to grasp how children learn in today's world of education, which is always evolving. Using social education is one of the single most effective ways for facilitators to make the learning more entertaining. This method will change a lot about how the classroom functions, how lessons are taught, and how active students are. Social learning concepts are utilized in education to make learning more fun and engaging. Educators can be help to make more active and receptive learning environments that needs of all their students by learning about these concepts and putting them into practice. When social learning is used in schools, it can help students grow in many different ways (Lee, 2024).

Peer tutoring program and cooperative learning group are examples of approaches that can be used to implement social learning in the classroom (Lee, 2024). Research shows that peer tutoring has numerous benefits, including the ability to boost confidence in both the tutor and the tutee since they share the same ontological (ways of being) and axiological (background capitals and culturally oriented ways of being) assumptions (Makwara, 2020). Furthermore, cooperative learning has been suggested as a remedy to many of the educational challenges (Slavin, 2021). It is known for promoting critical thinking and higher-order thinking skills. It provides an alternative to ability grouping, remedial programs, and special education strategies.

Low interest in learning, reduced classroom participation, and limited confidence in their abilities resulted declining performance of Grade 8 students in Technology and Livelihood Education (TLE). Therefore, it is necessary to address the increasing lack of involvement of learners that affects their participation in the class using creative tactics such as social learning strategy.

Previous study has studied several techniques to improve self-efficacy such as video technology, digital game-based learning and animation. However, there is lack of research on using social learning strategies to build baking competencies and self-efficacy. This gap shows the necessity for the research on the effects of peer tutoring and cooperative learning on the improvement of students' confidence and baking abilities. Hence, the study intends to find out if these social learning approaches may address learner disengagement and promote self-efficacy and common competencies in baking of Grade 8 learners.

2. Objectives of the Study

This study aimed to determine the effect of social learning strategies such as peer tutoring program and cooperative learning groups on self-efficacy and common competencies in baking among Grade 8 students. Specifically, it sought to identify the self-efficacy level of the respondents before and after exposure to both peer tutoring program and cooperative learning group in terms of mastery experiences, vicarious experiences, social persuasion, and emotional and physiological states; determine the level of common competencies in baking of the respondents before and after exposure to both peer tutoring program and cooperative learning group in terms of use of tools and bakery equipment, perform mensuration and calculation, maintain tools and equipment, and practice occupational health and safety procedures; examine the significant difference in the respondents' self-efficacy before and after the exposure to the peer tutoring program and cooperative learning group; examine the significant difference in the respondents' common competencies in baking before and after the exposure to the peer tutoring program and cooperative learning group; and evaluate whether there a significant difference in the post-test of the respondents' common competencies in baking after the exposure to the peer tutoring program and cooperative learning group.

3. Methodology

This study used pre-experimental research design. Pre-experimental designs cannot control for the concurrent consequences of regular educational experience or innovations in practice and policy may account for some or all of the observed modifications. A design that includes a control or comparison group is usually important to account for the potential effects of these on post test results (Cook & Campbell, 1979; Shadish et al., 2002; Torgerson & Torgerson, 2008) as cited by (Tadifa, 2020).

The respondents in this study were from two sections of Grade 8 students at Ilayang Yuni Junior and Senior Integrated National High School: thirty (30) from Grade 8-Achievers and thirty (30) from Grade 8-Trendsetters. Grade 8-Achievers consists of 14 males and 16 females, while Grade 8-Trendsetters consists of 18 males and 12 females. The researcher chose Grade 8 students as the respondents because, among the junior high school students, they have the lowest Mean Percentage Score (MPS) as per data sourced from the school records requested from the subject teachers per grading period and at the end of the school year.

The researcher employed a self-made 40-item pretest/post-test with 10 items each on the use of baking tools and bakery equipment, perform mensuration and calculation, maintain tools and equipment, and practice occupational health and safety procedures. The test was multiple choice, and the items were presented in the Table of Specification. An altered survey questionnaire was employed to measure respondents' self-efficacy.

The research procedure followed three phases: pre-implementation, implementation, and post-implementation. During the pre-implementation phase, approval from the Office of the Principal was secured. Instruments were validated by five external and five internal validators. To establish reliability and validity in the research instruments, pilot testing were implemented. During the implementation phase, the researcher implemented social learning strategies such as peer tutoring program and cooperative learning group in teaching Technology and Livelihood Education. Two groups were used, both of these classes will be exposed to social learning strategies for four weeks. Each class will meet five times a week for 45 minutes. The first group will be exposed to a cooperative learning group from 9:15 - 10:00 daily, while the other group will be exposed to a peer tutoring program from 10:00 - 10:45 daily. The same teacher taught same T.L.E. lessons to each of the two classes throughout the study. After four weeks of the experiment, respondents were given a post-test. In the post-implementation phase, the researcher administered the post-test.

The The gathered data were analyzed through the use of both descriptive and inferential statistics. Descriptive statistics such as mean, standard deviation, and frequency distribution were used to describe the respondents' level of self-efficacy and common competencies in baking before and after the exposure to tutoring interaction and group discussion interaction. In inferential statistics, a t-test was used to determine if a significant difference exists.

4. Results and Discussion

Table 1. Self-efficacy level of the respondents before and after exposure to peer tutoring program and cooperative learning group in terms of mastery experiences

Indicator	Peer Tutoring						Cooperative Learning					
	Before			After			Before			After		
	Mean	SD	VI	Mean	SD	VI	Mean	SD	VI	Mean	SD	VI
1. I feel confident in my ability to complete challenging tasks successfully.	2.67	0.84	Agree	3.17	0.70	Agree	2.87	0.68	Agree	3.20	0.66	Agree
2. I have a history of overcoming obstacles to achieve my goals.	3.07	0.74	Agree	3.13	0.78	Agree	2.97	0.67	Agree	2.87	0.51	Agree
3. When I set my mind to something, I usually accomplish it.	2.93	0.87	Agree	2.77	0.68	Agree	2.47	0.97	Disagree	2.87	0.78	Agree
4. I believe that my past successes are due to my hard work and skills.	3.10	0.71	Agree	3.20	0.96	Agree	2.43	1.04	Disagree	3.17	0.75	Agree
5. I trust my abilities to succeed in future tasks based on my previous experiences	2.93	0.83	Agree	3.20	0.96	Agree	2.60	0.89	Agree	3.17	0.70	Agree
Overall	2.94	0.49	Agree	3.09	0.61	Agree	2.67	0.59	Agree	3.05	0.38	Agree

Legend: 4.0-3.25 Strongly Agree (SA) 3.24-2.50 Agree (A) 2.49-1.75 Disagree (D) 1.74-1.0 Strongly Disagree (SD)

Table 1 shows the level of self-efficacy of the respondents before and after exposure to both Peer Tutoring Program and Cooperative Learning Group in terms of Mastery experiences. The results indicate that the overall mean of students who were exposed to peer tutoring increased from 2.94 with SD=0.49 and verbal interpretation of Agree to 3.09 with SD=0.61 and verbal interpretation of Agree after the intervention.

This increase shows that students were more successful in completing tasks after peer tutoring sessions. Indicator number 1 “I feel confident in my ability to complete challenging tasks successfully”, indicator number 4, “I believe that my past successes are due to my hard work and skills”, and indicator number 5, “I trust my abilities to succeed in future tasks based on my previous experiences” showed significant improvements, with the mean of 3.17, 3.20, and 3.20, showing that students developed confidence

in doing activities when provided the opportunity to clarify concepts and support their peers. Although there was a slight decrease in indicator 3, “When I set my mind to something, I usually accomplish it,” from a mean score of 2.93 to 2.77, the overall trend shows improvement in mastery experiences.

The results support Bandura’s (1997) theory that mastery experiences are the primary foundation of self-efficacy. As students finish assignments, their confidence in their talents develops. Similarly, Topping’s (2005) research indicates that peer tutoring enhances comprehension and reinforces learning, since students must actively examine and explain the information, which boosts their confidence and skill development. Additionally, systematic peer tutoring can increase self-regulation and academic accomplishment by allowing students to teach and receive feedback, both of which are critical components of mastery experiences (Alghamdi and O’Rourke, 2021).

Similarly, children exposed to cooperative learning had significant improvement in mastery experiences. The total mean increased from 2.67 (SD=0.59) with the verbal interpretation of Agree to 3.05 (SD=0.38) with a verbal interpretation of Agree post-intervention. Furthermore, the reduction in standard deviation after the intervention indicates a more consistent response across students, suggesting that cooperative activities may have led to a more equitable learning experience across different groups. The most improvement was shown in indicator number 1 “I feel confident in my ability to complete challenging tasks successfully” with a mean score from 2.87 to 3.20, indicator number 4, “I believe that my past successes are due to my hard work and skills” having the mean from 2.43 to 3.17, and indicator number 5, “I trust my abilities to succeed in future tasks based on my previous experiences” with a mean score from 2.60 to 3.17. This indicates that collaborative participation and shared responsibility made the students feel accomplished. According to Johnson and Johnson (2009), cooperative learning enhances positive interdependence, where students need to rely on each other to reach common goals, thereby enhancing their academic performance and self-confidence.

In summary, cooperative learning and peer tutoring had positive effects on mastery experiences. However, the mean score of cooperative learning improved slightly more (from 2.67 to 3.05) than peer tutoring (from 2.94 to 3.09). This pattern implies that cooperative learning may have a more powerful or persistent effect due to shared ownership, mutual aid and structured group interactions, even though both strategies might serve to improve students’ task competence and confidence. This view was corroborated by Wang and Derakhshan (2020), who discovered that cooperative learning enhances students’ academic self-efficacy and task mastery through mutual support and collaborative problem solving. The students reported a more enjoyable learning experience and greater confidence after completing collaborative work.

Table 2. Self-efficacy level of the respondents before and after exposure to peer tutoring program and cooperative learning group in terms of vicarious experiences

Indicator	Peer Tutoring						Cooperative Learning					
	Before			After			Before			After		
	Mean	SD	VI	Mean	SD	VI	Mean	SD	VI	Mean	SD	VI
1. Watching others successfully perform a task makes me believe I can also succeed.	2.87	0.97	Agree	3.00	0.91	Agree	2.63	1.10	Agree	2.93	0.87	Agree
2. Seeing someone similar to me succeed at a challenging task increases my confidence in my own abilities.	2.50	0.86	Agree	3.00	0.74	Agree	2.67	0.96	Agree	2.87	0.78	Agree
3. I feel more capable of performing a task after observing others do it well.	2.90	0.85	Agree	3.00	0.79	Agree	2.77	0.86	Agree	2.90	0.76	Agree
4. When my peers accomplish something difficult, I feel more confident that I can do it too.	2.93	1.02	Agree	2.93	0.98	Agree	2.37	1.10	Disagree	3.07	0.52	Agree
5. Hearing about others' successes in similar situations makes me believe I can achieve the same results.	2.77	1.07	Agree	3.03	0.85	Agree	2.37	0.93	Disagree	2.60	1.00	Agree
Overall	2.79	0.66	Agree	2.99	0.56	Agree	2.56	0.68	Agree	2.87	0.43	Agree
Legend: 4.0-3.25 Strongly Agree (SA) 3.24-2.50 Agree (A) 2.49-1.75 Disagree (D) 1.74-1.0 Strongly Disagree (SD)												

Table 2 presents the overall mean of the respondents before the Peer Tutoring was 2.79 (SD=0.66), and after the intervention, the mean increased to 2.99 (SD=0.56), with a verbal interpretation of Agree. Peer tutoring boosted students' vicarious experience, with a mean score increase of 0.20. Moreover, the slight reduction in standard deviation signifies that students' answers were more homogeneous after the intervention. Peer tutoring exposure increased in some indicators, and other mean scores remained the same. This means that children learn by observing their peers demonstrate skills, solve problems, and explain how to do things.

Seeing others accomplish could have given them confidence in their own ability to complete similar undertakings. This is consistent with Bandura's Social Cognitive Theory, which states that people feel more efficacious when they watch others, particularly similar peers, succeed at activities. When students witness successful peer models, they are more likely to consider that they can grow too.

In contrast, when cooperative learning was implemented, the respondents got a mean of 2.56 (SD=0.68), which was interpreted as Agree. The mean increased to 2.87 (SD=0.43) after the intervention. However, the mean increase of 0.31 indicates a bigger improvement than peer tutoring. In addition, the standard deviation decreases significantly from 0.68 to 0.43, which implies that the students are more in agreement with their vicarious experiences after doing cooperative activities. All indicators increased, specifically indicator 4, "When my peers accomplish something difficult, I feel more confident that I can do it too," which showed the greatest improvement. This suggests that cooperative learning provided students with more opportunities to see various peers presenting methods and problem-solving procedures. The results are in line with the work of Johnson and Johnson (2018) that stressed the role of cooperative learning in increasing students' motivation and confidence through peer modeling and shared learning experiences. Students' effort in supportive groupings with exposure to multiple models for more observational learning.

In addition, the data indicated that students' vicarious experiences were improved in both educational modes. However, cooperative learning produced a somewhat higher mean gain (0.31) than peer tutoring (0.20). This suggests that although one-to-one peer modelling is advantageous, alternative group contact may offer more observational exposure. Students in cooperative settings may see different approaches, levels of skills, and tactics and this may enhance their confidence about their ability to do academic work.

Schunk and DiBenedetto (2020) supported these findings by noting that peer modelling remains an effective classroom strategy for promoting academic confidence and engagement. Similarly, Topping (2017) found peer supported learning frameworks promote self-efficacy through sustained modelling and collaborative interaction. Similarly, it is similar with the study of Gillies (2016) that highlighted that cooperative learning increases observational learning and offers students with models of success, hence increasing their self-efficacy.

Table 3. Self-efficacy level of the respondents before and after exposure to peer tutoring program and cooperative learning group in terms of social persuasion

Indicator	Peer Tutoring						Cooperative Learning					
	Before			After			Before			After		
	Mean	SD	VI	Mean	SD	VI	Mean	SD	VI	Mean	SD	VI
1. I feel more confident in my abilities when others encourage me.	2.93	0.98	Agree	3.10	0.89	Agree	2.87	0.82	Agree	2.87	0.86	Agree
2. Receiving positive feedback from others increases my belief in my capabilities.	2.90	1.03	Agree	2.83	0.91	Agree	2.70	0.95	Agree	3.17	0.87	Agree
3. The support of my friends and family boosts my confidence to succeed.	3.03	0.85	Agree	3.20	0.96	Agree	2.57	1.14	Agree	3.37	0.67	Agree
4. Seeing others succeed makes me believe that I can succeed too.	3.17	0.83	Agree	3.00	0.83	Agree	2.80	0.89	Agree	3.10	0.66	Agree
5. Constructive criticism from others helps me improve and increases my self-efficacy.	2.83	1.05	Agree	2.87	0.78	Agree	2.50	0.78	Agree	2.83	0.70	Agree
Overall	2.97	0.59	Agree	3.00	0.60	Agree	2.69	0.45	Agree	3.07	0.47	Agree

Legend: 4.0-3.25 Strongly Agree (SA) 3.24-2.50 Agree (A) 2.49-1.75 Disagree (D) 1.74-1.0 Strongly Disagree (SD)

The table above indicates the mean and standard deviation scores of social persuasion levels of students before and after the start of Peer Tutoring and Cooperative Learning techniques.

The results showed that the level of social persuasion increased slightly under the peer tutoring. The overall mean increased from 2.97 before the intervention to 3.00 after the intervention. Indicator 2 "Receiving positive feedback from others increases my belief in my capabilities" and indicator 4 "Seeing others succeed makes me believe that I can succeed too" showed declines. Indicator 1 "I feel more confident in my abilities when others encourage me", indicator 3 "The support of my friends and family boosts my confidence to succeed" and indicator 5 "Constructive criticism from others helps me improve and increases my self-

efficacy” showed minor gains. The standard deviation was rather stable (0.59 to 0.60), which implied that the students’ responses were consistent. The results suggest a very small positive impact of peer tutoring on students’ views of social persuasion in general.

However, the results for cooperative learning are a more significant improvement. The total mean improved significantly by 0.38 from 2.69 before the intervention to 3.07 after. Increases were especially notable for indicator 2, “Receiving positive feedback from others increases my belief in my capabilities,” mean 2.70 to 3.17, and indicator 3, “The support of my friends and family boosts my confidence to succeed,” mean 2.57 to 3.37. The enhancement was uniform with the respondents, as the standard deviation before (0.45) and after (0.47) intervention was relatively low. The results show that cooperative learning was more effective in improving students’ experiences of verbal support, peer help, and motivational reinforcement.

Cooperative learning had a more favorable effect on social persuasion than peer tutoring. The peer tutoring showed moderate and inconsistent results while the cooperative learning produced substantial improvements in social support, encouragement and confidence among learners. This participative approach builds student’s confidence, likely leading to more frequent vocal praise and peer validation.

This finding is in line with Bandura’s (1997) self-efficacy theory, which identifies social persuasion as one of the four key sources of self-efficacy. Positive verbal reinforcement and peer evaluation can increase a person’s confidence. The significant improvement in cooperative learning reinforces this theoretical perspective, as cooperative tasks naturally involve interaction with peers, debate and mutual assistance.

Moreover, the findings align with Slavin’s (2018) research, which found that cooperative learning increased students’ motivation and self-confidence through structured peer collaboration. The conclusion was further corroborated by Gillies (2016), commonly mentioned in 2020, where peer debate and criticism enhance students’ confidence through structured group work. Additionally, Tran (2019) discovered that cooperative learning significantly enhances students’ self-efficacy and perceived peer support compared to traditional peer-assisted ways. The study reveals that the more effective effects of social persuasion are promoted in collaborative learning settings.

Table 4. Self-efficacy level of the respondents before and after exposure to peer tutoring program and cooperative learning group in terms of emotional and physiological states

Indicator	Peer Tutoring						Cooperative Learning					
	Before			After			Before			After		
	Mean	SD	VI	Mean	SD	VI	Mean	SD	VI	Mean	SD	VI
1. I am confident in my ability to handle personal problems.	2.87	1.07	Agree	2.90	1.06	Agree	2.57	1.01	Agree	2.93	0.83	Agree
2. I can stay calm when facing difficulties because I can rely on my coping abilities.	2.87	0.90	Agree	2.93	0.74	Agree	2.53	0.90	Agree	2.87	0.90	Agree
3. I can control my emotions when I feel angry or upset.	3.10	0.96	Agree	2.80	0.93	Agree	2.47	1.04	Agree	2.83	0.87	Agree
4. I can manage my emotions even in challenging situations.	3.00	0.95	Agree	3.00	0.87	Agree	2.47	0.97	Agree	3.03	0.77	Agree
5. I can maintain my physical health through regular exercise and a balanced diet.	2.90	1.13	Agree	3.13	0.90	Agree	2.80	0.96	Agree	2.73	0.87	Agree
Overall	2.95	0.69	Agree	2.95	0.66	Agree	2.57	0.70	Agree	2.88	0.62	Agree

Legend: 4.0-3.25 Strongly Agree (SA) 3.24-2.50 Agree (A) 2.49-1.75 Disagree (D) 1.74-1.0 Strongly Disagree (SD)

Table 4 shows the emotional and physiological states of students before and after using two instructional methodologies, peer tutoring and cooperative learning, as well as their mean and standard deviation. The mean score overall remained unchanged at 2.95 during the period before and after the peer tutoring intervention. This suggests that peer tutoring did not significantly change emotional or physiological states. The standard deviations were somewhat lower after the activity (0.66 vs 0.69), suggesting slightly less

variability in responses. Similarly, peer tutoring might have maintained general well-being without largely improving or diminishing it, as suggested by the students' constant emotional and physiological reactions.

Conversely, cooperative learning demonstrated more consistent gains. Indicator number 4, "I can manage my emotions even in challenging situations," showed a significant rise with a mean score from 2.47 to 3.03. The total mean changed from 2.57 (SD=0.70) to 2.88 (SD=0.62) with a verbal interpretation of Agree. A lower standard deviation suggests that the experience was more constant for the students, meaning that cooperative structures created a more supportive environment which helped to regulate emotional states in the group. Johnson and Johnson (2009) showed that cooperative learning encourages positive interdependence and peer support, which can help to reduce stress and improve emotional well-being. This is in keeping with the advantages seen as cooperative environments likely offered comfort and shared accountability reducing anxiety.

All in all, the results generally demonstrate that cooperative learning consistently enhanced stress reduction and emotional regulation, but peer tutoring did not significantly improve after emotional states. This view is reinforced by the research of Johnson and Johnson (2009) that found that the social support in cooperative learning contexts helps to moderate emotional and physiological responses. Secondly, Bandura (1997) has highlighted the importance of emotional states in self-efficacy. Thus, combining individualized support with group comfort, blending cooperative learning with regulated peer tutoring, may enhance results.

Table 5. Respondents' level of common competencies in baking before and after exposure to peer tutoring program and cooperative learning group in terms of use of tools and bakery equipment

Score Range	Peer Tutoring						Cooperative Learning					
	Before			After			Before			After		
	F	%	VI	F	%	VI	F	%	VI	F	%	VI
0-2	1	3	Poor	0	0	Poor	1	3	Poor	0	0	Poor
3-5	4	13	Fair	2	7	Fair	9	30	Fair	3	10	Fair
6-8	23	77	Good	10	33	Good	18	60	Good	12	40	Good
9-10	2	7	Excellent	18	60	Excellent	2	7	Excellent	15	50	Excellent
Total	30	100		30	100		30	100		30	100	

Legend: 9-10 Excellent 6-8 Good 3-5 Fair 0-2 Poor

Table 5 shows students' performance scores measured before and after implementing peer tutoring and cooperative learning methodologies in the competency of use of tools and bakery equipment.

It shows that both procedures greatly improved the respondents' baking skills from the pre-test to the post-test. Initially, most of the students (77%) who were exposed to peer tutoring were at the "Good" level and just 7% of them were at the "Excellent" level. After the intervention, a remarkable improvement was registered with 60% of the respondents falling in the "Excellent" category and none in the "Poor" level. This reveals that peer tutoring helped students accomplish better by offering them structured support and involving them. The unequal distribution between scores, indicating variation in how successfully students engaged with the tools, reflects the study of Topping (2005) which revealed that the success of peer tutoring is highly dependent on the structure and clarity of peer roles.

Likewise, the cooperative learning group also improved in the same way. After the intervention, the number of respondents who rated the experience as "Excellent" increased from 7% to 50%. This suggests that working together and sharing responsibility enables students to build their talents. This is supported by the

study of Johnson and Johnson (2014) which indicated that kids who work together and connect well with others might perform better in school.

Overall, both methodologies were effective in helping trainees enhance their baking skills. However, in the “Excellent” level performance, peer tutoring showed a somewhat higher improvement, which suggests that specific peer support could be particularly useful for skills-based learning.

Table 6. Respondents’ level of common competencies in baking before and after exposure to peer tutoring program and cooperative learning group in terms of perform mensuration and calculation

Score Range	Peer Tutoring						Cooperative Learning					
	Before			After			Before			After		
	F	%	VI	F	%	VI	F	%	VI	F	%	VI
0-2	13	43	Poor	3	10	Poor	13	43	Poor	6	20	Poor
3-5	17	57	Fair	19	63	Fair	15	50	Fair	17	57	Fair
6-8	0	0	Good	8	27	Good	2	7	Good	7	23	Good
9-10	0	0	Excellent	0	0	Excellent	0	0	Excellent	0	0	Excellent
Total	30	100		30	100		30	100		30	100	

Legend: 9-10 Excellent 6-8 Good 3-5 Fair 0-2 Poor

Table 6 explains the proficiency of the respondents in perform mensuration and calculation both before and after being exposed to the Cooperative learning approach and the Peer tutoring program.

The results show that most of the respondents in both methods were at the “Fair” level before the intervention, indicating a restricted capacity to perform simple baking computations, although in different ways. Before the commencement of the peer tutoring program, 43% of the respondents were at the level of “Poor” while 57% were at a level of “Fair”. Following the introduction of the program, the number of learners in the “Fair” category increased from 17 (57%) to 19 (63%). There was also a significant increase in “Good” level in the post-test, with 8 pupils (27%) from 0%.

Moreover, a similar tendency is evident in cooperative learning. The number of respondents in the ‘Poor’ level decreased from 13 (43%) to 6 (20%) although in the ‘Fair’ level, it remained roughly the same, 50 % to 57%. At the same time, the number of students in the “Good” category increased from 2 (7%) to 7 (23%), indicating that they developed more abilities after working together in groups. However, none of the respondents received an “Excellent” rating in both approaches. This indicates that both techniques serve to enhance basic to moderate skills, but may still require additional assistance to achieve mastery-level performance.

Outcomes revealed that peer tutoring and cooperative learning can help students grow better at baking. However, cooperative learning seems to work a little better since the post-test distribution shows a little greater shift toward higher performance levels. In this regard, Rohrbeck et al. (2003) noted that peer tutoring enhances self-confidence and mathematics achievement, especially among children who initially score lower. Similarly, Slavin (2018) states that cooperative learning models, such as Jigsaw and STAD, significantly improve arithmetic skills, including practical tasks such as calculation and mensuration.

Table 7. Respondents' level of common competencies in baking before and after exposure to peer tutoring program and cooperative learning group in terms of maintain tools and equipment

Score Range	Peer Tutoring						Cooperative Learning					
	Before			After			Before			After		
	F	%	VI	F	%	VI	F	%	VI	F	%	VI
0-2	6	20	Poor	0	0	Poor	6	20	Poor	1	3	Poor
3-5	14	47	Fair	19	64	Fair	12	40	Fair	14	47	Fair
6-8	10	33	Good	10	33	Good	12	40	Good	13	43	Good
9-10	0	0	Excellent	1	3	Excellent	0	0	Excellent	2	7	Excellent
Total	30	100		30	100		30	100		30	100	

Legend: 9-10 Excellent 6-8 Good 3-5 Fair 0-2 Poor

Table 7 presents the students' performance scores measured before and after the implementation of peer tutoring and cooperative learning methodologies in the competency of maintaining tools and equipment.

The data clearly indicate that both teaching techniques improved after intervention. Peer tutoring mean percentage of students in the "Poor" category decreased from 20% to 0%. The number of students in the "Fair" level increased from 47% to 64% and the number of students in the "Good" level kept the same at 33%. In post-test the number of students belonging to level of "Excellent" (3%) also slightly increased. This indicates that peer tutoring was helpful to the underachievers especially in pulling them out of the Poor category.

Cooperative learning also showed reduction in "Poor" level from 20% to 3% with a big rise to higher levels. Students with "Fair" and "Good" scores increased from 40% to 47% and 40% to 43%. There was no student at the bottom level after the intervention. The results suggest that both strategies are effective in improving students' baking skills, especially in shifting students' skills from poor to fair, fair to good, and superb.

The improvement was attributed to the social constructivist aspect of both tactics. Both strategies teach the students by working together, communicating to each other and being involved. It reveals that both peer tutoring and cooperative learning can help students learn baking better. Peer tutoring seems to work a little better for low-achieving learners. Peer tutoring is a more knowledgeable peer helping others learn and cooperative learning is shared responsibility and collaborative problem solving. Hattie (2018) reported that peer-oriented approaches to education are most effective when they incorporate feedback and interaction. According to Slavin (2017), cooperative learning also brings about a great rise in the grades of the students because it makes them more responsible for their work and more active in the group activity.

Cooperative learning has also been used successfully in vocational and technical settings to build teamwork, diagnose problems, and solve problems as a group—skills needed for maintaining tools and equipment. Kyndt et al. (2013) found that collaborative assignments encouraged students to better integrate knowledge with practice than typical teacher-led exercises.

Table 8. Respondents' level of common competencies in baking before and after exposure to peer tu program and cooperative learning group in terms of practice occupational health and safety procedures

Score Range	Peer Tutoring						Cooperative Learning					
	Before			After			Before			After		
	F	%	VI	F	%	VI	F	%	VI	F	%	VI
0-2	3	10	Poor	1	3	Poor	0	0	Poor	0	0	Poor
3-5	7	23	Fair	3	10	Fair	7	23	Fair	2	6	Fair
6-8	12	40	Good	11	37	Good	16	54	Good	17	57	Good
9-10	8	27	Excellent	15	50	Excellent	7	23	Excellent	11	37	Excellent
Total	30	100		30	100		30	100		30	100	

Legend: 9-10 Excellent 6-8 Good 3-5 Fair 0-2 Poor

Table 8 shows that there was a difference in the respondents' competency in practicing occupational health and safety practices before and after exposure to Peer tutoring and Cooperative learning.

After the adoption of peer tutoring, the number of students in the "Poor" level decreased from 3 (10%) to 1 (3%). The number of learners who were in "Fair" level also dropped from 7 (23%) to 3 (10%). There was also a significant increase in the "Excellent" category, from 8 (27%) to 15 (50%). Thus, peer coaching was effective in enhancing students' baking skills, particularly in terms of helping students achieve higher levels of performance.

Similarly, cooperative learning also produced excellent benefits. The number of students in the "Good" level increased from 16 (54%) to 17 (57%) while the number of students in the "Excellent" category increased from 7 (23%) to 11 (37%). There were no learners in the "Poor" group after intervention which is strong evidence that cooperative learning worked to get rid of very low performance levels.

In summary, the two methods, peer tutoring and cooperative learning, were effective in enhancing students' competency in occupational safety and health procedures, although peer tutoring showed a more consistent rise in excellent level skill following the intervention. Peer tutoring shows a more linear improvement, with the higher scores going up and poorer scores going down. Cooperative learning does demonstrate development, but the spread is a little wider, with some students benefiting more than others.

These findings were reinforced by the study of Smith and Ragan (2020) which stated that the active learning methods substantially boost students' acquisition of procedural skills, specifically in health and safety teaching. Peer education and cooperative learning are interactive teaching strategies that help students engage cognitively and behaviorally with the content, resulting in improved recall of correct procedures. Likewise, Johnson et al. (2018) found cooperative learning structures to improve students' interpersonal and practical skills. The study revealed that children who work together on safety activities are more likely to "talk to each other, share ideas, and fix mistakes as a group."

Table 9. Difference in respondents' self-efficacy before and after exposure to peer tutoring and cooperative learning

Self-Efficacy Peer Tutoring	Before		After		t-value	p-value	V.I
	Mean	SD	Mean	SD			
mastery experiences	2.94	0.49	3.09	0.61	-1.286	0.209	Not significant
vicarious experiences	2.79	0.66	2.99	0.56	-1.881	0.070	Not significant
social persuasion	2.97	0.59	3.00	0.60	-0.257	0.799	Not significant
emotional and physiological states	2.95	0.69	2.95	0.66	-0.049	0.961	Not significant
Cooperative Learning							
mastery experiences	2.67	0.59	3.05	0.38	-3.974	< .001	Significant
vicarious experiences	2.56	0.68	2.87	0.43	-2.508	0.018	Significant
social persuasion	2.69	0.45	3.07	0.47	-3.976	< .001	Significant
emotional and physiological states	2.57	0.70	2.88	0.62	-2.619	0.014	Significant

Note: A p-value less than 0.05 ($p < 0.05$) indicates a statistically significant difference

Table 9 shows the significant difference in the respondents' self-efficacy in four sources namely, mastery experiences, vicarious experiences, social persuasion and emotional and physiological states before and after exposure to peer tutoring program and cooperative learning group. A paired sample t-test was used to see if there were any significant differences.

The results showed that the mean scores of all dimensions of self-efficacy after the adoption of peer tutoring increased marginally. Mastery experiences increased from 2.94 to 3.09. Likewise, vicarious experiences increased from 2.79 to 2.99 and social persuasion from 2.97 to 3.00, while emotional and physiological states remained unchanged. However, these differences are not statistically significant based on the findings of paired t-test as the p-value > 0.05 for all dimensions. This suggests that although peer tutoring may have had a minor positive impact on self-efficacy, the difference was not statistically significant.

On the other hand, students who were engaged in cooperative learning demonstrated significant improvement in all domains of self-efficacy. Students reported higher perceived competence in tasks after they worked together, with a significant increase in mastery experiences from 2.67 to 3.05 ($p < .001$), and a dramatic increase in vicarious experiences from 2.56 to 2.87 ($p = 0.018$), suggesting that students' confidence in their own skills was positively affected by observing their peers' achievement in cooperative groups. There was also a significant improvement in social persuasion, with a mean of 2.69 to 3.07 and $p < .001$. Positive affect for learning activities increased, with significant positive changes in emotional and physiological states, $p = 0.014$.

Furthermore, these data indicate a considerable difference in the effectiveness of the two approaches. Whereas peer tutoring did not, cooperative learning consistently yielded statistically significant improvements in self-efficacy, although both programs aimed to provide supportive learning environments. Cooperative learning, with its focus on teamwork, shared accountability, and reciprocal feedback, may have contributed to

greater self-efficacy gains than peer tutoring, which may not have provided the same level of collaborative engagement or observational opportunities. Therefore, hypothesis 1: There is no significant difference in respondents' self-efficacy before and after exposure to the peer tutoring and cooperative learning groups is rejected for cooperative learning, whereas for peer tutoring it is accepted.

Moreover, this notion is similar with Bandura's Social Cognitive Theory (1997), which maintains that mastery experiences, vicarious experiences, social persuasion, and emotional and physiological states are the four key sources from which self-efficacy is created. Cooperative learning environments automatically activate these sources concurrently by increasing cooperation, shared accountability, modelling, feedback, and emotional support. Similarly, these findings are supported by Johnson and Johnson (2009), who stressed that supportive education enhances positive interdependence and personal responsibility, which increases students' self-esteem and academic commitment. Learners in cooperative contexts are more motivated and self-confident than learners in driven or distinctive surroundings.

Additionally, Tripathy et al. (2024), Randall (2017), and Thurston et al. (2021) studied the differential effects of peer tutoring on tutees and tutors. The results indicated that peer tutoring can enhance confidence and academic accomplishment, but the benefits depend on the level of organization and assistance in the tutoring process. This is in line with the research findings, which showed that peer tutoring resulted in only minor increases in mastery and vicarious experiences but no sustained statistical significance.

Table 10. Difference in respondents' common competencies in baking before and after exposure to peer tutoring and cooperative learning

Competencies in Baking	Before		After		t-value	p-value	Verbal Interpretation
	Mean	SD	Mean	SD			
Peer Tutoring							
Use of tools and bakery equipment	6.80	1.67	8.23	1.59	-4.690	< .001	Significant
perform mensuration and calculation	2.80	1.56	4.47	1.48	-4.590	< .001	Significant
maintain tools and equipment	4.13	2.15	5.27	1.74	-3.200	0.003	Significant
practice occupational health and safety procedures	6.60	2.54	7.80	2.11	-2.740	0.010	Significant
Cooperative Learning							
Use of tools and bakery equipment	6.17	1.58	8.07	1.68	-5.140	< .001	Significant
perform mensuration and calculation	2.83	1.60	4.23	1.92	-2.900	0.007	Significant
maintain tools and equipment	4.60	1.90	5.70	1.91	-3.300	0.003	Significant
practice occupational health and safety procedures	6.93	1.98	7.70	1.51	-2.540	0.017	Significant

Note: A p-value less than 0.05 ($p < 0.05$) indicates a statistically significant difference

Table 10 reveals that there is substantial variation in the common competencies of the respondents in baking before and after exposure to peer tutoring and cooperative learning. The table also presents the results of the paired sample t-test conducted to determine if there was any significant difference in respondents' baking competencies before and after exposure to the peer tutoring and cooperative learning methodologies.

The results revealed that peer tutoring and cooperative learning methodologies significantly improved the students' performance in common competencies in bread and pastry production. All sources in peer tutoring showed significant improvement. Peer guidance enhanced technical skill. The use of tools and bakery equipment was greater from a mean of 6.80, standard deviation 1.67 before, to a mean of 8.23,

standard deviation 1.59 after, $p < .001$. The difference is statistically significant because the p-value is smaller than 0.05. This suggests that peer tutoring had a notable positive impact on the students' skill of utilizing tools and bakery equipment successfully. The mensuration and calculation also increased from the mean score of 2.80 to 4.47, p -value $< .001$. The results indicate a statistically significant improvement and suggest that peer support helped students overcome issues with mathematical calculations in baking. Mean score of maintenance of tools and equipment before intervention was 4.13, and after intervention was 5.27 ($p=0.003$). Since the p-value is $< .05$, this indicates a significant difference. It indicates that peer tutoring had a good outcome on the learners' ability to maintain baking materials and equipment, after practice of occupational health and safety procedures, likewise showed improvement from 6.60 to 7.80 with $p=0.010$. This is a statistically significant finding. Peer tutoring resulted in a considerable increase in students' practice of occupational health and safety practices.

After the execution of the peer tutoring program, all four competencies showed statistically significant improvement. This suggests that peer tutoring is a useful training strategy in enhancing practical baking skills. Significant learning gains are evident with increasing mean scores in every competency. These results are congruent with the findings of Topping (2005), who found that peer tutoring, when well organized, can increase both cognitive and practical abilities as learners benefit from tailored instruction and peer modelling.

Likewise, in cooperative learning, all competencies showed significant improvements with evidence of constant advances. Use of tools and bakery equipment increased from 6.17 to 8.07 with p -value $< .001$. The difference is statistically significant since the p-value is smaller than 0.05. This implies that cooperative learning considerably increased students' proficiency in using baking utensils and equipment. The mean score of perform mensuration and calculation improved from 2.83 to 4.23 with $p=0.007$. This results in a statistically significant improvement. Also, the mean of maintaining tools and equipment grew from 4.60 to 5.70, $p=0.003$, and occupational health and safety procedures improved from 6.93 to 7.70, p -value .017. The improvement is statistically significant.

All competencies showed statistical significance after collaborative learning. It indicates that cooperative instruction is a helpful tool in improving baking abilities. The consistent rise in the mean score shows that students are more interested, collaborative, and proficient. These results support the assertion of Johnson and Johnson (2009) that cooperative learning fosters equitable accomplishments, shared accountability, and group problem-solving, which explains the consistent progress in all skills.

Generally, the results suggest that both cooperative learning and peer tutoring produced statistically significant improvements in all four baking competencies; however, cooperative learning resulted in more consistent gains across the sample. Thus, hypothesis number 2, There is no significant difference in the respondents' common competencies in baking before and after the exposure to the peer tutoring program and cooperative learning group, is rejected.

The study of Johnson and Johnson (2009) supports this view, since they identified cooperative learning as a powerful method for enhancing skills and building group cohesion. In the same vein, Loh and Ang (2020) showed that cooperative learning is an outstanding higher education teaching and learning technique that contributes to the academic, affective, and social growth of students.

Table 11. Difference in post-test of the respondents' common competencies in baking after exposure to peer tutoring and cooperative learning

Common Competencies In Baking	Peer Tutoring		Cooperative learning		t-value	p-value	V.I
	Mean	SD	Mean	SD			
Use of tools and bakery equipment	8.23	1.59	8.07	1.68	0.38	0.71	Not significant
Perform mensuration and calculation	4.47	1.48	4.23	1.92	0.54	0.59	Not significant
Maintain tools and equipment	5.27	1.74	5.70	1.91	-0.91	0.37	Not significant
Practice occupational health and safety procedures	7.80	2.11	7.70	1.51	0.21	0.83	Not significant

Note: A *p*-value less than 0.05 ($p < 0.05$) indicates a statistically significant difference

Table 11 shows the significant difference in post-test of the respondents' common competencies in baking between two approaches. The study result showed that there is no statistically significant difference in the post-test common competencies in baking between respondents who were taught by peers and those who were taught through cooperative learning. This is shown by the *p*-values, which are all higher than 0.05 level of significance. There were some small differences in the mean scores, but they were not big enough to be declared statistically significant. This means that peer tutoring and cooperative learning are both good ways to help students improve their baking skills.

The findings support the premise that working together to learn, whether through peer tutoring or cooperative learning, helps people learn new skills and remember what they have learnt. Topping (2005) has demonstrated that peer tutoring markedly enhances academic achievement and practical abilities through active participation and structured assistance. According to Johnson and Johnson (2009) cooperative learning environments promote collaboration and social contact among learners and lead to improved student accomplishment.

Moreover, the results are consistent with Bandura's (1997) Social Learning Theory, which asserts that learning is most successful through observation, interaction, and social experiences (Bouton & Lang, 2020). So, the fact that there is not a big difference between the two approaches means that both are effective for imparting baking competencies. Thus, hypothesis number 3, There is no significant difference in the post-test of the respondent's common competencies in baking after exposure to a peer tutoring program and cooperative learning group, is accepted.

5. Conclusions

Based on the findings of the study, it was concluded that the respondents' self-efficacy before and after exposure to both approaches was partially contradicts the first null hypothesis as a significant increase was observed after exposure to cooperative learning while no significant difference was found in peer tutoring. Furthermore, peer tutoring and cooperative learning were also found beneficial in improving the common

competencies in baking of the respondents as shown by the significant improvement in their pre-test and post-test performances, therefore, the second hypothesis was rejected.

However, in the comparison of post-test of the respondents' common competencies in baking between peer tutoring and cooperative learning, no significant difference was identified. Suggesting that both teaching approaches are equally effective in enhancing students' baking skills and practical competencies. Thus, the use of either peer tutoring or cooperative learning may be suggested in the teaching of common competencies in baking among students.

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Appendix A. Pre-test/Post-test

TECHNOLOGY AND LIVELIHOOD EDUCATION - BPP
GRADE 8
PRE-TEST

NAME: _____ Grade & Section: _____ Score: _____

Directions: Choose the letter of the correct answer from the given choices. Encircle the letter of your answer.

Use of tools and bakery equipment

1. This baking tool is used for sifting flour.
 A. Flour sifter B. Grater C. Strainer D. Spatula
2. It is used in greasing pans or the surface of pastries.
 A. Pastry bag B. Pastry brush C. Pastry tip D. Pastry wheel
3. It is a shallow rectangular pan used for baking rolls.
 A. Bundt pan B. Jelly roll pan C. Loaf pan D. Muffin pan
4. This tool has sloping sides and is used for mixing ingredients.
 A. Measuring cup B. Electric mixer C. Mixing bowl D. Spatula
5. It is used in timing baked products and the rising of yeast.
 A. Timer B. Pastry bag C. Wire whisk D. Utility tray
6. It is also called a mixing spoon.
 A. Electric mixer B. Measuring spoon C. Wire whisk D. Wooden spoon
7. What tool is used to grate cheese, chocolate, and other fresh fruits?
 A. Grater B. Kitchen shear C. Paring knife D. Dough cutter
8. Which of the following baking tools is not included in the classification of a preparatory tool?
 A. Flour sifter B. Spatula C. Rolling pin D. Rack oven
9. Which of the following is the correct classification of a muffin pan?
 A. Baking pan B. Measuring tool C. Mixing tool D. Preparatory tool
10. Why do we need to preheat the oven before baking?
 A. To attain the required oven temperature before baking. C. To sanitize the oven
 B. To make the dough softer D. To save electricity

Perform Mensuration and Calculation

11. ___ is the correct way of removing lumps in the baking powder or baking soda.
 A. Packing B. Shaking C. Sifting D. Stirring
12. This is packed when measuring, and it follows the shape of the cup when inverted.
 A. Brown sugar B. Cake flour C. Margarine D. Refined sugar
13. It is used to level off the ingredients when measuring.
 A. Measuring cup B. Mixing spoon C. Spatula D. Strainer
14. This is the proper way to fill the cup when measuring dry ingredients such as flour.
 A. Mixing B. Overflowing C. Pressing D. Shaking
15. It is the ingredient added to lard to make a substitute for butter.
 A. Flour B. Oil C. Salt D. Vinegar
16. How many grams are equal to 1 kilogram?
 A. 100 g B. 500 g C. 1000 g D. 1500 g

17. How many teaspoons is equivalent to 1 tablespoon?
A. 2 tsp. B. 3 tsp. C. 4 tsp. D. 5 tsp.
18. Given that 500 ml is equal to 2 cups, how many cups make up 1 liter?
A. 2 cups B. 3 cups C. 4 cups D. 5 cups
19. If a recipe requires $\frac{1}{4}$ cup of butter, how many tablespoons is this equivalent to?
A. 2 tablespoons B. 3 tablespoons C. 4 tablespoons D. 5 tablespoons
20. Using the formula $^{\circ}\text{F} = ^{\circ}\text{C} \times \frac{9}{5} + 32$, what is the Fahrenheit equivalent of 160°C ?
A. 320°F B. 302°F C. 338°F D. 310°F

Maintain tools and equipment

21. A natural product that cleans, disinfects, and removes odors.
A. Alcohol B. Sponge C. Vinegar D. Water
22. It can be used to scrub surfaces, the same way as commercial abrasive cleaners.
A. Baking soda B. Borax C. Lemon D. Vinegar
23. Where should tools be stored after use?
A. On the floor C. Anywhere you can reach them quickly
B. In a safe, dry and organized place D. In water
24. Which of the following should be done before storing baking tools?
A. Leave them wet C. Put them in the oven
B. Wipe them dry D. Stack them with food
25. What is the purpose of maintaining tools and equipment?
A. To make the baking faster C. To lessen the baking time
B. To decorate the workplace D. To ensure efficiency and safety
26. What is the first step in cleaning the range?
A. Clean the parts thoroughly, particularly those that are removable.
B. Remove and wipe food particles.
C. Remove the grates before cleaning the entire oven.
D. Switch off and remove the electric plug to allow the range to cool.
27. What steps should you take if a piece of equipment is not working properly?
A. Keep using it until it stops. C. Fix it immediately without knowledge.
B. Ignore the problem. D. Report it for repair and stop using it.
28. Why is it important to clean tools and equipment after use?
A. To make them shiny C. To prevent damage and contamination
B. To save electricity D. To reduce workload
29. Which of the following statements does not follow the proper storing of tools and equipment?
A. Store knives properly when not in use with the sharp edge down.
B. Cutting boards should be stored vertically to avoid moisture collection.
C. Label the storage cabinet or place it correctly for easy finding.
D. Store tools and equipment in a clean, wet place.
30. How should you properly clean handy tools?
A. Protect all handy tools from flies and other insects.
B. Wash and dry utensils with a clean dry rag before storing them.

- C. Wash and wipe the utensils after storing them.
- D. Rinse the tools and equipment in warm water.

Practice occupational health and safety procedures

31. This refers to solid, liquid, vapor or gaseous compounds such as fume and mist.
 - A. Biological hazards
 - B. Physical hazards
 - C. Chemical hazards
 - D. Ergonomic hazards
32. A kind of hazard that is basically causing stress to a worker.
 - A. Chemical
 - B. Ergonomics.
 - C. Physical
 - D. Psychological
33. Fixing electrical wiring helps prevent the risk of__.
 - A. Falls
 - B. Collision
 - C. Electric shock
 - D. Burns
34. It consists of words, messages, and a pictorial symbol with a variety of shapes, sizes, and colors.
 - A. Hazard
 - B. Risk
 - C. Safety
 - D. Safety signs
35. What must be done before you begin handling food?
 - A. Drink water
 - B. Wash your hands
 - C. Wear jewelry
 - D. Touch your hair
36. What is the primary purpose of Personal Protective Equipment (PPE) in the workplace?
 - A. To increase productivity
 - B. To prevent accidents
 - C. To reduce the risk of injury and illness
 - D. To meet legal requirements only
37. What is the meaning of the acronym OSH?
 - A. Occupational Safety and Health
 - B. Official Safety Handbook
 - C. Occupational Skills Handbook
 - D. Organization for Safety and Health
38. Which of the following is the correct step for proper hand washing to maintain hygiene?
 - A. Rinse hands briefly with water only.
 - B. Wash hands with soap and water for at least 20 seconds, covering all surfaces.
 - C. Wipe hands on a towel without using soap.
 - D. Use water only and skip drying.
39. Ana, one of the students, noticed the hazard in the laboratory. Which of the following should be the first thing to do?
 - A. Report it to your supervisor or safety officer
 - B. Ignore it if it doesn't seem urgent
 - C. Try to fix it yourself immediately
 - D. Wait for someone else to address it.
40. During a practical activity, a classmate accidentally spilled water near the electrical mixer while it was plugged in. What is the most appropriate first step?
 - A. Wipe the water immediately.
 - B. Unplug the mixer carefully with dry hands.
 - C. Call someone to continue using it
 - D. Ignore the spill

Appendix B. Self-Efficacy Survey Questionnaire

Scale

1. Strongly Disagree - You strongly believe the statement does not describe you.
2. Disagree - You somewhat believe the statement does not describe you.
3. Agree - You somewhat believe the statement describes you.
4. Strongly Agree - You strongly believe the statement describes you.

Mastery experience

1. I feel confident in my ability to complete challenging tasks successfully.
2. I have a history of overcoming obstacles to achieve my goals.
3. When I set my mind to something, I usually accomplish it.
4. I believe that my past successes are due to my hard work and skills.
5. I trust my abilities to succeed in future tasks based on my previous experiences.

Vicarious experience

1. Watching others successfully perform a task makes me believe I can also succeed.
2. Seeing someone similar to me succeed at a challenging task increases my confidence in my own abilities.
3. I feel more capable of performing a task after observing others do it well.
4. When my peers accomplish something difficult, I feel more confident that I can do it too.
5. Hearing about others' successes in similar situations makes me believe I can achieve the same results.

Social Persuasion

1. I feel more confident in my abilities when others encourage me.
2. Receiving positive feedback from others increases my belief in my capabilities.
3. The support of my friends and family boosts my confidence to succeed.

[illegible]

4. Seeing others succeed makes me believe that I can succeed too.
5. Constructive criticism from others helps me improve and increases my self-efficacy.

Emotional and Physiological States

1. I am confident in my ability to handle personal problems.
2. I can stay calm when facing difficulties because I can rely on my coping abilities.
3. I can control my emotions when I feel angry or upset.
4. I can manage my emotions even in challenging situations.
5. I can maintain my physical health through regular exercise and a balanced diet.
