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**An Approach to Cooperative Learning in Physical Education –  
Considerations for Implementation**

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# Biography

Michelle Huang is a Physical Education (PE) educator with 14 years of experience dedicated to fostering holistic development in students through physical activity. Holding a BSc (Honours) from Nanyang Technological University (NTU) and an MSc in Outdoor Education from the University of Edinburgh, Scotland, Michelle brings a blend of academic expertise and practical insight to her work.

Michelle begun her career in an all-girls primary school, and subsequently took a three-year stint at the Physical, Sports and Outdoor Education Branch, Ministry of Education Singapore which provided invaluable experience in educational policy and curriculum development. Currently, as the Head of the PE, Art, and Music department at her school, Michelle leads curriculum design, pedagogical innovation, and assessment strategies, driving interdisciplinary collaboration and student-centered learning.

Passionate about instilling a lifelong love for physical activity, Michelle actively explores creative teaching methodologies to engage and motivate students. She advocates for the development of social skills, leveraging on intentional, purposeful classroom interactions. Guided by the mantra "Together, we can achieve more," Michelle believes in the power of collaboration to unlock potential, both in students and within the teaching community.

Michelle credits her journey to the unwavering support of her family, the camaraderie of her fellow Singaporeans, Sukhjeet Kaur and Michelle Goh on the programme, and the encouragement of partner teachers, Jill Davis and Kristen Cooper, and her advisor, Dr. Teresa Valdez.

## Executive Summary

This project seeks to uncover the social skills that students need for meaningful cooperative learning to happen in the PE classroom. Through a series of seven lessons involving 65 second graders over eight weeks, the project examines the specific social skills required for successful

group work, through teacher observations on student engagement and prosocial behaviors, and suggests practical strategies for how teachers can consider designing CL in their PE lessons. The findings underscore the need for deliberate planning and patience when implementing CL. Teachers must identify skill gaps and break them into manageable steps for students, providing repeated opportunities for practice within a supportive environment. By role modeling cooperation and using positive reinforcement, educators can create inclusive, dynamic classrooms that enable students to thrive socially and academically. The project concludes with a call for educators to recognize that cooperative learning environments are inclusive and equips students with essential life skills. By investing time in structured, meaningful CL experiences, teachers empower students to carry the benefits of these practices beyond school and into their lives.

## **1. Overview**

In a world that is changing rapidly, schools need to take an active role in developing a range of personal and social skills in students so that they can find success in learning not just in the classroom but also later in their adult life. Physical education (PE) is one of the vehicles in which a range of social skills can be developed and it is believed that with deliberate lesson designs, students will learn to solve problems, articulate their thoughts, and work in a team. Cooperative Learning (CL) is one of the instructional methods that can help teachers achieve this aim. It emphasizes shared responsibilities in a team setting, can be used across different levels of students and subject areas (Gillies, 2016) and has been recognised for its potential in achieving learning outcomes while nurturing social and emotional growth in students (Grineski, 1991; Velázquez-Callado, 2012; Bjørke & Mordal Moen, 2020; Rivera-Pérez et al, 2020).

The paper begins by sharing the initial theoretical foundations of CL by Johnson and Johnson (1999) and how Dyson and Casey (2009) have adapted the pedagogy for use in the PE classroom. Following that, based on insights from sixty-five second graders over a course of seven lessons, the paper suggests a range of social skills that should be taught to students and shares

design considerations for how the skills can be developmentally taught to students so that they can be successful when working in small groups. This paper will address challenges that teachers may face when implementing CL in PE.

This paper will consider the scope and sequence of how the teacher can set up a Physical Education (PE) classroom for successful cooperative learning experiences and hopes to answer the following research questions:

- 1) What social skills need to be taught to Grade 2 students (7-year-olds) so that they will be able to find success when working with a friend in the PE classroom?
- 2) What is the teacher's observation of the impact on student engagement and prosocial behaviours?

Finally, this paper aims to share the importance of CL in promoting an inclusive, positive and enabling experience for students in PE. This pedagogy allows students to be equipped with physical movement competencies, but also the social skills that they need inside and outside the classroom. It is with the hope that this will allow students to carry forth their positive experiences in PE onto their lives outside and beyond school.

## **1.1 Introduction**

PE offers a dynamic environment in which students engage their motor skills and interact with the environment and others and has long been recognised as a setting where students engage and interact with each other naturally. However, it cannot be taken for granted that such interactions when they occur, can happen meaningfully and positively.

The delivery of PE can vary depending on teachers and are typically centered on the teaching of skills, focusing on individual movement competence. A typical PE classroom can look like students working on their own motor skills individually or in small groups and ending off with a class-based competition. Students would practice the skills taught in an applied situation and perhaps there will be some teachable moments that the teacher spots and addresses. This paints a

pretty picture and one where teaching and learning in both psychomotor and affective domains are happening. But why leave things up to chance? As teachers, we can purposefully design for learning to happen across the psychomotor, cognitive and affective domains.

Cooperative learning allows students to build upon their understanding of a subject matter in a fail-safe environment, alongside their peers, facilitated by the teacher. Because of the element of positive interdependence, students feel that they have some control over decisions and can contribute to the team. By setting tasks that are challenging yet achievable, students feel that they have the skills to accomplish things that are deemed to be worthwhile to them (Bradberry & Greaves, 2009). When students work in a group, they tend to strive to achieve (1) their own well-being, (2) the well-being of others, (3) the common good (Gillies & Ashman, 2003, p.164). This is an ideal situation and teachers play an important role (Lyman, Foyle & Azwell, 1993; Brody & Davidson, 1998; Gillies & Ashman, 2003) to orchestrate this learning through deliberate lesson planning, design and delivery.

## **1.2 Social and Emotional Learning in Physical Education**

A review conducted by Opstoel et al (2020) on personal and social development in physical education and sports that looked across 88 studies reported a positive correlation between PE and social skills. They concluded in their review that PE is a platform where students can learn to take turns, display empathy and respect, and handle conflicts. PE curriculums around the world acknowledge the links between the subject and its potential to develop these competencies. We will discuss this in the following paragraphs.

Schools in New York State follow the New York State Physical Education Learning Standards (2020). These standards reflect the development of knowledge, skills and social-emotional learning. The outcome of these standards is to enable students to become healthy and physically literate adults. An extract of the standards are shared below.

**Standard 1:** Demonstrates competency in a variety of motor skills and movement patterns.

**Standard 2:** Applies knowledge of concepts, principles, strategies, and tactics related to movement and performance.

**Standard 3:** Demonstrates the knowledge and skills to achieve and maintain a health-enhancing level of physical activity and fitness.

**Standard 4:** Exhibits responsible personal and social behavior that respects self and others.

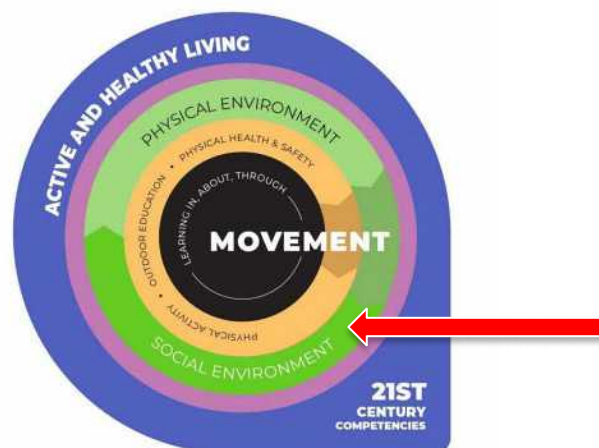
**Standard 5:** Recognizes the value of physical activity for overall wellness, enjoyment, challenge, and/or self-expression.

**Standard 6:** Recognizes career opportunities and manages personal and community resources related to physical activity and fitness to achieve and maintain overall wellness.

*Figure 1: New York State Physical Education Learning Standards*

Standard 4 was developed along with the New York State Mental Health Education initiative and Social Emotional benchmarks and is built into the curriculum to highlight its importance to physical educators. This ensures that support is given to students as they practice and learn about wellness.

Similarly, the curriculum framework in Singapore's Physical Education Syllabus (MOE, Singapore) touches on the importance of the social environment as an integral part of the PE experience and how a supportive environment plays a critical role in the co-construction of knowledge and building of positive relationships through cooperating and collaborating in group tasks.



*Figure 2. Physical Education Curriculum Framework, Singapore*



Regardless of geographical location, the emphasis on the importance of developing social emotional competencies (SEC) during PE alludes to the fact that it is a good vehicle to nurture and develop these competencies and PE teachers should take advantage of this.

We are convinced that CL is a pedagogy well placed to develop SEC. This paper hopes to shed light on the “what” and “how”. What are the SECs that students lack? How do we design lessons to close the gap while incorporating elements of CL? The following chapters seek to find answers to these questions.

For this paper, social emotional competencies (SECs) will be used as the broader framework that encompasses not only social skills but also emotional awareness, self-management, responsible decision-making, and relationship skills. Social skills will refer to specific, observable behaviours that are employed when individuals interact in a group setting e.g. taking turns, resolving conflicts.

## 2. Literature Review

Cooperative learning has a long history. In the 1920s, social development theorists like Piaget and Vygotsky first suggested that students can be active in their own learning process and believe that peer learning has its benefits. Piaget is of the view that peer knowledge can build onto existing experiences to form new ones while Vygotsky recognised that knowledgeable others could act as potential guides to help others (Crain, 2011). Years later in 1999, the Johnson brothers, David and Roger sought to define how cooperative learning can look like and be planned for in the classroom. They published the five essential elements that will make for effective group learning. The design of CL is undergirded by five main elements:

- 1) *positive interdependence*: members cannot succeed unless everyone else in the group succeeds too.

2) *promotive interaction*: each member of the group helps, assists, encourages and praise each other's efforts. Members come together to share their learning and contribute to the learning of others.

3) *individual accountability*: everyone is held accountable for their share of the work and the results of which affect the group.

4) *social skills*: students must be taught how to communicate, manage conflicts etc, in order for them to be successful in their cooperative effort.

5) *group processing*: by identifying what group actions are helpful or not, members find ways to work better together.

When all five elements are in play, students are expected to be able to work together to achieve common goals or find success in group tasks. Everyone in the group seeks outcomes that are beneficial to all, and they help each other by learning together. The result is a performance that is higher than if the student had worked alone (Johnson & Johnson, 1999).

Research over the years has undoubtedly highlighted the benefits of cooperative learning. Slavin (1989) identified cooperative learning as an effective strategy for increasing student achievement and further research conducted by Johnson and Johnson (2002) extended this claim to include other variables like socialization, motivation, and personal self-development. Researchers also examined how CL affects peer relationships and have confirmed that when use correctly, positive peer relationships are formed (Roseth et al, 2008; Opstoel et al, 2020).

Specific to the Physical Education context, Dyson and Casey came onto the scene in 2009 and in 2012, authored a comprehensive book titled, "Cooperative Learning in Physical Education". Their work expanded to include practical applications through research informed strategies. While these authors provide guidance on implementing CL, gaps remain particularly in understanding how to teach students social skills, a critical component of the CL framework. This is of particular interest because having these social skills will undoubtedly help students find success when working in a group. Dyson and Casey (2009) agree that teachers need to deliberately plan for the

teaching and learning of specific social skills like listening, working together, providing feedback so that students can be prepared for CL later. There can be more guidance on how scaffolding of these skills can happen. Other questions that follow are: which should come first, lesson design with fidelity to the framework or the teaching of social skills? Is it possible for all of this to happen at the same time? Can students fully take part and benefit from a CL lesson if they are not adequately prepared for the conversations with their peers?

The role of the teacher should also be examined. Teachers play a crucial role in addressing conflicts and fostering a positive learning environment (Ovens, Dyson & Smith, 2012). Crain (2011) emphasizes that children are more influenced by the actions of adults than by verbal instructions alone. When teachers model appropriate responses through their words and actions to disagreements or distress, they provide students with a tangible example of conflict resolution. This approach aligns with a key principle of CL - social skills that we believe are central to success.

### **3. Description of Project**

#### **3.1 Setting Context**

Assigning students into groups and expecting them to be able to work together does not ensure that cooperative learning can happen (Gillies, 2016). At Council Rock Primary School (CRPS), social skills are taught as part of the PE lesson from as early as Kindergarten. During my observations, both PE teachers took the time at the start of the school year to share important expectations that they have of the students with regards to them working together. As the lessons plan to have students interacting with one another in pairs or groups of up to four at a time, it is important that the students start on the right footing with each other. One such skill that is emphasized at the start of the academic year is how to accept an invitation to play together. Teachers do this through a series of videos and posters and demonstrate the necessary skills through role modelling. In addition, CRPS takes a whole school approach on sixteen habits of

mind<sup>1</sup>. Students know the habits well and on a daily basis, teachers look out for positive demonstration of these habits and students are awarded stickers for them. Some of these habits also align with New York State Physical Education Learning Standard 4 (refer to Figure. 1) and would work well when implementing CL. These include *Persisting*, *Listening and Understanding with Empathy*, *Managing Impulsivity* and *Thinking and Communicating with Clarity and Precision*. As the habits are important to the school, it was important that the planning and delivery of CL lessons incorporate them.

Before commencement of the project, conversations between the teachers and I led to the following planning parameters. While the development of SECs is important, we must be careful not to neglect other learning outcomes in PE like movement and psychomotor competencies. It was agreed that the learning objectives of each lesson need to be explicit and that students are frontloaded so that they are aware of what is expected of them. This will allow intentional practice as well. Group goals are also embedded in the learning objectives for the lesson, and these were kept as two separate sets of objectives. Psychomotor goals started with 'I' while group goals shared desired behaviours.



*Photo 1: Example of PE specific competency*

<sup>1</sup> More information can be found here: [What Are The Habits of Mind? - The Institute for Habits of Mind](#)



*Photo 2: Example of group skills competencies*

### **3.2 Methodology**

This project was conducted in a primary school located in the Brighton District of Rochester, New York State. The school population consists of 688 K-2 students. There are twelve second grade classes, totaling 217 students. Students in the project come from three different classes that attend physical education classes once every three days. Physical education is taught by two teachers with varying teaching experiences (13 years and 21 years) having taught across other grade levels as well. Depending on the schedule, the teachers sometimes teach in a team. For this study, teachers did not team teach. The curriculum typically includes units on community building games, manipulative skills, hand-eye coordination, wellness, striking and fielding, and body management. At the start of the school year, students are taught self-management skills and relationship management skills through teacher talk and role modelling. The units are designed by the teachers in alignment with existing State standards and lesson plans are discussed and confirmed before each cycle. One teacher worked closely with me on this project, and we will address her as Mrs. C in this paper.

#### **Project design**

Students participated in seven modified lessons over eight weeks. The physical education teacher shared their pre-existing lesson plans with me, and these plans were further discussed and

developed to include elements of CL and explicit teaching and practicing of specific social skills. Students were paired up in mixed ability groups and stayed in the same group throughout. Each lesson lasted 35 minutes and followed the same routine of 1) warming up; 2) tuning in to lesson objectives; 3) activity time; 4) formative assessment at the end of the lesson using stickers. Where applicable, time was given to students during the activities to interact through the sharing of ideas, feedback or encouragement.

Table 1 below shows which CL elements were incorporated into the lessons and what social skills students assessed themselves on at the end of each lesson to contribute to the overall data analysis.

<b>Lesson (MM/DD)</b>	<b>Unit</b>	<b>Skills</b>	<b>CL elements</b>	<b>Student self-assessment of social goals for the day</b>
1 (09/30)	Manipulative Skills	Soccer	Interpersonal skills - Giving feedback - Sharing encouragement	1) Persisting 2) Managing impulsivity 3) Communication 4) Listening
2 (10/08)	Manipulative Skills	Soccer		
3 (10/15)	Outdoor games	Recess games	Individual accountability	1) Did I make safe choices today? 2) Did I encourage a friend? 3) Did I ask questions?
4 (10/18)	Outdoor games	Recess games	Positive interdependence - Everyone needs to play their part for the game to work	1) Did I share a goal with a friend? 2) Did I encourage someone? 3) Did I know what I did well in the game?
There was a break between lessons here as the next unit taught was focused on a celebration. This break was used to analyze existing data to chart the remaining 3 lessons.				
5 (11/06)	Hand-eye coordination	Throwing and catching	Positive interdependence - Group goal  Individual accountability	1) I made safe choices today 2) I encouraged a friend 3) I shared an idea today 4) I listened to my friend's idea 5) I tried different ways to reach my team's goal
6 (11/12)	Hand-eye coordination	Throwing and catching	Interpersonal skills - Sharing tips to meet group goals	1) I encouraged my partner 2) I shared an idea today 3) I listened when my partner was speaking
7 (11/20)	Hand-eye coordination	Throwing, catching and rolling	Positive interdependence	1) I shared an idea for our team game

			<ul style="list-style-type: none"> <li>- Both partners need to play their part for the game to work</li> </ul> <p>Interpersonal skills</p> <ul style="list-style-type: none"> <li>- Sharing ideas</li> <li>- Listening</li> </ul>	<p>2) I listened when my partner was speaking</p> <p>3) We agreed on how to play the game together</p>
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*Table 1. Timeline and breakdown of lessons*

Throughout the lesson design process, the CL framework was constantly referred to. This is so that as far as possible, as many elements of CL were considered within each lesson. This process also allowed for the breakdown of skills that is needed or most appropriate for each lesson, creating a working frame from which examples of instructional tools could be referred to.

Lesson design	Designing one activity in the lesson that is open to outcome and allows for student exploration. This encourages interaction and brainstorming between students.	
<b>Components</b>	<b>Scope &amp; Sequence</b>	<b>Strategy</b>
Positive interdependence	Setting group goals	Pen and paper Timed tasks
Promotive interaction	Supportive language is taught Opportunities to give and receive feedback	Think-pair-perform
Social skills	Listening Taking turns Encouraging Sharing ideas Shared decision making Being responsible for one's behaviour	To leverage on existing school values that students are familiar with
Individual accountability	Individual practice time is given before students come to share in a group	Self-assessment of physical and social skills
Group processing	Due to time constraints and the profile of students, it was decided that group processing was not explored at the time of the research.	

*Table 2. Visualising CL in lessons*

## Data collection

In considering the nature of the project, I wanted the process to be iterative and flexible depending on students' progress. Following Lewin's (1946, as cited in Casey, Dyson & Campbell, 2009) steps of action research (AR): 1) Plan; 2) Action; 3) Observe and reflect, this mode allowed

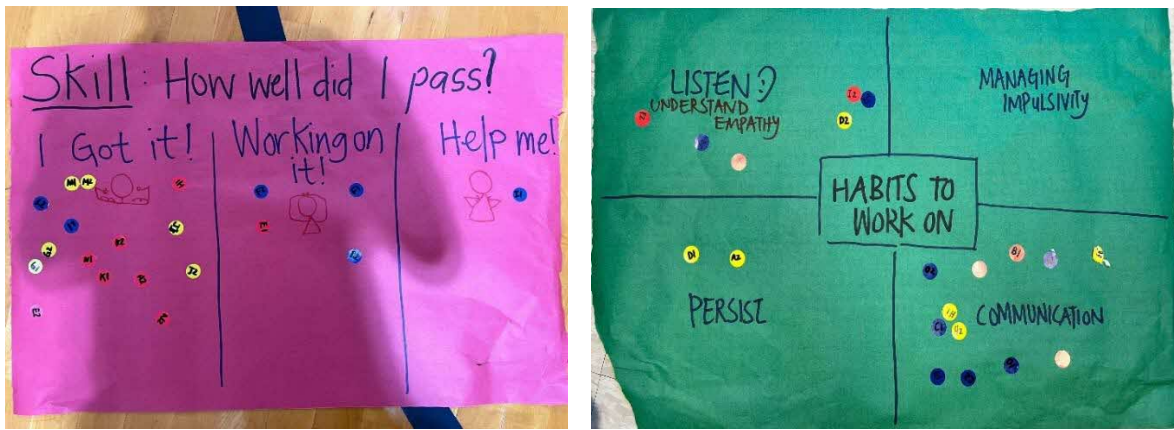
for post lesson reflections and afforded opportunities to make changes to the next lesson based on observations.

Observation notes from a reflective journal served as the key reflective tool for this project. The journal was used to maintain post-teaching analysis, noteworthy incidents and conversations with the teacher. Post lesson reviews informed adjustment for subsequent lessons.

As the project evolved, it was not possible for me to maintain my position purely as an observer. This is because some lessons had more than one point of interaction for the students, and it was not possible for one teacher to listen in on all the conversations. Hence, rather than just listening in, I jumped in to facilitate the conversations between the students. The relationship between the teacher and I then became a blend of action research and peer coaching. As we shared how each of our groups had reacted to the questions and our observations, we fostered a cycle of mutual growth and development, helping each other gain more clarity about the process. My reflection process had then extended from the initial three step process in AR to that similar of the peer coaching cycle as shared by Brody & Davidson (1998): 1) Establish the relationship; 2) Conduct the pre-conference; 3) Observe the teaching; 4) Engage in self-reflection; 5) Conduct a Post-conference and debriefing. This collaborative practice was instrumental in keeping the conversation alive between the teacher and I and helped us to refine and think of strategies together for the next lesson.

To monitor the progress of students in movement and social skill, formative assessment methods were employed. Students used stickers to record the skills that they practiced for the day and these data were transferred onto an excel sheet for analysis. This process repeated throughout the project.





*Photo 3: Examples of data collection for students*

### 3.3 Considering scope and sequence

#### Grouping

To implement CL in class successfully, it is essential that all elements of the process are considered, starting from group size. Ensuring that the group size is optimal is important so that all students within the group can have the opportunity to practice sharing, be involved and contribute towards the group goals. In essence, smaller groups ensure that all members can be visible (Gillies & Ashman, 2003, p.41). In view of that and the nature of the lessons planned, I decided that grouping students in pairs will provide them with the opportunity to work with another friend, have opportunities to develop social skills, and prepare the students for successful participation in bigger groups later. It was also critical that students were placed with peers who were suitable partners for them and would help complement and support learning. Hence, the teachers helped to put students in mixed ability pairs.

#### Social skills

Next, students need to have the necessary social skills to function in their pairs. Considering how lessons were delivered to ensure maximum motor engagement time, the teacher and I came to the realization that students needed to be scaffolded much more to function at the state that we had hoped. Hence, these social skills (Gillies, 2016, p.42) were considered and implemented in the lessons:

- 1) actively listening to each other
- 2) sharing ideas and resources
- 3) commenting constructively on others' ideas
- 4) accepting responsibility for one's behaviour
- 5) making decisions democratically.

We started the lessons with four identified habits of mind – Persist, Communication, Managing Impulsivities, Listening, and focused on them using multiple lessons to reinforce them. The habits started out very broadly, before being streamlined to be more specific. As I modified the lessons, the following principles helped me to ground the project:

- 1) Affording opportunities to practice the skill planned for
- 2) Role modelling through teacher or peers where possible
- 3) Patience that students may not demonstrate the skills.

## **Lesson Structure**

The teachers had established a comfortable routine with the students, and they were familiar with it. Students would come into the gymnasium, start with a warm-up exercise, and then listen to instructions or watch a video that would introduce to them the main activities for the day. We expanded on that routine to include the following:

- 1) Introduction to learning objectives of the day to focus and motivate students and help them see relevance of the skills they are learning in their lives.
- 2) Reflection – at the end of the lessons, students share if they have attained the psychomotor goals and the social skills using stickers.

Finally, lessons follow the planned curriculum, spanning across different units to demonstrate that CL can be incorporated into any learning areas with deliberate planning and scaffolding. Elements of CL were incorporated into small segments of lessons where applicable and were focused primarily on:

- 1) Positive interdependence (group goals)
- 2) Social skills
- 3) Individual accountability
- 4) Promotive interaction

The last element in CL – group processing was left out intentionally as the students needed to be able to master more skills to be able to be left alone to process how their group had done and how they would move on.

## **4. Findings**

Prior to the start of the project, I noticed that lessons were focused on motor competencies as the primary deliverable and that social skills were taught at the start of the lessons through teacher role modelling and may or may not be revisited at the end of the lesson. The other thing I noticed was that due to time constraint, activities were designed in as a circuit and the teachers orchestrated student movement from one activity to another seamlessly for maximum practice. I wanted to find out if it was possible for 2<sup>nd</sup> graders to practice not just the motor skills but also the social skills that were taught by the teacher, and if they would be able to work in pairs to construct and share knowledge, if opportunities were designed within the lessons.

The following sections will share observations and trends from different sources - journal, student data and conversations with the teachers.

### **Grouping**

At the first lesson, when students were paired up, they had gotten into their pairs quickly and there was no resistance from any of the students. This showed that the teachers knew the students well and were able to make informed decisions about the pairings so that students could succeed together. Students were happy to pair up with the friends that their teachers had matched them with. This trend continued for the following six lessons.

## **Student behaviour**

Positive trends in student behaviour were observed. When the lessons were set up, students were able to practice and show that they understood what they needed to do. These are some of the categories that we worked on.

*Persist.* This skill featured in lesson 1, 2, & 5. Persist is a word that is commonly used by the teachers during lessons to urge and encourage the students to keep up with their efforts in the various activities. We used only the word “persist” at first and then contextualised it in lesson 5 so that students could relate it to the lesson. It was observed that when “Persist” is contextualised and specific – i.e. “I tried different ways to reach my team’s goal”, students were better able to relate to it and were better able to give informed scoring on their learning experience.

*Managing impulsivities.* This skill featured in lesson 1, 2, & 3. Like Persist, the phrase, “Manage your impulsivities” is used frequently by the teacher to remind students to be in control and to consider the choices they make. Again, in lesson 3, this phrase was broken down further to reflect, “Did I make safe choices?” It was observed that students were able to control their actions and emotions well and their self-assessment reflected that. Hence, this skill was discontinued to make way to focus on other skills.

*Listen (understanding others).* This skill featured in lesson 1, 2, 5, 6, & 7. Similarly, it started as a broad category and was later narrowed down to, “I listened when my partner was speaking”. Two instances that showed that students listened to their partner’s opinion came about in lesson 4. When playing Four Squares, a recess game that requires a minimum of four players, students were told to share strategies that they were using to win at the games. In one group, it was observed that when each student shared, the others listened, and adjustments were agreed between the students so that the game could be successful for everyone. The same lesson for a different class, the group talk time allowed for them to address a disagreement in playing styles during the game. Students were unhappy that one student was hogging the ball and making up his own rules.

The disagreement had to be facilitated by the teacher in the end. Later in lesson 7, when asked to create their own games under a tight three-minute constraint, students had to listen to each other and work quickly so that they could get a game going. All the groups managed to get the game going and no conflicts were noted. Overall, in lesson 5, 67% of students reported that they listened when their partners spoke, compared to 92% at the end of lesson 7.

*Communication (be clear).* This skill was again shared broadly at first and then broken down to focus on two sub-skills: Encouragement, sharing ideas and feedback. Later when the lessons got more complex to incorporate other areas of CL, students had to communicate with each other to agree on group goals and group invented games.

*Encourage.* This skill featured in lessons 3, 4, 5, & 6. Teachers shared sentence starters so that students would have options of different ways to motivate and affirm their friends. In one instance in lesson 4, students started to cheer for each other during games even though they were playing against each other. In lesson 6, one boy stopped to watch his partner's throw, and gave a thumbs up to acknowledge her good effort. This deliberate skill helps to make the classroom a safe and positive space for everyone to learn in. Despite these observations, student data reported no significant improvement.

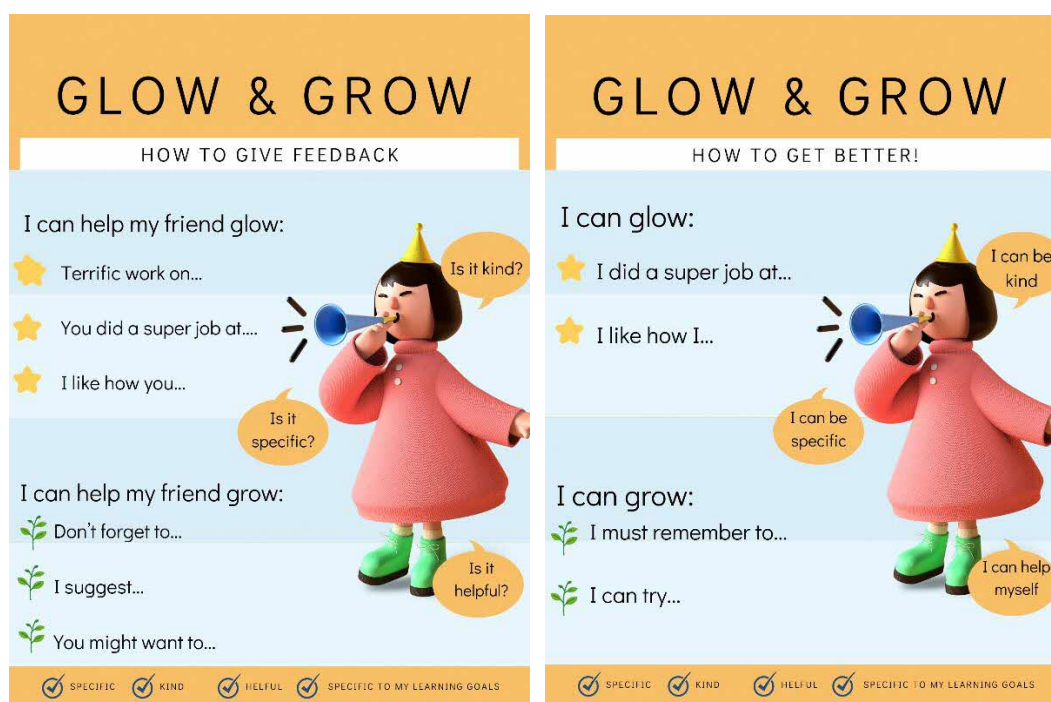
*Sharing ideas.* This skill featured in lessons 5, 6 & 7. Lessons should allow students to have the chance to construct their own meaning that will help them internalise learning. By having the opportunity to share and verbalise ideas, students can build up self-confidence in speaking and have the avenue to learn about their friend's ideas too. At lesson 5, 72% of students shared an idea, and in lesson 6, students were given the opportunity to share ideas, coordinate and execute an agreed plan. By end of lesson 7, this number increased to 89%.

*Feedback.* Teachers shared the structure for students to give themselves feedback. When students got better at this, they were asked to share with their friends what they had noticed they did well. Later, when a video was made to showcase the throwing skills of the students, when asked what they saw in the video, students shared about what they saw their friends doing well. Overall,

students were more mindful to observe their friends instead of only engaging in their own play, this again, is a habit that needs to be practiced.



*Photo 4: Sharing sentence starters for encouraging friends*



*Photo 5: Teaching students a common language for feedback*

## Student motivation

In PE, most students are intrinsically and extrinsically motivated to participate and engage in physical activities. This is because they generally have fun during the lesson and enjoy being able to move and interact with their peers. They may also get praises or rewards during the lesson.

Teachers can enhance student motivation by creating a supportive and inclusive environment, setting challenging but achievable goals and creating opportunities for cooperative learning to happen.

This section will share observations on two students, A and B. Student A is male, with special education needs and has a teacher assistant that accompanies him. Student B is female, is only able to focus for short periods of time and needs help to regulate her emotions.

Student A was paired with the same female student over the course of the seven lessons. Throughout the lessons, she made sure to involve him in the activities and collaborated with him patiently with the help of the teacher assistant. Student A took part in all the partner activities and was included in the team discussions. Student A also took part in the formative self-assessments at the end of every lesson. As opposed to just interacting with the teacher assistant, he is now engaged with other students in the class.

Student B usually needs much persuasion and reminders to stay on task. When instruction time was long, she would not be able to sit and listen, and when she got to the activity, it was sometimes hard to keep going. The turning point for student B was in lesson five. This was a goal setting lesson (see Photo 6) for throwing and initially she had proclaimed that she would only be able to contribute one accurate throw for her group. The teachers were unfazed with this and encouraged her to do more if she could. By the end of the second round, her group had exceeded the target, they were thrilled, and student B was over the moon! Another notable observation was made in lesson seven, student B worked wonderfully with her partner, and they played well at each of the stations. However halfway through, student B felt unwell and wanted to make sure that her teacher and partner knew what was happening to her. This is a big achievement for a child who has been indifferent to her peers and observed to disengage during lessons.

**Wall Targets**

Round 1		Round 2	
Goal	Final Score	Goal	Final Score
15	29	30	35

I made safe choices today.	51 42
I encouraged a friend.	15 55 41
I shared an idea today.	61 42 41
I listened to my friend's idea.	61 42
I tried different ways to reach my team's goal.	61 42

*Photo 6: Example of worksheet for goal setting, including social goals for the day*

## Formative assessment

The use of stickers needed explaining the first time we used it during the lesson. Students knew that they had a certain number of stickers and that the stickers were tagged to them, and they had to use them to answer some questions that were posed at the end of the lesson. Subsequently, the use of the stickers became more complex, and students were told that they were to use only as many stickers as they needed to respond to the questions posed. The sticker experience sometimes took as quickly as two minutes for students to share their responses and exit the lesson. Stickers were great as a visual for the teacher to have a quick sensing of where the students were. However, they did take some time to prepare, set up and analyse.

## 5 Discussion

Social skills are important for every child to build a strong and sound character foundation, so that they may be able to thrive in and beyond school in all contexts of life. Today, teachers should not be teaching just their subject content but leverage on its affordances to set up for the deliberate learning and practice of social skills as well. The findings above have shown us that it is



possible for 7-year-olds to learn, practice and demonstrate social skills over time with proper scaffolding and reinforcement. The key skills that were practiced include communication, listening, persisting and managing impulsivities. These are basic skills that students can start with, and teachers can then continue to layer on more complex skills like questioning, asking and giving help, assigning group roles etc. over the course of the year.

***What social skills need to be taught to Grade 2 students (7-year-olds) so that they will be able to find success when working with a friend in the PE classroom?***

We identified four key skills that were broken down further over the course of seven lessons. These skills can be categorised into personal competence skills like students' self-management (persist, managing impulsivities) and social competence skills like developing relationship management (listening, communication). When students are aware of their emotions, they can stay flexible and direct their behaviour in a positive manner. This will later translate into the ability to read the emotions of others and manage interactions successfully (Bradberry & Greaves, 2009).

In preparing students to learn together in a dynamic environment, self-management skills are important so that students are aware of how to regulate their emotions alone and in social settings. Students are taught to take turns to listen and accommodate to their peers and adapt to different opinions. Through this process, they will learn to share ideas, agree to disagree and be flexible. They will know that it is alright if their idea is not accepted and find ways to agree on a common solution with their friends. They also learn to persist with their efforts so that when they are working with their friends, they can be accountable for their own learning and contribute to the group when they come together. To do that, they must focus on the task at hand and master the skills needed. Being able to give and receive feedback, in a kind and constructive manner, allows the classroom to be a safe space for all learners. This process allows for the co-construction of knowledge between students, allowing new knowledge to be built upon existing experiences.

Before even going into the specific skills, it is important that students' understanding of the skills is clear. At the start of the project, the skills were shared in broad categories. This did not give many insights into student understanding other than the fact that they were aware of the different skills and were able to identify the skill that they used most for the lesson. Later, when the skills were broken down and elaborated on, it gave more insights as to the frequency of practice and if the design of the lesson had catered for the skill to be practiced. The use of stickers helped to reinforce learning as students reflect on the skills that they applied that day. This positive reinforcement was an initial way for the researcher to collect data but incidentally became a visible way for students to keep the learning outcomes of the lesson in mind and was useful for debrief at the end of the lesson.

This project showed that social skills needed to be taught and can be deliberately embedded within the lessons using CL as a framework to guide lesson design. It outlined some essential fundamental skills that students of a young age could start with and find success. It also showed that CL did not need to dictate the entire lesson and can be designed as one of the lesson activities and doing so does not dilute student learning. Social skills take time to practice and demonstrate and students can naturally practice it as a habit if reinforced well.

### ***What is the teacher's observation of the impact on student engagement and prosocial behaviours?***

Teacher observation of the impact of the seven lessons can be categorised in the following themes – group dynamics, creativity, increased prosocial behaviours and facilitation insights.

#### **Group dynamics**

As the students worked with the same partner over multiple sessions, they become more responsive to the needs of each other and are more willing to assist in each other's learning (Gillies & Ashman, 2003, p.42; Casey, Dyson and Campbell, 2009). It was observed that students became

comfortable with the idea of group work and got into groups quickly each week. They were willing to stop their own play time to watch and work with their partners and be involved in each other's learning. Later in lesson seven, when students were instructed to create their own games, they came up with the idea of working in bigger groups instead of just their usual partners. This happened across a few groups of students and shows that a good number of students were ready for bigger group learning. This will be food for thought for the teacher when they consider rearranging the students into groups of three or four, based on the readiness that students have shown.

### **Increased prosocial behaviours**

Prosocial behaviours refer to actions that help or benefit others. In this project, it would refer to providing feedback, sharing ideas and giving encouragement. Each lesson employed a two-pronged approach – (1) introducing or reinforcing a social skill, (2) designing activities based on CL principles. This structured approach allowed lessons to spiral, enabling students the chance to internalise and reinforce skills over time. After the first few lessons, we realise that we needed to focus on specific, contextualised skills for clarity and worked consistently on familiar skills before introducing new ones. Across the skills that we worked on, all except sharing words of encouragement received an increase in frequency of practice. It is not clear why this is so, however, the overall climate of the classroom continues to remain positive.

Simple activities can be employed creatively to bring out CL components and the practice of social skills. One example is setting a goal for throwing. Students had to communicate with their partners and agree on a goal that they would reach together. If they attained that goal, then they had to decide what was the next goal. If they did not, then they needed to talk about how to adjust their goal for the next round. Here, there is (1) individual accountability to perform and contribute to the group's target, (2) positive interdependence as both is motivated to reach the agreed goal, (3) social skills, promotive interaction and group processing as the students get together to negotiate, share and plot their next move. When CL is employed correctly, positive peer relationships are formed

(Roseth et al, 2008; Opstoel et al, 2020), students care for each other's progress. The result is a performance that is higher than if the student had worked alone (Johnson & Johnson, 1999). When all students are actively involved and engaged in the task at hand, they will also be less likely to be disruptive (Johnson & Johnson, 1999).

### **Facilitation insights**

Sharing observations at the end of the lessons and having post lesson conversations helped Mrs C and I plan for the next lesson. While the idea was to afford students as many opportunities to have conversations and interact with each other, this proved to be difficult because of two key factors: 1) time; 2) facilitation. The lessons were only short thirty-five minutes, and it was important to us that motor activity time took up most of it. At the start, we tried posing the same questions to students as they moved around to different stations. But we observed that students seemed to be unsure of what to discuss when questions were posed to them. We realised that this method, while helping students get more practice time, was not helping them sharpen the conversations that they had, and it was not possible for the teacher to be present during the conversations as well. Later, we realised that, and this practice would be more productive if the teacher was able to plan the lessons such that there were stations where students could practice existing skills at familiar stations, while the teacher facilitated learning and conversations at an activity station where this was planned to happen. This would allow for teachers to listen in on the conversations happening, hence determining if the process was working and if there was more that needed to be done. Students were taught to practice their skills on short activities. These are reinforced each week, so that students now get into the routine of 'Think, pair, share and perform'. This will hopefully pave the way for a structure later when more complex activities are required.

Having the patience that not all students were ready to demonstrate the skills verbally was also important. We learnt that just giving students the chance to listen to their peers verbalise how

clear communication sounds like can help the quieter students grow in confidence and volunteer to share later.

Resources are important so that students will be able to visualize what they need to learn and practice. When indoors, teachers can use whiteboards and projectors, and when that is not possible outdoors, movable whiteboards can work too. A simple example is shown in the photo below. The yellow paper features the skills that the teacher would like students to work on for the lesson and is segmented such that they are able to use that same sheet for formative assessment (FA) at the end of the lesson too! Rounding up the lessons at the end is also important to help students understand and revisit the lesson objectives for the day. This also role models the process of group processing by sharing student achievements and the focus for the next lesson.



*Photo 7: Movable whiteboard doubles up as lesson objectives and FA*

Teachers observe improvements in student engagement, social behaviour and motivation showing that learning outcomes for both movement competencies and social skills can be achieved when lessons are structured for them. CL shares a good framework for teachers to refer to, when considering how to plan their lessons so that students can practice both sets of skills in a supportive environment alongside their peers.

## 5.1 Limitations of study

Effective cooperative learning requires students to develop the skills to engage in a group and contribute positively within it. One significant limitation is the challenge of facilitating conversations within multiple small groups. It is not possible for the teacher to be present all the time and there needs to be processes that can record student conversation or learning to allow the teacher a glimpse into what has or has not been discussed. Worksheets are one way to record this learning but may not be time consuming. Due to the constraint in time, only certain social skills were picked up and developed, however, this shows how long it would take for one skill to be taught explicitly and practiced, before teachers should move on. Resources also need to be created to help students see and hear how the skills can look and sound like and although opportunities may have been created, they are not always taken.

Other than that, creating effective routines and building trust is a long process. Both teachers and students need to adjust and grow into their roles. Students will need to learn group norms; understand the part they can play and learn it and be confident to express themselves when needed. This process will take time, and all parties need to trust the process and allow time for social skills to be learned, honed and demonstrated.

Teachers play a critical role if this strategy were to work. They face a learning curve in organizing and thinking about teaching in a different way. Research suggests that it takes time for teachers to feel comfortable with the complexities of cooperative learning (Brody and Davidson, 1998, p.129). Hence, they may hit the ground running at first at the excitement of the prospects of this pedagogy but may be faced with roadblocks as students take time to adjust to new routines and expectations.

## 6. Conclusion

*“Cooperative learning is more than just placing students in a group and having them work together, it is the process of building learning communities” – Unknown*

The power of cooperative learning can be harnessed when the teacher takes the time to set up supporting structures so that learning is scaffolded in a way that children will later be able to self-organize because of the skills that they have acquired through this careful planning.

PE is a natural platform which affords opportunities for students to develop and hone personal and social skills and CL is one strategy that is well placed to deliver this. While the frame of CL comes in handy to help the teachers design their lessons, one must not forget that social skills are needed for students to work effectively. Teachers must be able to identify those skills that their students lack and systematically break them down into manageable steps for practice over a period. The process takes time and patience, as many practitioners who have tried CL in their classrooms would tell you and will take careful scaffolding.

According to Bandura's theory of observational learning, people can learn by observing the behaviours of others. Similarly, students are learning what the teachers are role modelling. Through team teaching during the project with Mrs C, students observe the cooperation between teachers. When teachers use positive language with each other and through demonstrations with students, students are able to pick it up over time and model the same behaviour. When students are called upon to demonstrate their thoughts verbally, other students are observing the process and should gradually feel more comfortable in sharing as well. Intentional opportunities for students to practice during lesson time will help to reinforce these skills and create a dynamic and supportive classroom over time.

One should not hurry into the process and feel stressed about implementing all five CL elements at once. Thinking about CL can be time consuming and complex, so the use of simple tools can help to kickstart the process of CL. For example, initially used as a data collection tool, the stickers incidentally became a way for students to see what they had learned, making their learning visible for them and others. These can make meaningful talking points for teachers to share and round up lessons, and to encourage the perpetuation of positive social behaviours. The

construction paper on which the stickers were stuck becomes another point of reference for students to have a visual of the learning focus for the day. CL does not need to be big and fancy, practical tools that can achieve the same effects can help teachers practice it easily.

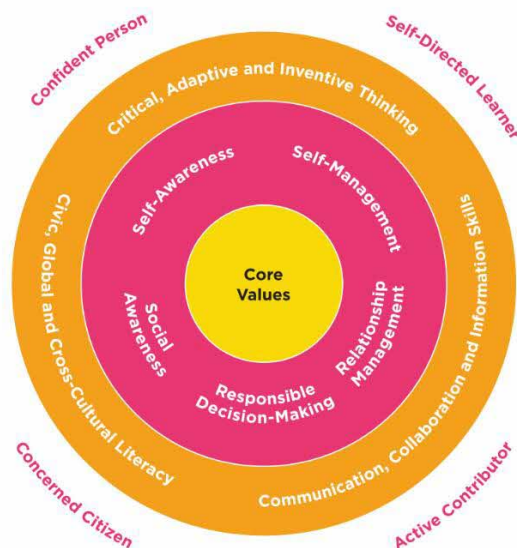
Collaboration is key. In exploring how CL could work in a context rather different from mine, the teacher and I learnt and made many discoveries together on this journey. We both gained deeper insights into how we could put CL into practice. I have learnt other ways of addressing the students when they were in need, or hurt or in conflict, and I am sure the teacher learnt some ideas along the way from me too!

Ultimately, CL reflects my core belief as an educator. We need to practice working together to make the world a better place. By fostering inclusive, cooperative and safe learning environments, we can equip students with the skills that they need later in life to contribute positively to society.

## **6.1 Implications for Singapore**

In addressing the teaching force during the annual work plan seminar in 2023, Education Minister Chan Chun Sing said, “In this fractious world, we need to learn how to collaborate with other people, not just domestically, but with our overseas partners. The more the world threatens to fragment, the more we need our people to be able to connect with people from different persuasions and different backgrounds. This will become an essential life skill, not just for them in Singapore, but beyond Singapore.” More than ever, CL is a tool to prepare young Singaporeans for the future ahead.





*Figure 3: Framework for 21st Century Competencies and Student Outcomes*

The above framework is a list of competencies that the Ministry of Education (MOE), Singapore has identified to be essential for our students across all MOE schools and ages to develop so that they will be prepared for the future. At the heart of the framework sits core values (yellow). Values are important as they shape beliefs, attitudes and actions. Next, five social-emotional competencies (pink) help students to develop healthy identities, manage emotions, relate to others and establish and maintain positive relationships. Building upon a good foundation, the emerging 21<sup>st</sup> century competencies (orange), will enable students to thrive in and beyond school. At the end of their formative education years, students will embody the Desired Outcomes of Education (most outer circle) and be ready to take on the world.

Practitioners across different subject areas have long been taken reference from this framework to guide the design of our lessons. More than ever, PE teachers should look to the framework to deliberately plan for the teaching and learning of these skills mentioned. The potential for CL to play a part in the teaching and development of these competencies is immense. Just like how CL works, teachers should collaborate and share ideas to make this work. Singapore's practice

of professional development groups within and across schools can help, PE teachers and teachers of other subjects explore the possibility of this pedagogy.

We know that CL takes time, and with time as a main consideration, will CL fit within the tight constraints of rigorous curriculum demands? This may be the topic of contention in the next steps of the project when it is explored further in Singapore.

## **6.2 Next Steps**

While cooperative learning has demonstrated significant potential as a pedagogical tool, more research is needed to explore how educators can effectively scaffold students into this practice. By addressing these gaps, future studies can help ensure that CL is accessible and impactful across diverse classroom settings, particularly in PE contexts.

Tools that accompany CL principles may be helpful to guide teachers with the process and provide some guidance on how social skills can be broken down. For example, checklists about overall class behaviours can help teachers to determine the readiness of students and what social skills to start with. Examples of how CL lessons look like will also help teachers envisage how it can look like in their classrooms, making it easier for implementation. Finally, a supportive learning culture and positive mindsets are critical. CL is a long process and a network of educators working on it together and sharing ideas will go a long way.

Finally, not all CL teaching strategies like Jigsaw, Learning Team were used in this project due to the short timeframe and complexity. Depending on the starting point and profile of the students, teachers should consider these strategies for use in their classrooms to enhance the overall delivery of CL.




There are plans to continue this project back in Singapore.

## 7. References

- Bjørke, L., & Mordal Moen, K. (2020). Cooperative learning in physical education: a study of students' learning journey over 24 lessons. *Physical Education and Sport Pedagogy*, 25(6), 600–612. <https://doi.org/10.1080/17408989.2020.1761955>
- Bradberry, T., & Greaves, J. (2009). *Emotional Intelligence 2.0*. TalentSmart.
- Brody, C.M., & Davidson, N. (1998). *Professional Development for Cooperative Learning: Issues and Approaches*. State University of New York Press.
- Casey, A., & Dyson, B. (2009). The implementation of models-based practice in physical education through action research. *European Physical Education Review*, 15(2), 175–199. <https://doi.org/10.1177/1356336X09345222>
- Casey, A., Dyson, B., & Campbell, A. (2009). Action research in physical education: focusing beyond myself through cooperative learning. *Educational Action Research*, 17(3), 407–423. <https://doi.org/10.1080/09650790903093508>
- Chan, C. S (2023, 20 Sep) Speech by Minister Chan Chun Sing, Minister for Education at WPS 2023, at EXPO Convention Hall. Retrieved November 20, 2024 , from, Speech by Minister Chan Chun Sing at WPS 2023 | MOE
- Crain, W. (2011). Bandura's Social Learning Theory. In W. Crain, *Theories of Development: Concepts and Applications, Sixth Edition* (pp. 209-229). Pearson Prentice Hall.
- Gillies, R. M., & Ashman, A. F. (2003). Co-operative learning: the social and intellectual outcomes of learning in groups. RoutledgeFalmer.
- Gillies, R. M. (2016). Cooperative Learning: Review of Research and Practice. *Australian Journal of Teacher Education*, 41(3).
- Grineski S (1991) Promoting success in physical education: Cooperatively structured learning. *Palaestra* 7(2): 26–29.
- Johnson, D. W., & Johnson, R. T. (1999). Making cooperative learning work. *Theory into Practice*, 38(2), 67–73. <https://doi.org/10.1080/00405849909543834>
- Lewin, K. (1946) Action research and minority problems. *Journal of Social Issues* 2: 34-46
- Lyman, L., Foyle, H. C., & Azwell, T. S. (1993). Cooperative learning in the elementary classroom. NEA Professional Library.
- Ministry of Education, Singapore. (2024). *Primary school subjects and syllabuses*. From Ministry of Education, Singapore: <https://www.moe.gov.sg/primary/curriculum/syllabus>
- Ministry of Education, Singapore. (2024). *21<sup>st</sup> Century Competencies*. From Ministry of Education, Singapore: [21st Century Competencies | MOE](https://www.moe.gov.sg/21st-century-competencies)
- New York State Education Department. (2020). *New York State Physical Education Learning Standards*. From New York State Education Department: <https://www.nysed.gov/sites/default/files/programs/curriculum-instruction/new-york-physical-education-learning-standards-2020.pdf>
- Opstoel, K., Chapelle, L., Prins, F. J., De Meester, A., Haerens, L., van Tartwijk, J., & De Martelaer, K. (2020). Personal and social development in physical education and sports: A review study. *European Physical Education Review*, 26(4), 797–813. <https://doi.org/10.1177/1356336X19882054>
- Ovens, A., Dyson, B., & Smith, W. (2012). Implementing the cooperative learning model in physical Education: The experience of New Zealand teachers. In *Cooperative Learning in*

- Physical Education: A Research-Based Approach (pp. 15–26).  
<https://doi.org/10.4324/9780203132982>
- Rivera-Pérez, S., Fernandez-Rio, J., & Gallego, D. I. (2020). Effects of an 8-week cooperative learning intervention on physical education students' task and self-approach goals, and emotional intelligence. *International Journal of Environmental Research and Public Health*, 18(1), 1–11. <https://doi.org/10.3390/ijerph18010061>
- Roseth, C. J., Johnson, D. W., & Johnson, R. T. (2008). Promoting Early Adolescents' Achievement and Peer Relationships: The Effects of Cooperative, Competitive, and Individualistic Goal Structures. *Psychological Bulletin*, 134(2), 223–246.  
<https://doi.org/10.1037/0033-2909.134.2.223>
- Slavin, R. E. (2010). Co-operative learning: what makes group-work work? In *Educational Research and Innovation; The Nature of Learning* (pp. 161–178). OECD Publishing.  
<https://doi.org/10.1787/9789264086487-9-en>
- Velázquez-Callado, C. (2012). Putting cooperative learning and physical activity into practice with primary students. In *Cooperative Learning in Physical Education: A Research-Based Approach* (pp. 59–74). <https://doi.org/10.4324/9780203132982>

## 8. Appendices

Lesson 1 & 2	 <p>Council%20Rock%20Lesson%20Trials_Cycl</p>
Lesson 3 & 4	 <p>Council%20Rock%20trials_Cycle%205_trial</p>
Lesson 5 & 6	 <p>Council%20Rock%20trials_Cycle%207_trial</p>
<p>Lesson 7</p> <p>By this lesson, it was agreed that CL would only take up one station so that the teacher would be able to effectively facilitate the learning and have ample interaction with all the groups.</p>	