Developing Professional Learning Community for Cooperative Learning

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Abstract
The benefits of Cooperative Learning have been proved to be effective for students' academic and social development. Through positive group interaction, students can develop social skills and strategies for constructive communication and effective teamwork. Individual accountability induces active participation, motivation, and higher academic performance. However, these advantages of working in groups occur only when Cooperative Learning is effectively conducted in a way that highlights the benefits of group interaction. A lack of students' collaborative skills, organization skills, and unequal contribution often causes disruption, delay, and group operational failure and negatively affects the advantages of Cooperative Learning. Most importantly, teachers' lack of knowledge, understanding, and skills of Cooperative Learning is often listed as a crucial factor for its implementation failure. This paper aims to help teachers familiarize themselves with the goals of Cooperative Learning, develop sufficient skills and strategies to handle the challenges, and develop a well-planned structured framework through professional development to make Cooperative Learning successful in ELL classrooms.

Keywords: Cooperative Learning & Collaborative Learning, Common Obstacles of Cooperative Learning, Cooperative Learning Training, Equity in Cooperative Learning, Professional Development for Cooperative Learning

Background of the Problem

Problem of Practice — An English as a Foreign Language teacher in a private language school frequently implements group work to promote students' active participation. However, unequal contributions among the group members often make group work a platform to socialize rather than learn, making it harder for the teacher to assess individual competency through the collaborative task. Having no choice but to rely on summative assessment, the teacher rarely finds significant improvement in the average class score. The teacher needs to find a way to make Cooperative Learning more meaningful and productive to individuals' cognitive and collaborative learning development.

The benefits of Cooperative Learning have been discussed by many researchers and proved to be effective in promoting students' academic and social development. Group members take individual responsibility for the product (the quantity and quality of individual work) and process (individual contribution for team operation) and contribute their skills and knowledge to build a positive group interaction to achieve a shared goal (Frykedal & Chiriac, 2016). Positive group interaction motivates students to develop social skills and strategies for constructive communication and effective group operation. Individual accountability increases students' motivation and active participation and enhances cognitive skills for higher academic performance (Cohen, Lotan, Scarloss, & Arellano, 1999). As a result, Cooperative Learning generates academic achievement, positive social skills, and psychologically healthy development by promoting individuals' success (Johnson & Johnson, 1999).

However, these advantages of group work occur only when group interaction is effectively conducted in a way that highlights the benefits of Cooperative Learning. A lack of students' collaborative and organization skills often causes unequal contribution, disruption, delay, and

group operational failure during the process (Le, Janssen, & Wubbels, 2018). Le et al. (2018) pointed out that students' self-regulating skills of planning, monitoring, and reflecting outcomes and collaborative communication skills for productive group interaction must be taught before collaboration. Furthermore, while peer assessment is encouraged during the process, students may also lack the skills to deliver proper feedback (Frykedal & Chiriac, 2016). Teachers are urged to provide Cooperative Learning training to prepare students with appropriate communication and interactional skills and make the goals of Cooperative Learning and assessment criteria public to allow students to acknowledge both cognitive and collaborative aspects. Nevertheless, a lack of teachers' knowledge and skills has been a critical issue in Cooperative Learning practice (Gillies & Boyle, 2010; Le et al., 2018). As indicated in the Problem of Practice, without collaborative skills, students are often exposed to Cooperative Learning that does not have any structured framework. As a result, their collaboration failure prevents each student from achieving academic and collaborative gains.

Learning Community

Johnson & Johnson (1999) advocated that the five basic elements—"positive interdependence, individual and group accountability, promotive interaction, appropriate use of social skills, and group processing" (pp. 70-71)—are essential components of the Cooperative Learning structure to optimize its benefit and impact students' development. The Cooperative Learning practice without a proper structure not only diminishes its advantage but also creates negative outcomes. To bring the benefits of Cooperative Learning into the best practice, teachers must be well prepared with a structured implementation that aligns with the goals of Cooperative Learning (Johnson & Johnson, 1999). In order to develop a well-structured framework that effectively produces students' active learning in cognitive and collaborative aspects, providing professional development to help teachers gain knowledge and skills of Cooperative Learning is a good start.

The concept of a Professional Learning Community is "increasing teachers' professional knowledge and enhancing students' learning" (Vescio, Ross, & Adams, 2008, p. 81). A Professional Learning Community allows teachers to acquire and utilize "Knowledge of Practice" (Vescio et al., 2008, pp. 88-89) for the purpose of students' learning achievement. By succeeding in changing their teaching practice, teachers can subsequently improve students' learning (Vescio et al., 2008). Therefore, building a Professional Learning Community is an effective approach to maximize the cognitive and collaborative benefit of group work for students' gains. Through a Professional Learning Community, teachers can familiarize themselves with the goals of Cooperative Learning, obtain instructional skills and strategies, and develop a well-structured Cooperative Learning framework.

Focus on Learning

In successful Cooperative Learning practice, groups can achieve effective team management on their own and generate a productive outcome for a mutual goal. Through this process, individual students can develop constructive communication skills by taking responsibility for their own roles and making contributions to the product and process (Frykedal & Chiriac, 2016; Le et al., 2018). Furthermore, according to Cohen, Lotan, Scarloss, & Arellano (1999), students who actively engage in Cooperative Learning gain more access to developing academic knowledge and social skills than passive participants. Well-structured Cooperative Learning with teachers' effective intervention strategies will alleviate the problems and facilitate students' learning process (Frykedal & Chiriac, 2016). Therefore, teachers' primary responsibility is to provide a well-structured Cooperative Learning framework that maximizes the benefits of collaboration and ensures that all students receive equal access to academic and collaborative learning opportunities.

Collaborative Culture in Professional Learning Community

An ideal Professional Learning Community should include the five steps below. In each stage, the group members conduct research-based studies individually, evaluate the findings collectively, and synthesize the knowledge in groups.

1. Develop theoretical knowledge of Cooperative Learning and understand the benefits and goals of Cooperative Learning.
2. Examine the common Cooperative Learning issues and evaluate the strategies.
3. Develop the knowledge of Cooperative Learning assessment and determine assessment criteria.
4. Develop a well-structured Cooperative Learning framework by applying the attained knowledge.
5. Implement the practice, monitor the progress, and execute the changes.

At the first stage in the Professional Learning Community, teachers establish knowledge and understanding of the purpose and benefits of Cooperative Learning and determine the essential components of Cooperative Learning structure. Knowing what students should achieve through group operation and how the benefits of Cooperative Learning can be optimized directs teachers to create clear assessment criteria that align with the goals. Subsequently, the groups proceed to examine common Cooperative Learning obstacles to familiarize themselves with the possible challenges and prepare themselves with the strategies to handle the problems, provide proper interventions, and support students' learning process.

For instance, group communication skills are one area where students need to be taught before collaboration (Gillies & Boyle,2010; Le et al., 2018). Through this Professional Learning Community, teachers can collect and share research-based studies on students' skill training models for Cooperative Learning, learn about the strategies, and practice their coaching skills in the group. Furthermore, as the Problem of Practice exhibits, "the power order of the group" between "high-status students and low-status students" (Cohen et al., 1999, pp. 83-84) negatively influences equity in participation and contribution. Cohen et al. (1999) suggested administering "multiple abilities treatment" (pp. 84-85) prior to collaboration by encouraging students to find and utilize different skills and abilities each member possesses. Teachers' deliberate interventions promote participation from passive participants and help students' group operations function properly. Therefore, exploring the issues and strategies is an essential process in this Professional Learning Community.

After obtaining the knowledge and skills for the challenges that teachers often face during Cooperative Learning practice, the Professional Learning Community examines assessment models, determines what elements are necessitated in the criteria, and creates clear assessment criteria that ensure students' academic and collaborative achievement. Finally, applying the gained knowledge, the group develops a Cooperative Learning structure that integrates each component of the five basic Cooperative Learning elements (Johnson & Johnson, 1999). Once the framework is developed and implemented in the classroom, the Professional Learning Community monitors their teaching efficiency and students' progress in cognitive and collaborative aspects and forms follow-up action plans for a better structure through collective reflection, feedback, and discussion. Collaborative research-based learning allows teachers to collect the knowledge necessary to build a well-structured Cooperative Learning framework and expand it further through collaboration.

Collective Inquiry

The attained knowledge of Cooperative Learning should be applied and practiced in the Professional Learning Community. In other words, the group should ensure that the five basic

Cooperative Learning elements exist in their own group interaction. For that reason, the group's collaborative skills should also be evaluated by utilizing the same assessment model designed by the Professional Learning Community. Operating their own groups with intention by applying the learned knowledge to practice allows the teachers to test the effectiveness of their learning outcomes and examine their collaborative efforts for the process and product.

The process can be conducted through in-person discussions, virtual meetings, and file-sharing. For example, while administering research-based studies, the group can share the resources and findings through shareable digital files, create a PowerPoint to compile the findings, and establish the collective knowledge into the ideas for framework development. In addition, research suggests that assigning students to each role for the product and process increases individual accountabilities and improves students' contribution to the groups (Cohen et al., 1999; Frykedal & Chiriac, 2016). Therefore, the Professional Learning Community can divide the workload and assign each teacher to the areas where the resources need to be applied.

Action Orientation

Once a Cooperative Learning framework is developed, the first important procedure in the classroom is providing students with the necessary knowledge and information required to participate in Cooperative Learning, such as instructional tasks, goals, systems, assessment criteria, and skill training. For example, Frykedal & Chiriac (2016) emphasized that "knowledge (cognitive skills), product (content), and process (cooperative abilities)" (pp.152-153) should be included in the criteria and assessed "in a group and individual levels by both the outside of the group (teachers) and the inside of the group (peers)" (p. 158). The authors further asserted that the structure of the assessment—"what is assessed, how the assessment is implemented, who is assessing, and how the feedback is given" (Frykedal & Chiriac, 2016, p. 149)—must be explicitly explained to students prior to collaboration. Providing a clear objective of their learning and clarifying the knowledge and skills they need to utilize and develop through group interaction significantly improves students' motivation, participation, and achievement (Gillies & Boyle, 2010).

After the instructional task is introduced and students are assigned to each role for product and process, teachers are kept informed of students' progress through file-sharing and review the effectiveness of their practice. The data tracking sheet of individuals' cognitive and collaborative development and groups' progress is updated and shared by each teacher and analyzed collectively. While maintaining ongoing electronic communication, the Professional Learning Community needs to set periodic face-to-face meetings to evaluate the strength and weaknesses of the plan and make decisions for changes if necessary. The collaborative data-oriented analysis helps teachers observe an individual's progress, detect issues, and identify students' struggles at the early stage, which allows teachers to implement intervention strategies, alleviate the problems, and analyze the impact of the changes.

Commitment to Continuous Improvement

According to Frykedal & Chiriac (2016), teachers' "feedback, feed-up (students' goals), and feed-forward (further improvement)" (p.154) on collaborative skills positively influence students' engagement in group interaction. Although students' constructive feedback skills need to be taught and monitored, the authors further stated that including self/peer assessment in collaborative skills helps reinforce a role-assigning strategy by prompting students' motivation, accountabilities, and participation (Frykedal & Chiriac, 2016). Accordingly, teachers' proper intervention skills during the process become critical to successful Cooperative Learning.

With ongoing communication through technology and in-person, the Professional Learning Community ensures that the steps below are adequately administered and necessary

adjustments are made to improve their teaching practice and students' learning outcomes:

1. Students are provided with the necessary information and skill training for Cooperative Learning before collaboration (Frykedal & Chiriac, 2016).
2. Students are assigned to each role for the product and process (Frykedal & Chiriac, 2016).
3. The five essential elements of Cooperative Learning are functioning properly during operation (Johnson & Johnson, 1999).
4. Teachers' interventions are sufficient and adequate to promote participation from low-status students (Cohen et al., 1999).
5. Teachers' intervention with feedback, feed-up, and feed-forward is sufficient to help students determine the goals and further improvement (Frykedal & Chiriac, 2016).
6. Students are utilizing the skills they attained from skill training during group operation.

Results Orientation

In order for teachers to continue to learn and improve their teaching practice, evaluating their own work is equally as important as monitoring students' progress. For instance, if any inequity in a group operation is identified in the collected data, the Professional Learning Community examines if their interventions are adequate to induce participation and what alternative methods can be employed for improvement. If students' summative test results do not exhibit any progress, the Professional Learning Community needs to prepare alternative strategies to strengthen students' academic gains. While ensuring that students utilize the attained strategies from skill training, teachers can examine the training methods and consider alternative models if necessary.

The result of students' summative and formative assessment helps teachers review the strengths and weaknesses of their practice and reinforce their Cooperative Learning structure, coaching skills, and strategies. While improving their teaching efficiency, the Professional Learning Community can examine if each teacher was "accountable for the product and process and contributed the skills and knowledge to build positive group interaction and achieve group's mutual success" (Frykedal & Chiriac, 2016, pp.155-157). The successful collaboration in the Professional Learning Community will be an outcome of students' summative and formative assessments.

Backwards Planning

Backwards planning is "the most direct method for improving student outcomes" (Mishkind, 2014, p. 3). It allows teachers to design curriculum and lesson plans in line with specific students' learning needs. First, teachers identify the areas where students need to improve and define research questions. Secondly, through research-based analysis and evaluation, they design the assessment and establish the goals to help students meet the standards. Finally, they build the appropriate lesson plans that directly impact students' needs and improve their learning outcomes (Jensen, Bailey, Kummer, & Weber, 2017). In the Problem of Practice, the issues are identified as unequal accountability, dysfunctional group operation, and vague assessment criteria. By utilizing Backwards planning, teachers can examine the focused problems, conduct research-based analysis, set feasible goals for students, and create a clear assessment that complies with students' goals and effective interventions that facilitate students' learning process.

Phase 1

According to Le, Janssen, & Wubbels' (2018) research interview, 18 out of 19 teachers reported that their students did not have effective collaborative skills during the Cooperative Learning process, and 18 out of 23 students and 13 out of 18 teachers noticed inequity in contribution in

group operation. Inequity in participation and contribution leads to dysfunctional group operation and makes it challenging for teachers to accurately assess students' abilities. In addition to the factor that the assessment criteria are not transparent to students, the students in the Problem of Practice are not assigned to the roles equally accountable for the product and process. Adding to the teacher's insufficient intervention skills, this structural disorder in the Problem of Practice significantly affects passive or underachieved "low-status participants" (Cohen et al., 1999, p. 84) with less access to learning opportunities and learning gains. Presenting Cooperative Learning implementation without any structured framework and not clarifying its purpose to students will result in gaps in students' learning (Gillies & Boyle, 2010; Le et al., 2018). In order to meet the expectations of the standards, students must be instructed in the goals they need to achieve and the skills they need to utilize and develop through collaboration.

Phase 2

Johnson & Johnson (2008) defined teachers' roles in Cooperative Learning in four stages:

1. "Making pre-instructional decisions" (p.26).
2. "Explaining the instructional task and cooperative structure to students" (p. 29).
3. "Monitoring students' learning and intervening to provide assistance" (p.29).
4. "Assessing students' cognitive and collaborative achievement" (p. 29).

At the preparation stage, teachers develop a Cooperative Learning structure and assessment criteria that align with the purpose of Cooperative Learning and build the skills and strategies that facilitate students' learning process. Next, at the instructional stage, teachers clarify social skill objectives in group operation, assessment criteria, rules, and expectations to students to promote accountability, engagement, and participation in group interaction (Cohen et al., 1999; Johnson & Johnson, 2008). Once the goal and policies are clearly explained to students, Cooperative Learning skill training is conducted to prepare them with collaborative skills to utilize and develop through group operation. Finally, students are assigned to each role for the product and process. Once the collaboration starts, teachers begin monitoring and utilizing intervention strategies, ensuring each group functions properly and assisting students' learning process. Upon completion, "individuals' and groups' knowledge, product, and process are assessed" (Frykedal & Chiriac, 2016, pp. 152-153).

As indicated in the four stages of teachers' roles, providing the instructions prior to collaboration is a critical step to help students succeed in Cooperative Learning. The information and skills that students require to participate in team management significantly impact the rest of the students' learning process. Furthermore, without knowing what students should achieve through Cooperative Learning and how teachers can optimize the benefits of Cooperative Learning, teachers cannot create clear assessment criteria in line with the purpose of Cooperative Learning. Le et al. (2018) reported in their research that only five out of 19 teachers who had Cooperative Learning experiences were able to define the goals of Cooperative Learning, and 14 out of 19 teachers did not integrate the goals of Cooperative Learning into the course objectives. They further asserted that cognitive aspects of Cooperative Learning are more prioritized over collaborative aspects among teachers, which negatively affects students' perceptions of the collaborative process during the operation (Le et al., 2018). Therefore, the critical benchmark for students' progress is teachers' knowledge, skills, and strategies to understand the benefits of Cooperative Learning, elevate students' learning, and execute proper interventions to assist students' group operation.

Phase 3

Through the Professional Learning Community, the teachers develop and implement a well-structured Cooperative Learning framework, navigate students' learning process effectively

with proper intervention strategies, and administer the accurate assessment in line with the purpose of students' learning. As a result, the effect of the Professional Learning Community must be indicated in students' academic and collaborative achievements. In other words, the results of students' summative and formative assessments will be the evidence-based outcomes of the Professional Learning Community.

A unique characteristic of this learning community is that teachers also work together to achieve a mutual goal by gaining first-hand Cooperative Learning experience, evaluating their group operation, and improving their practice through collaboration. The group needs effective leadership, decision-making, trust-building, communication, and problem-solving skills to determine the most effective way to operate as a team and bring the best outcomes to the product. This process allows teachers to practice effective Cooperative Learning while working as a team for students' development.

Additionally, some organizations and non-profits provide a school-wide intervention program that supports teachers' professional development. For instance, Center for the Collaborative Classroom (2020), the non-profit educational organization, offers professional learning for teachers such as virtual learning events and learning portals where teachers can access online and obtain external perspectives. PBLWorks (2020) also provides workshops, online resources, and rubrics that help teachers design assessment criteria.

Phase 4

In order to enhance group interaction, various strategies have been developed and successfully implemented. For instance, using "the Getting to Know You form" (Oakley, Felder, Brent, & Elhajj, 2004, p12) is a great way to break the ice before collaboration (see Appendix A). Having students sign "the Team Policies Statement" (Oakley et al., 2004, p.14) makes them aware of the rules and system of Cooperative Learning (see Appendix B). Moreover, assigning each student to the roles of "facilitator, recorder, material manager, and checker" (Cohen et al., 1999, pp.81-82) helps establish the team rules and individual accountability. Conducting "multiple abilities treatment" (Cohen et al., 1999, p. 84) and discussing how to handle "Hitchhikers and Couch Potatoes" (Oakley et al., 2004, p.15) at the instructional stage raise awareness of equity in collaboration and help reduce unequal contribution. Furthermore, administering a periodical survey enables students who struggle with group interaction to reach out for support from teachers (Oakley et al., 2004). Setting the deadline for revision and critique is also effective for exercising time management (Oakley et al., 2004).

Among various strategies for effective Cooperative Learning, one crucial intervention that needs to be examined is Cooperative Learning skill training for students (Le et al., 2018). For instance, Guided Reciprocal Peer Questioning takes students through a step-by-step process of creating thought-provoking questions to induce elaborative explanation, responding with effective elaboration to reinforce knowledge, and providing constructive feedback to help improve peers (King, 2008; King et al., 1998) (see Appendix C). This language usage training & peer tutoring training helps students build the skills and strategies to generate constructive, supportive communication that stimulates group interaction.

King et al. (1998) conducted research on 7th graders to examine the effect of the sequenced inquiry & explanation model of peer tutoring—ASK your partner to THINK—and demonstrated that students who received sequenced inquiry & explanation training (SIE) did better at the written test, verbal interaction, and new knowledge construction than those who participated in inquiry & explanation training (IE) and explanation training (E). In this training, with the guidance of prompts, students practice creating knowledge review questions, thinking questions, probing questions, hint questions, and feedback & encouragement to induce elaborate explanations from the partner. The result confirmed that the training promoted students' communication skills and high-order thinking and students were able to build new

knowledge by creating probing and hint questions and exchanging interaction of questioning and explaining. Demonstrating analytical inquiry, constructive feedback, and encouragement are essential skills students need to facilitate the group and assess peers. Providing language usage training and peer tutoring training will facilitate students' learning process during collaboration and enhance their participation in group interaction.

Phase 5

Monitoring equity in each group, the teachers begin deliberate interventions to promote participation by setting the stage for those who are less engaged and giving them positive but subtle evaluation in front of the group members (Cohen et al., 1999). Program for Complex Instruction (2020) was established by Elizabeth G. Cohen, Rachel Lotan, and Beth A. Scarloss, who developed Complex Instruction Theory and advocate equity in Cooperative Learning. Operated by the Stanford University School of Education, it provides the program Multiple Abilities Curricula and offers instructional strategies, teacher training, and valuable research-based resources to promote equal access to learning for all students. When problems are identified during the process, these resources will also help the Professional Learning Community find a strategy and solution.

In addition, as Frykedal & Chiriac (2018) addressed, peer/self-assessment induces individual accountabilities, motivation, and participation while providing teachers with external observations that might have been neglected. In order to keep track of those who require deliberate interventions, peer assessment can be administered in the beginning, mid, and final stages of the implementation (Oakley et al., 2004). In this way, teachers' feedback, feed-up, and feed-forward on each student's collaborative skills will be more effectively support feedback from peers and improve their collaborative skills throughout the process (Frykedal & Chiriac, 2016). Additionally, teachers need to remind students to utilize the strategies gained from language usage training and peer tutoring training and guide them to generate constructive, supportive communication during the operation (King et al., 1998; King, 2008).

Phase 6

The Professional Learning Community collects qualitative and quantitative data through observations, term-tests, peer/self-assessment, and the developed rubric. Quantitative data are often more objective than qualitative data in keeping track of progress. They are also more manageable to sort and organize digitally. Thus, a single-point rubric can be used for an evaluation and peer/self-assessment. Feedback comments in the rubrics and qualitative data can be coded to share digitally and analyzed within the Professional Learning Community. A self/peer assessment rubric is easily downloaded online; however, teachers must ensure that accountability and contribution for the product and process are included in the rubric and that it aligns with the goals clarified to students at the instructional stage (Frykedal & Chiriac, 2016). Periodic peer/self-assessment and teachers' feedback, feed-up, and feed-forward allow teachers to compare students' progress on collaborative aspects and facilitate analysis among the Professional Learning Community.

The collected data will be recorded and uploaded through the data tracking sheets by each teacher and reviewed by all teachers in the Professional Learning Community. In-person meetings will be held monthly to analyze the results, share the concerns, solve the issues, and make changes if necessary. While regular feedback can be exchanged through web-based communication among the teachers in the Professional Learning Community, face-to-face meetings should be conducted to discuss the areas that need some adjustment. Once the teachers agree upon solutions, new strategies and changes are implemented in the practice. Observing each other's practice and exchanging objective feedback, each teacher determines

the next step to take in the classroom.

Phase 7

In order to receive external perspectives and objective evaluations on their practices, the school staff and educators who are not involved in the program can observe the practice and analyze the evidence-based results shared among the Professional Learning Community. Administering post surveys or focus groups to students will also contribute great resources for the Professional Learning Community to reflect on the outcome of the program and recognize the changes required for further development. The past evidence-based data are valuable sources for maintaining the expected outcomes, seeking solutions when needed, and comparing the results with previous years. They are also confirming evidence to prove the program's strengths, weaknesses, and implications to others. Even after the Problem of Practice is solved and growth is achieved, there will be other teachers and students who need to be trained and taught. Eventually, the teachers in the Professional Learning Community can become trainers to pass on the knowledge, skills, and experiences to new teachers and continue to improve the program.

When evaluating the program, the Professional Learning Community should keep in mind that the program's success is determined by students' success in both academic and collaborative aspects. Therefore, through the data from term-tests in summative assessment, teachers need to ensure that students' teamwork efforts comply with their academic knowledge gains. In other words, students must exhibit improvement in their test scores and gain academic knowledge by "reaping the benefits from interacting with others" (Gillies & Boyle, 2010, p.933). If the data indicate students' cognitive underachievement, new strategies and alternative summative assessment methods must be considered. If a desirable overall outcome is not achieved and analysis from the past data does not help with solutions, hiring a professional trainer from organizations and communities to provide school-wide professional development on Cooperative Learning is also an alternative resolution. In the end, teachers' development leads to successful Cooperative Learning practice in the classroom.

Conclusion

Ferguson's (2011) study illustrated that professional development changed teachers' perspectives toward Cooperative Learning practice and significantly influenced students' learning gains. The author's research observed that the early career teachers "developed an understanding of teachers' roles in Cooperative Learning," "realized the importance of interdependence in practice," and began to "relate Cooperative Learning as a strategy to increase both student learning outcomes and social development" (p.123). While the effectiveness of Cooperative Learning has been extensively researched, teachers' understanding of Cooperative Learning is not adequately supported, and professional development on Cooperative Learning is not sufficiently provided for teachers. Professional development guides teachers to develop an understanding of their roles in Cooperative Learning, implement effective practice, and direct students to acquire the maximum benefits of Cooperative Learning. In order to support students' academic and collaborative achievement through group operation, providing professional development is a crucial component of Cooperative Learning practice.

Recommendations

A well-structured framework and strategic implementation are the keys to making Cooperative Learning effective. Teachers' understanding of the goals and purpose of Cooperative Learning and the strategies with intention significantly improve students' learning process and gains. There are many Cooperative Learning communities for teachers to enhance their knowledge, skills, and practice. For instance, attending the conferences held by organizations such as the

International Association for the Study of Cooperation in Education (IASCE) (2020) is an alternative way to gain access to informational resources, support, and professional development communities. However, it is strongly recommended that schools provide support for teachers to expand their knowledge and improve their teaching efficiency. If professional development is conducted as a school-wide approach, teachers will have easier access to those learning opportunities. Providing teachers with better education, resources, and support will directly lead to students' learning gains.

Future Research

It is challenging for teachers to ensure that students' collaborative skills have a direct effect on students' academic performance. If academic achievement is not significant in the collected data, a Professional Learning Community needs different intervention strategies to improve students' academic gains or skill training for a specific subject to reinforce their academic knowledge. For instance, Reciprocal Teaching of Reading (RTR) and Cooperative Integrated Reading and Composition (CIRC) are the methods to increase literacy development through collaboration, and these activities can be easily integrated into the classroom and directly influence students' academic improvement (Kamdideh, 2019). Most of the professional development is targeted to the success of general Cooperative Learning implementation. However, in order to generate students' significant improvement in the cognitive aspect through group interaction, teachers will need to examine activities and skill training focused on a specific subject area they teach. Professional development on Cooperative Learning designed to improve specific subjects will allow teachers to discover direct approaches to meet the students' academic needs and further reinforce their teaching efficiency.

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Appendix A

GETTING TO KNOW YOU

(If you feel uncomfortable answering any of these questions, you may leave that area blank. However, please complete as much as possible.)

Name: _____

What you would like to be called: _____

Address: _____

E-mail:_____ Phone Number:_____

Academic Major:_____

Year of Study (e.g. sophomore, junior, senior, returning for 2nd degree) _____

If returning for 2nd degree, what was first degree in?_____

Do you have a job aside from being a student? If so, where do you work and what do you do?

_____

Why do you want to be a _____ (insert profession)? or, Why did you decide to major in, or, Why are you taking this course?

_____

What is something about you that is probably not true of other students in the class (for example, an unusual experience, hobby, skill, or interest)

_____

Favorite movie:_____

Favorite music or book:_____

Favorite hobby or sports activity:_____

What is the most beautiful sight you have ever seen?_____

Appendix B

TEAM POLICIES

Your team will have a number of responsibilities as it completes problem and project assignments.

- Designate a coordinator, recorder, and checker for each assignment. Add a monitor for 4-person teams. Rotate these roles for every assignment.
- Agree on a common meeting time and what each member should have done before the meeting (readings, taking the first cut at some or all of the assigned work, etc.)
- Do the required individual preparation.
- Coordinator checks with other team members before the meeting to remind them of when and where they will meet and what they are supposed to do.
- Meet and work. **Coordinator** keeps everyone on task and makes sure everyone is involved, **recorder** prepares the final solution to be turned in, **monitor** checks to makes sure everyone understands both the solution and the strategy used to get it, and **checker** double-checks it before it is handed in. Agree on next meeting time and roles for next assignment. For teams of three, the same person should cover the monitor and checker roles.
- Checker turns in the assignment, with the names on it of every team member who participated actively in completing it. If the checker anticipates a problem getting to class on time on the due date of the assignment, it is his/her responsibility to make sure someone turns it in.
- Review returned assignments. Make sure everyone understands why points were lost and how to correct errors.
- Consult with your instructor if a conflict arises that can't be worked through by the team.
- Dealing with non-cooperative team members. If a team member refuses to cooperate on an assignment, his/ her name should not be included on the completed work. If the problem persists, the team should meet with the instructor so that the problem can be resolved, if possible. If the problem still continues, the cooperating team members may notify the uncooperative member in writing that he/she is in danger of being fired, sending a copy of the memo to the instructor. If there is no subsequent improvement, they should notify the individual in writing (copy to the instructor) that he/she is no longer with the team. The fired student should meet with his/her instructor to discuss options. Similarly, students who are consistently doing all the work for their team may issue a warning memo that they will quit unless they start getting cooperation, and a second memo quitting the team if the cooperation is not forthcoming. Students who get fired or quit must either find another team willing to add them as a member or get zeroes for the remaining assignments. As you will find out, group work isn't always easy—team members sometimes cannot prepare for or attend group sessions because of other responsibilities, and conflicts often result from differing skill levels and work ethics. When teams work and communicate well, however, the benefits more than compensate for the difficulties. One way to improve the chances that a team will work well is to agree beforehand on what everyone on the team expects from everyone else. Reaching this understanding is the goal of the assignment on the Team Expectations Agreement handout.

TEAM EXPECTATIONS AGREEMENT

On a single sheet of paper, put your names and list the rules and expectations you agree as a team to adopt. You can deal with any or all aspects of the responsibilities outlined above—preparation for and attendance at group meetings, making sure everyone understands all the solutions, communicating frankly but with respect when conflicts arise, etc. Each team member should sign the sheet, indicating acceptance of these expectations and intention to fulfill them. Turn one copy into the professor, and keep a remaining copy or copies for yourselves.

These expectations are for your use and benefit—they won't be graded or commented on unless you specifically ask for comments. Note, however, that if you make the list fairly thorough without being unrealistic you'll be giving yourselves the best chance. For example, "We will each solve every problem in every assignment completely before we get together" or "We will get 100 on every assignment" or "We will never miss a meeting" are probably unrealistic, but "We will try to set up the problems individually before meeting" and "We will make sure that anyone who misses a meeting for good cause gets caught up on the work" are realistic.

**Adapted from R. M. Felder & R. Brent, Effective Teaching, North Carolina State University, 2000.*

Appendix C

Comprehension Review Questions	What does … mean? What caused …? Describe … in your own words. Summarize … in your own words e.g., How does increase in carbon dioxide affect the earth's atmosphere? What does "greenhouse effect" mean?
Thought-Provoking Questions	Explain why... Explain how... What is the significance of …? What is the difference between A and B? How are . . . and . . . similar? What do you think would happen if ..? Compare . . . and . . . with regard to . . . What do you think causes . . .? Why? How might . . . affect . . . ? What are the strengths and weaknesses of? Which … do you think is best and why? Do you agree or disagree with this statement? What evidence is there to support your answer? e.g., How are the terms "greenhouse effect" and "global warming" similar and different? What do you think would happen to the people in our community if the temperature of the atmosphere increased a great deal?

** Sample comprehension and thought-provoking question starters for use in Guided Reciprocal Peer Questioning*

The TEL WHY Procedure in Guided Reciprocal Peer Questioning

T	**T**ell what you know to your group.
E	**E**xplain the why and the how about something. Don't just tell what it is or describe it or summarize it
L	**L**ink. Connect what you are telling about something your partner already knows about so they will be sure to understand. Connect two things or ideas or link together a procedure and an idea.
W	Tell **W**hy.
H	**T**ell **H**ow.
Y	**U**se **Y**our own words.

**TEL WHY Explanation Guide adapted from King(2008)*