Agenda of Presentation

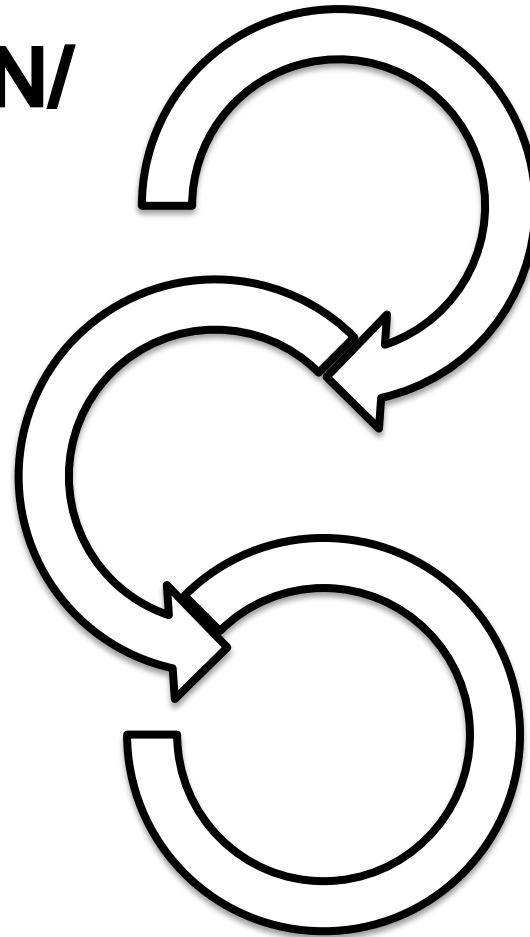**Why should children work together? What are the benefits of collaborative learning?**

What is collaborative learning and how different is it from cooperative learning?

What are the conditions for productive collaborative learning?

Collaborative learning – A Deweyian idea

Schools as microcosms of a democratic society where children learnt how to explore ideas in an active and dynamic way, cooperate with others and engage in a continual reconstruction of experiences based on an iterative process of feedback from a social environment (1916)

Source: Gillies, 2015

Research studies on group learning vs individual learning

Studies started in the 1920s and 1930s
- Allport (1924) found an increase in quantity and quality of what individuals produced when they work in groups
- Watson (1928) found that groups think more efficiently and produce better quality work than the best member of the group working individually

Source: Gillies, 2015

Research studies on cooperative vs competitive condition (Duetsch, 1949)

Students who worked cooperatively
- Perceived they were more interdependent
- Stronger sense of group commitment
- Worked together more frequently
- More highly coordinated ensuring no duplication of labour
- More attentive to each other's needs and accepting of other's opinions
- Better at communicating with each other
- More motivated to achieve
- Produced a better group product

Source: Gillies, 2015

Meta-analysis of studies in cooperative learning (Johnson, Maruyama, Johnson, Nelson & Skon, 1981)

Meta-analysis of 122 studies that examined the effects of cooperative, competitive and individualistic goal structures on student achievement and found that cooperation promoted higher achievement and greater productivity. These results held for all subject areas and for all age groups and for conceptually challenging tasks involving reasoning and problem solving skills.

Meta-analysis of studies in cooperative learning (Johnson & Johnson 2002)

Found medium to strong effect sizes for students in the cooperative condition on
- Student achievement
- Interpersonal attraction
- Social support
- Self-esteem
- Perspective taking

These are effect sizes which Hattie (2009) suggest can make real world differences in educational interventions

Source: Gillies, 2015

Research is very clear that students do benefit both academically and socially when they help each other to learn

What are the differences between collaborative and cooperative learning?

What is cooperative learning?

Cooperative learning (CL) structures interaction designed to facilitate the accomplishment of a specific end product or goal through people working together in groups.

- ➢ Kagan's structures like Think Pair Share, Sequential Roundtable, Jigsaw

- ➢ Slavin's Student Teams Achievement Division (STAD) and Teams-Games-Tournaments (TGT)

- ➢ Johnson & Johnson's Structured Controversy

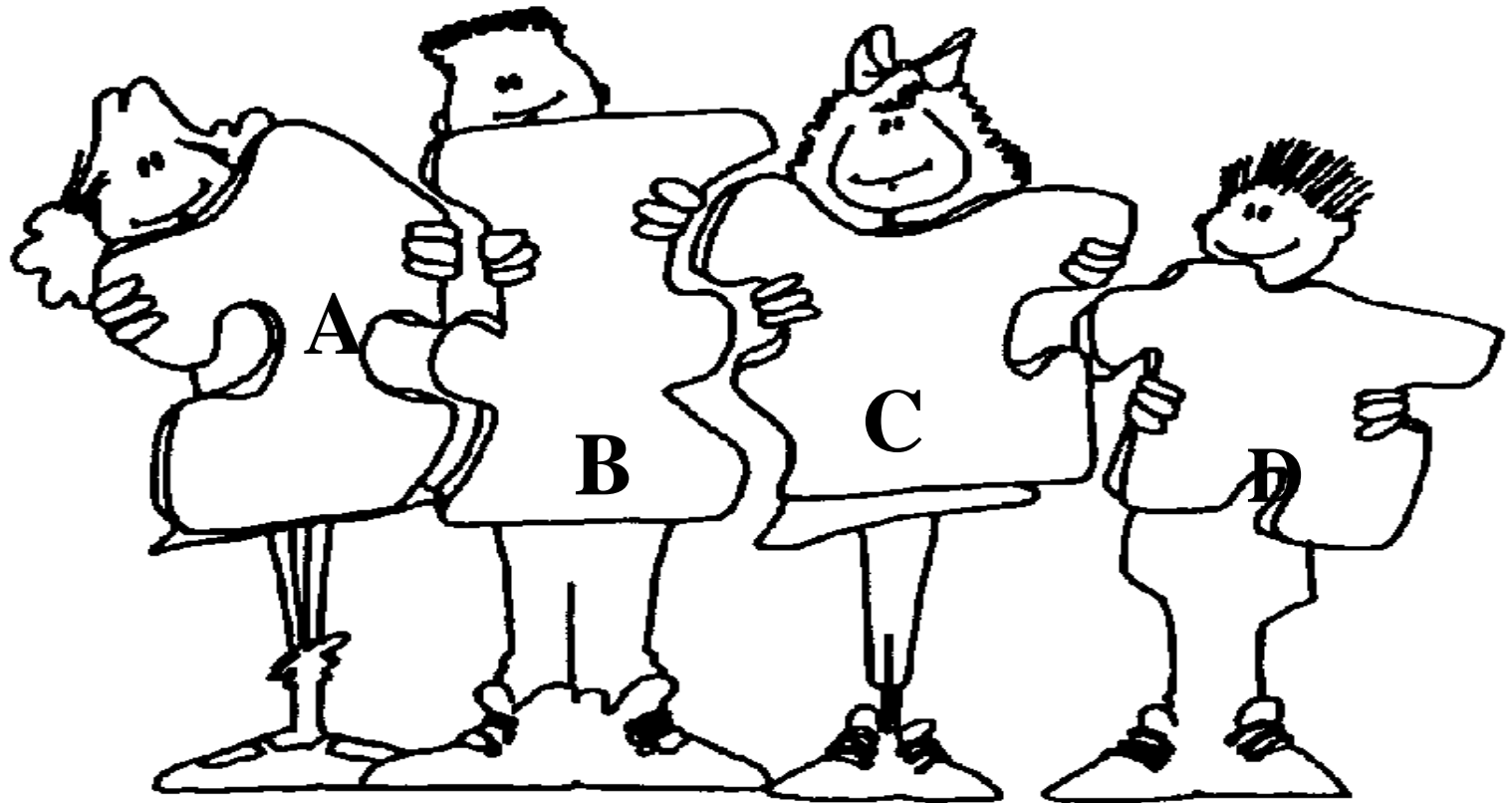Source: Panitz, 1999

SEQUENTIAL ROUNDTABLE

JIGSAW ACTIVITY

Phenomenon:
Kaganization of Classrooms
(Lee, 1980s)

What is collaborative learning?

Collaborative learning (CL) is not just a classroom technique but a personal philosophy. In all situations where people come together in groups, it suggests a way of dealing with people which respects and highlights individual group members' abilities and contributions. There is a sharing of authority and acceptance of responsibility among group members for the group actions.

Source: Panitz, 1999

Differences between collaborative learning and cooperative learning?

Cooperative Learning	Collaborative Learning
More structured	Less structured
Teacher Directed	Student Directed/ Teacher & Student share authority and control of learning
Heterogeneous Ability Groups	Students more say in friendship/interest groups
Closed Tasks	Open-ended Tasks

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TRANSFORMING TEACHING   INSPIRING LEARNING

A TEACHER'S DILEMMA (Cohen, 1994)

"If teachers do nothing to structure the level of interaction, they may well find that students stick to a most concrete mode of interaction.

If they do too much to structure the interaction, they may prevent the students from thinking for themselves and thus gaining the benefits of the interaction".

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SINGAPORE

What are the conditions for productive collaborative learning?

Creating conditions for productive collaborative learning

1. Nature of task design

Sato's jumping task (2011) by scaffolding with each other's ideas – do not teach each other but learn from one another

Howe (2009, 2014) – group tasks are challenging and structured around sharing, discussing, and respecting other's ideas and perspectives

Mercer & Howe (2012) – importance of students engaging in talk that is a "joint co-ordinated form of co-reasoning, with speakers sharing knowledge, challenging ideas, evaluating evidence and considering options" (p.16)

Students will engage in collaborative learning through a problem-solving task to construct an understanding of the concept of average as a process of even-ing out a set of data.

Problem Solving Math Task:

Concept of Average

Primary 5

Subject	Student A	Student B
English	74	78
Mother Tongue	Exempted	89
Math	88	78
Science	78	75

Problem:

Who performed better in the examination?

Student A did better
Same answer but process is different

Remove MT

Use total scores

Student A did better
(removed Mother Tongue)
Calculated total scores and used average

Both student A & B performed the same (Used the average to compare – include MT)

Method 1:
1. Find the total for each student.
2. Find out the average of each.
3. Compare.

Amy:

Student A

$(74+88+78) \div 3 = 80$

Student B

$(78+89+78+75) \div 4$
$= 320 \div 4$
$= 80$

Comparison

$80 = 80$

Ans: Same. The average score is the same.

Erica :"

NIE SINGAPORE

Student B did better
- calculated the total of all the scores of each student including MT
- A = 240; B = 320. So B did better

Working Space

student A-

Total: 88+78+74=240

(*exclude MT as A is exempted)

student B:

Total: 89+78+78+75=320

(*MT is included as B takes mother Tongue)

A   B

240   320

Higher-> B (320)//

$$\begin{array}{r} 2\\ 88\\ +78\\ +74\\ \hline 240 \end{array}$$

$$\begin{array}{r} 3\\ 89\\ +78\\ +78\\ +75\\ \hline 320 \end{array}$$

PAIR DISCUSSION @ Haig Girls Primary
Both had A as their response but used different methods

Student Reflection

2 things I have learnt today

☆ There are different perspectives of questions.

☆ How to solve questions in different ways..?

1 thing I want to find out more about

☆ Are all perspectives correct?

Creating conditions for productive collaborative learning – promote interaction within groups

2. Nature of talk in discussion

Webb (2014) The *level of student engagement with each other's ideas and the incidence of students providing detailed explanations of their problem-solving strategies were positively related to student achievement.*

But can students engage in each other's ideas at a higher level?

Two levels of participation in productive dialogue:

1. Voicing one's own ideas
2. Engaging in the ideas of others (Webb 2014)

- students justifying their conclusions,
- communicating them to others,
- listening to the arguments of others,
- responding to the arguments of others,
- deciding whether they make sense (evaluate & challenge) and
- asking useful questions to clarify or improve the arguments

How interaction benefit participants in these conversations? (Webb 2015)

1. offering ideas to others encourages students to monitor their own thinking

2. listening to others' ideas encourages students to monitor their own thinking

3. having one's own ideas challenged, as well as justifying one's ideas in the face of challenges, may encourage students to engage in a number of processes that promote learning

PAIR DISCUSSION @ Queenstown Primary

"Xin Li had A as her response and Matthias response was No one performed better"

XinYi's work in her journal : A did better

Student A did better than B in Sc 78-75 ③

A did better than B in math 88-78 ⑩

B did better than A in eng 74—78 78-74

MT no comparison $\frac{A}{exempted}$ $\frac{B}{89}$

Matthias's work in his journal : No one performed better

Areng Q1)

Average of student A → $(74 + 88 + 78) \div 3 = 80$

Average of student B → $(78 + 89 + 78 + 75) \div 4 = 80$

Ans: No one performed better

How to help students develop a deeper engagement with the ideas of others?

- **Train students** to provide elaborated descriptions of their own ideas and to engage with others' ideas (e.g., Gillies, 2004; Howe & Tolmie, 2003; Mercer et al., 2004).

- **Train teachers** to use appropriate communication skills in their practice (Gillies, 2004, 2006; Gillies & Boyle, 2008)
  e.g. asking students probing and clarifying questions, helping students confront   discrepancies in their thinking etc

Coming together is a beginning.

Keeping together is progress.

Working together is success.

(Henry Ford)