

**Implementation of cooperative learning
impacts teachers in private education
institution in Singapore**

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Portfolio

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Academic support

Masters: Research (supervisor students' dissertation) & Critical Issue in Business
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Publications:

- Unravelling cooperative learning in higher education, A review of research. Research in Social Science and Technology, June, 2020.
- The Impact of 21st Century Competencies on Future Job Seekers' Diversity Readiness: A Developmental Perspective, June 2019.
- Understanding Asian Students Learning Styles, Cultural Influence & Learning strategies, Journal of Education and Social policy, March 2017.

Agenda

- Aims & rationale
- Literature review
- Findings and Discussion
- Summary

Aims and rationale of the research

Aims of the research:

To investigate teachers' current teaching practices and influences when they were exposed to cooperative learning.

Rationale and purpose:

Although there have been overwhelming outcome relating to the use of cooperative learning which shows improvement on students' academic results, motivation and satisfaction (Johnson & Johnson, 2013 and Slavin, 2009). However, Johnson & Johnson (1999, 2009, 2013 and 2014) were primarily research conducted on school-based and in Western society.

There are mixed result relating to the use of Cooperative learning in Asia (Thanh-Pham & Gillies (2010) and Phuong Mai (2015). When adopted in higher education, there were unconvinced outcome (Cavanagh, 2013 and Herrmann, 2011).

Predominant research was focused on students. The research on teachers has been uncommon. Hence, this research was to investigate the influence of cooperative learning on teachers.

Literature review

Cooperative learning

Cooperative learning (CL) had its work originated from Deutsch (1948). Underpinning CL has been Constructivism, on the basis that students construct information rather than passively receiving. Active students' participation in learning (Fernando1 & Marikar, 2017 & Tran, 2013).

The two main types of constructivism are cognitive and social constructivism postulated by Piaget (1936) and Vygotsky (1978). Cognitive constructivism is built on the premise that involving students resolve conflicting beliefs when they faced with new information (Amineh & Asl, 2015 and Powell, 2009).

Contrasts with social constructivism asserted that students learn in a social context, in which teachers and students helped students to expand their “zone of proximity development (Alanazi, 2016 and Vygotsky, 1978).

Teachers assumed a learning facilitator role fostering students learn actively rather than assuming come with a clean sheet of “empty mind” to be filled by teachers (Alanazi, 2019). Teachers support students by asking clarifying questions, obtaining feedback, and engaging students in peer discussion (Felder & Brent, 2007 and Shimazo et al., 2010).

Cooperative learning by Johnson & Johnson is one of the well research model. Key features being: Positive interdependence, face-to-face interaction, interpersonal and small group skills, Individual and group accountability and group processing (Johnson and Johnson, 1999 & 2005).

Cooperative learning

Cavanagh (2011), Hammond, Bithell, Jones & Bidgood (2010) and Mendo-Lazaro et al., (2022) noted an increased interest in CL research at university levels. Silva, Lopes, Morias & Dominguez (2023) added that when students form ideas and information based on a variety of sources, it helps them think critically. Leads to longer knowledge retention (Johnson & Johnson 2013).

Hammond et al., (2010) Herrmann (2013) and Cavanagh (2011) however are less convinced of CL benefits students at higher education due to free-riding, resentment of dependent on peers and suspicion of peers' knowledge. In addition, time-compressed course coupled with large class size diminished the effectiveness (Vreven & McFadden, 2007).

Hofstede and Hofstede (2005) and (Economides, 2008) underscore that placing students in mixed culture affected students' collaboration and misunderstandings among students.

Furthermore, culture influenced on the perceptions and interpretations of the learning environment (Nguyen, 2008), participation, motivation (Lim, 2004), and learning behaviour (Valiente, 2008; Economides, 2008).

Phuong Mai (2015) expounded that the contrast in culture West and East tremendously. Drawing on Hofstede & Hofstede (2015) five dimension, Asians are collectivism, high power orientation & low uncertainty context meant it is difficult for teachers and students to accept CL being a Western idea.

Teachers' learning and grow

The idea of how teachers learn and grow has been challenging as there are a repertoire of interpretations. Changes may include teaching practices (Uiboleht, Karm & Postrateff, 2016), knowledge (Pedrosa de-Jesus et al., (2017), and skills (Inamorata et al., 2019).

Changes in teaching practices involved the shift from a teacher-centered to a student-centered teaching approach (Cao et al., (2019) and Uiboleht et al., (2018).

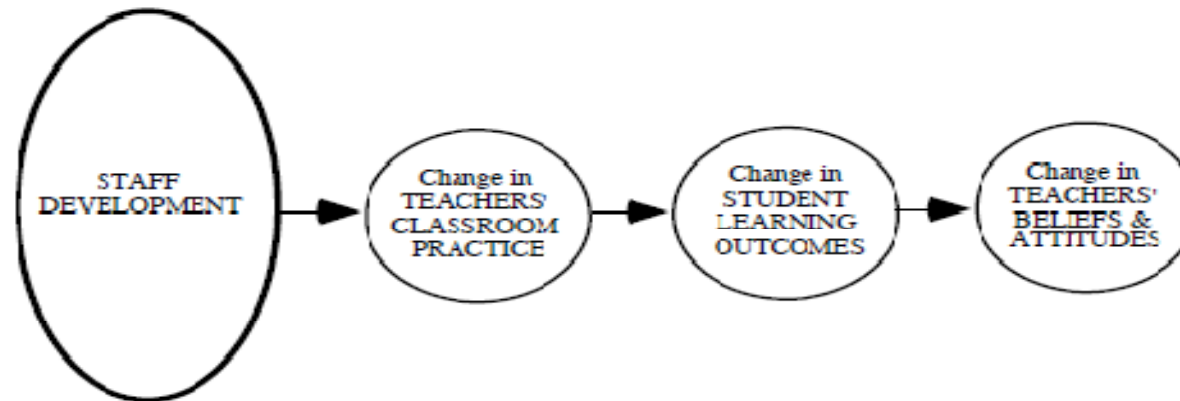
The focus of student-centered teaching approach is to change students' conceptions of the subject matter (Postareff et al., 2008 & Prosser et al., 2014). Hence, teachers adopted interactive approach to engage students to be more active. Teachers must improve on pedagogical skills as it enables them to make adjustments to their teaching (Chamers et al., 2015).

The impact of training on changes on teachers is important as teachers can be kept current. Echoing, Gusky (2002) claim that teachers who attended training enhance their practical ideas. Gibbs et al. (2004) and Kember & Kwan (2000) concluded that PD is an effective strategy for altering teaching teaching practices. However, recent research by Ödalen et al., (2018) showed mixed results of training on university teachers in Sweden.

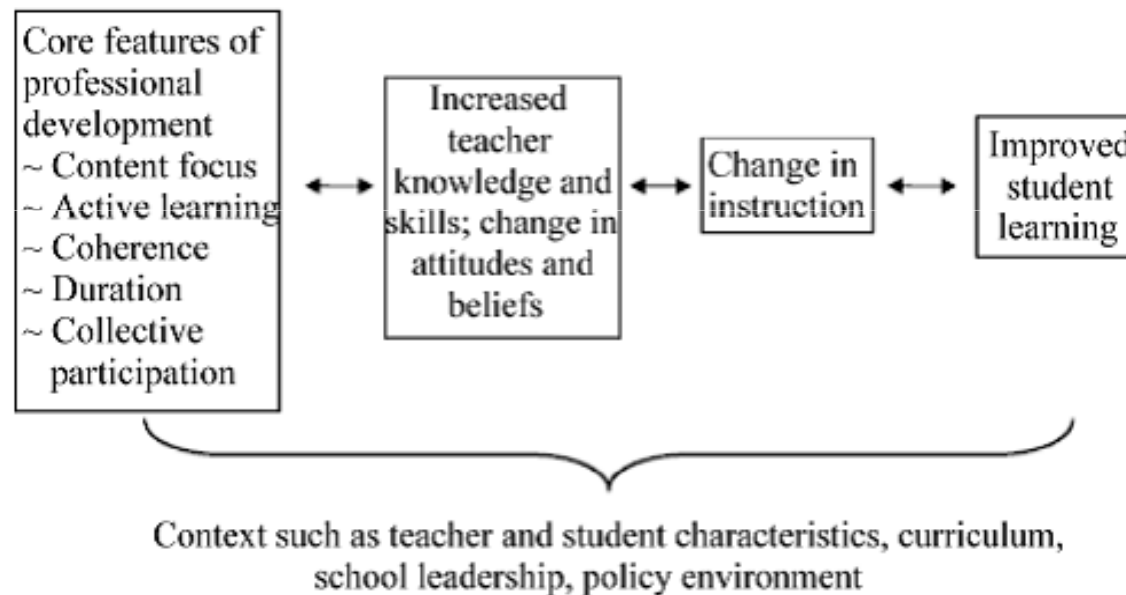
Furthermore, there are several models relating to how teachers learn. Gusky (1986), Desimone (2009) and Clarke & Hollington (2002) presented different notions.

Teachers' learning and grow

Gusky's path model posits that changes in teaching practice occur before beliefs.



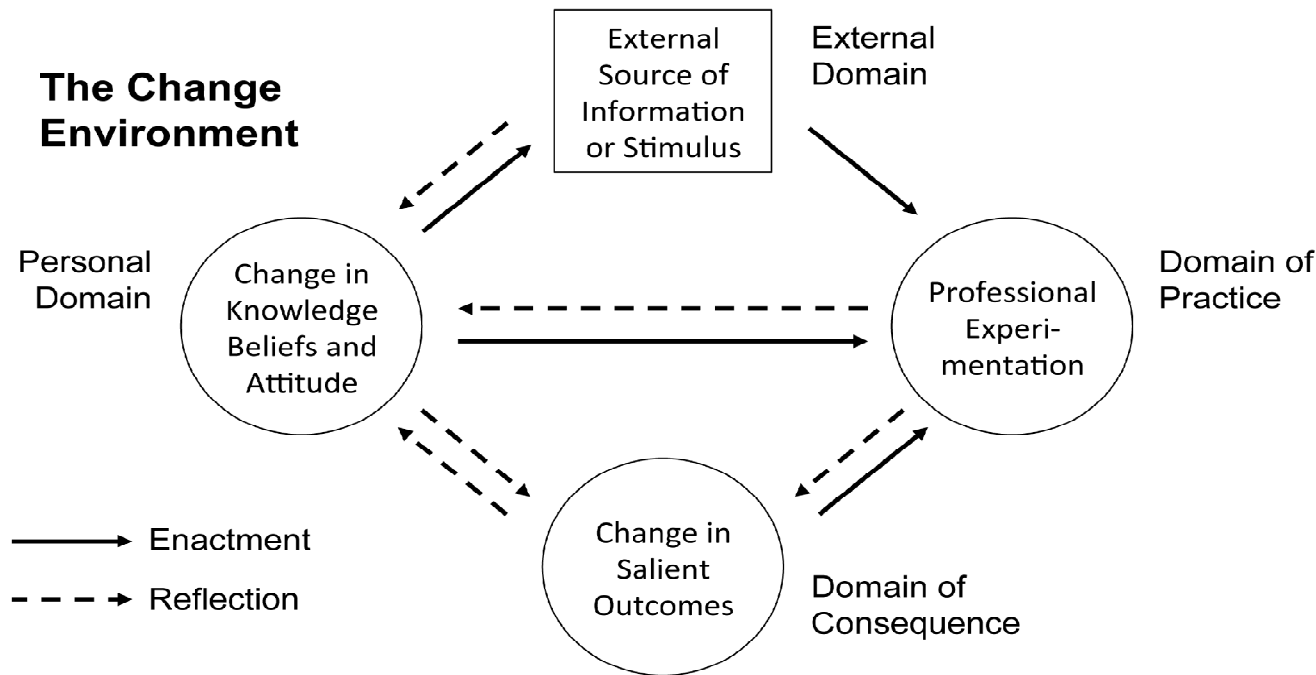
Desimone suggests changes in teachers' beliefs first which influence practices.



Source: Boylan, Maxwell, Coldwell and Jordan, J. (2018), *Rethinking models of professional learning as tools: a conceptual analysis to inform research and practice* (2017), p. 125.

Teachers' learning and grow

Clarke and Hollingsworth interconnected model shows multiple influences on teachers.



The different ways in which teachers learn and grow imply they receive training differently. It shows there are different ways how teachers develop in their academic career reinforcing the importance of training, including participation in conferences and seminars.

Reiterating the complexity of changes in teachers as a result of training, Gusky (1988, p. 388) indicated, "It is clear that, to be successful, professional development must be seen as a process, not an event" (Loucks-Horsley et al., 1987, 1998).

Research methodology

The research was carried out using qualitative interpretative stance as a way of uncovering details into how teachers went about carrying out cooperative learning in their lessons.

The interpretivism philosophical stance was adopted to gain a detail understanding of the social context. The emphasis was placed on sense-making, description, and discovering and experiencing the meaning (Denzin & Lincoln, 2003 and Flick, 2018) with the objective was to interpret the subjective meaning of interviewees' thoughts, intentions, perspectives, emotions, and experiences (Creswell, 2013 & Bryman, 2016).

Semi-structured and class observations were the tools being used to gather data collected over an extended period of time of nine months period. A total of 10 teachers and over 30 students were involved. The purpose was to collect a multitude of diverse views and reflections given by teachers and students over a period of less than a year of study. Hence, the research involved longitudinal study.

Data analysis was performed using thematic analysis was to identify patterns inherent in the qualitative data. The "six phase analytic" approach of Braun and Clarke (2006) to derive codes and subsequent themes in which the analysis will follow. Some of the codes generated included "divergent learning", "intervention", "active learning", "students' interaction", "teaching practices", etc.

Finding outcomes summary

a: Shift in teachers' roles.

Prior to implementing cooperative learning, Bah devoted a significant amount of time to teaching. He seemed to employ a more teacher-centered approach in his lesson.

I will usually spend three quarter on teaching because there are much content to be covered in "Information technology". If I do get students to discuss, it is usually sharing between two students.

Teacher Bah interview 1 (before using CL)

As Bah adopted cooperative learning in his lesson, he did more than giving students activities. The extract in his class session showed he grouped students, engaged students exchanged information with peers. As a result, he appeared to interact more with students.

In this session, you will be involved in doing a case study on network security. Now I want you to form groups of 4, maximum 5 students in a group. I want you to research for more information to answer a set of questions. My teaching approach has changed. With CL, it involves engaged and helped students learn. For example, when I gave an activity, I clarify with them. I will check how are students progressing given a certain time.

Teacher Bah interview 2 (during CL)

As facilitator of learning, teachers assumed a variety of responsibilities, such as supporting students' learning and engaging them in learning activities that were significantly different from those of a teacher.

b: Cooperative learning influenced teachers' teaching practices.

When teachers engaged students to learn more actively, they adopted a more participatory teaching approach in which they engaged students to share ideas, they asked probing questions to encourage students to give information or involved them in class discussions. As teachers interacted more with students, it influenced how students learn as well.

My main concern is the time. If use cooperative learning, do I have the time to carry out the syllabus. Even in my then limited use of cooperative learning in the past, it does take up a lot of time. Having gone through the course on teaching and learning, it did change my teaching method slightly, not a lot. I started to incorporate some elements of cooperative learning, assigning students in pairs to a very limited amount. I didn't really try using it and it takes up much time.

Teacher Abby interview 1

Teaching quantitative subjects, actually it is very straight forward to conduct lesson. I run through the formulas, steps, calculations, there is not much variety you can introduce. But when I use CL, ah ... like I said right, is no longer very routine. I can design in such a way that I do not have to follow the usual pattern. I can start with somewhere in the middle and then by the end of the lesson, I can connect.

Teacher Abby interview 2

c: Change in teachers' perspectives on CL in teaching certain subjects

Prior using CL, teachers had different interpretations regarding on it to be embedded in their lessons. Teacher Benny held the notion that CL to be less suitable to be use in Economics being a difficult subject fir students to learn as it contains a myriad of theories.

After implementing CL in her classroom, she realised that it was possible to use it in "Economics" lessons as it supported students in learning. The use of CL gave teachers hands-on experience. Moreover, seeing how students learn differently gave teachers a better idea of the impact on students learning. It reiterated the importance of putting into practice using cooperative learning in classrooms.

Well, I find CL quite effective when it comes to the so-called "light" module like "Business Communication" whereby students do not actually expose to a lot of complex kind of theories. For the heavy module like "Business Economics", I don't actually find CL that suitable in the sense that there are many theories to be taught. Using of one-way communication is more effective to build knowledge foundation.

Teacher Benny interview 1

I believed that I can conduct cooperative learning selectively, even for like "Business Economics" which is considered a heavy module by most of the students. I believe I can use cooperative learning on concepts that are easier to understand for a few lessons. I can engage them with "think-pair-share".

Teacher Benny interview 2

The above extract shows that gaining knowledge of CL was not a sudden process. Require teachers to continue using it, gaining classroom experience, and adjusting their teaching. Hence, teachers to be given the opportunity and training to support them.

d: Teachers grouping of students

A key basis of CL was the involvement of students collaborating in small groups. Hence, teachers not surprised placed students into groups. There are a number of ways in which groups can be formed either similar abilities of students or mixed grouping of students.

The finding was evident that mixed groups were formed by teachers as it encouraged peer tutoring and learning which reduced students' dependence on teachers. In order to form mixed groups, teachers were required to intervene group formation instead of leaving it on students as there may not be sufficient diversity among students. Importantly, when teachers assigned students to groups, it implied that they knew students' abilities well.

It is beneficial to have a mixed group because it will be a platform for people who are not performing well, or not talking too much, to participate. The good students will share their opinion with the weaker students. They learnt from each other and can complete the task.

Teacher Pat interview 2

In IT systems, I grouped the students. I know who are the strong students and I distributed all the strong students amongst the different teams. The strong students try to help the weak students in the team.

Teacher Bah interview 2

If I grouped them according to nationalities, it is very hard to force to speak in English. Or even if there are two students from the same country, ah ... they will start talking in their own language and the third students who are not from same country will be left out... I formed group based on race and nationality to make sure some can speak English.

Teacher Regina interview 2

Teachers realised that that when students of the same nationality were placed in the same group, they communicate in their native language. This hinder their ability to collaborate. Regina as a result formed mixed students with varying level of English proficiencies to promote students' English communication abilities.

e: Teachers' different interpretations of what it meant to be active

Analysis show that teachers had different interpretations regarding what active learning means. Depending on their understanding, it influences how teachers engaged students. One way was to pose questions with different intentions to mentally stimulating students to think more critically, while for other teachers, it was to encourage students to contribute to the sharing of ideas as a way to foster active participation. Although teachers had different intentions in using questions to engage students, they shared in common to encourage students exerted their own effort in learning. As a result, teachers were proactive to engage students to produce ideas.

Normally I will try to listen. I will go around the group, I stay with them for few minutes to get some opinion what their opinion is all about. I highlighted by asking oh, you need to think about this area. Have you thought these areas? To make sure everyone participates, I will ask "Mr, what do you think of this thing? After that, I ask the next students are you agree? If you agree why you agree?"

Teacher Pat

My lesson was on "Psychology", I conducted a lesson before giving students case studies on teenage psychology.

Regina: What are some of the reasons in the talk show that teens wanted to get pregnant?

A: mass media influence

B: inspired by the celebrity who got pregnant at a young age.

Regina: what do you think is the cost of raising a child? Does the teens even know? Think about it. Think of the consequence. If you look at the reasons the teens cited, it doesn't seem realistic

Teacher Raj.

f: Challengers faced by teachers when using CL

- Require concerted effort when using cooperative learning in planning lessons and conducting of lessons. This is especially in large size.
- Institutional factors – tight curriculum schedule and class size.
- Diverse students' learning preferences, capabilities and willingness to work in groups.

I mean for the teacher it is less work during the lecture, but of course it needs preparation before because those kind of activities it is not easy to prepare. It also needs preparing some work sheets, some hand outs and also the idea of the activity. I try to look up on the internet to get some ideas. Of course, it is very hard to find the activities that will fit into exactly in what you need.

Teacher George interview 2

I would love to do that seriously, however, there are many constraints to having been able to do that because right now this particular module which you are talking about Introduction to Management, which is our higher diploma module. And for higher diploma module, we have very tight deadline. We only have 10 sessions in which time you must be able to deliver depending 10 to 12 different components. And it is really a challenge to try to deliver them, let alone have this CL.

Teacher Pat interview 1

In the oriental society like us, when we are young, we are more dependent on our parents. Oriental society parents have a very domineering role on our children. They dare not speak out. This is a cultural background Asian society. Our Oriental students, they are very quiet and docile. Teachers sometimes have to force them to speak. If you don't put a finger in front of them they don't talk.

Teacher Winnie interview 2

Challengers faced by teachers when using CL

There were divergent opinions expressed regarding some of the reservations and learning styles they adopted. Hence, they held different stance when collaborating with peers. It shows the difficultyies teachers had to deal with a variety of students in multinational classrooms.

I am Chinese, we are very shy to share our answers. Same as South Korea. We are brought up to be modest, to keep quiet even though you know the answers. We only talk when teacher ask us.

Wu Business student (China)

I like my previous learning experience because in China, the teacher from morning till evening focus very much on teaching and sharing a lot of information to us. I prefer not to have too much on cooperative learning because I think the teacher in the class should spend time teaching.

Hu Hospitality student (China)

I am quite slow in learning, so it takes time to understand one particular topic and I have to keep asking teacher to repeat the information. I prefer to learn on my own and teachers give the information because in small groups, members may give the inaccurate answers.

Shalote, Psychology student (Malaysia)

If I select members on my own, it will not so good because if we are friends, sometimes they, you can do my task, I do not know how to do. They find just find a reason not to work and let one person do most of the work.

Robert, IT student (Indonesia)

Discussion

Role as facilitator of learning.

The preliminary outcome of the research revealed several distinct findings. As teachers started using cooperative learning, there was evidently a shift in the roles of teachers from being a facilitator of learning to supporting students to learn more actively. The roles that teachers assumed was multi-faceted and varied from being a helper, structuring tasks and managing students' interaction, and encouraging them to collaborate (Keiler, 2018 & Seyoum et al., 2022).

This meant that teachers intervened while students were immersed in learning tasks during CL. Either direct or indirect approach in which teachers would rather let students discover knowledge on their knowledge by posing either open-ended or close-ended questions. It seemed that teachers intervened was influenced by their teaching beliefs: either pay more attention or provide them with minimal guidance (Sweller et al., 2015).

Group formation

This research showed that group formation was used as a platform for students to sharpen their language competencies in addition to encouraging group interaction, students worked together towards common goal sets and helping one another to enhance their knowledge (Johnson et al., 2002, Felder et al., 2007).

Discussion

Group formation

Although group formation was influenced by subject discipline and educational levels, the research indicated that teachers were the ones who determined the learning outcome to be a more important factor. Despite heterogeneous grouping being the preferred group formation, teachers did not limit themselves to forming one distinct group, instead, homogeneous grouping was formed as well. It seems different groups were formed as teachers adapted to contextual factors.

Shift in teaching practices.

The change in the role from a teacher who imparts information to one to facilitate learning requires a change in their teaching practices. They began to teach and engage students interactively. As a result, students learn differently, being required to participate as opposed to being passive learners.

Consequently, students developed more interest in learning as they have the opportunities to interact with their peers to generate answers. Importantly, when teachers realized that students were enjoying their lessons with cooperative learning, it encouraged teachers to continue to use cooperative learning.

Discussion

Shift in teaching practices.

This research showed that as teachers incorporated cooperative learning, they engaged students more actively, monitored and supervised them. Hence, they adopted interactive teaching method. It seemed that using cooperative learning influence teaching practices to shift from teacher-focused to student-focused. Kember (1997) and Postareff et al., (2014) advocated that student-focused to be the preferred teaching approach. Ramsden (1992) asserted that teaching was a developmental process in which teachers progressively adopted less sophisticated to more integrated teaching methods.

Contextual factors

Lindblom-Ylänne (2004) , posited that for “hard” subjects, teacher-centered approach was employed, with soft” subjects, student-centered approach was adopted. The showed that teachers adopted a combination of both teacher-centered and student-centered approach that was consistent with Stes et al., 2014) and Uiboleht et al., 2016).

With the limitation of students of conversing in English which could be comprehended by peers, teachers had two options. By placing them in homogeneous groups, it encouraged them to interact more intensely. However, this means that those who were unable to converse well would find it difficult to integrate with the class. As a result, teachers placed them in mixed groupings.

Summary

- The facilitation roles adopted by teachers varied from assuming limited to multi-functional roles. Showed divergent stances and beliefs towards teaching and learning. Consequently, the extent teachers assumed their roles as learning facilitators affect how students' learn.
- Besides forming groups to encourage interaction, grouping was used to develop and strengthen students' competencies. It fostered students to engage in peer learning, thereby closing knowledge gaps and forged closer ties with peers.
- The research demonstrated the importance of being flexible in group formation and their facilitation strategies adopted. Flexibility in terms of the different types of grouping to form (similar or mixed abilities) and also how groups are being formed (teachers allocate or allow students to form) their own groups.

In terms of facilitation strategies, different strategies may be used including asking questions to elicit opinions, feedback from students. Giving encouragement, guidance or supervision to students to encourage to take more active roles in learning. Again, the facilitation strategies may vary among teachers showing their sensitivity towards context including cohort of students, subjects, learning objectives, and knowledge they desire students to acquire.

- The findings showed the adoption of CL influenced teachers to employ a more participatory teaching practices to engage students learn activity as opposed to using teacher-centered. Being student-centered illuminate the stance of teachers aware of the different teaching practices in which teachers could use in their lessons.

Q & A.

Thank you for your time.