



# Making Critical Thinking Explicit and Visible with Dialogic Scaffolding

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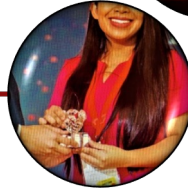
Dr. Nadya Patel  
Assistant Professor  
Singapore Institute of Technology



Dr Nadya Patel  
Asst Prof, SiT



**I'd love to share!** - Regular presenter at international conferences



**I strive to be a better teacher-researcher!** - Recipient of teaching excellence, research and innovation awards



**I'd love to meet you!** - Facilitator of highly-rated pedagogical workshops



**I strive to bridge the research-practice gap!** - Trainer of professional workshops for industry partners





# Workshop Structure

- Critical Thinking (CT): Your thoughts, CT Models & Frameworks
- Problems with CT (Definitions, Disconnect, Assessment)
- Making CT Visible & Explicit
- The Paul-Elder CT framework
- Talk as a pedagogic tool – Using dialogic scaffolding
- Checklists for Dialogic T&L, Scaffolding Phases, Means & Functions
- ACTIVITY 1: Watch Video. Read Transcript. Use checklists.
- ACTIVITY 2: Posing Critical Questions with Dialogic Scaffolding
- Conclusion



# Critical Thinking: Share your thoughts

I know what critical thinking is/entails.

I know how critical thinking is applied in any discipline.

I know about critical thinking well enough to teach it effectively.

I am confident in my ability to teach and assess critical thinking in any course/subject.





Go to [www.menti.com](https://www.menti.com) and use the code 1970 4770

Mentimeter

Strongly disagree

Strongly agree

I know what critical thinking is/entails.

3

I know how critical thinking is applied in any discipline.

2.6

I know about critical thinking well enough to teach it effectively.

2.6

I am confident in my ability to teach and assess critical thinking in any course/subject.

2.2

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# Critical Thinking: Share your thoughts

What does critical thinking look like to you?

How do you develop critical thinking in your students?



Go to [www.menti.com](https://www.menti.com) and use the code 98 93 33 1

 Mentimeter

# What does critical thinking look like to you?

Depth and breadth

Thinking and articulating personal opinions clearly

Questioning beyond what the text says

Problem solving

Understand different Perspectives

Going beyond the model answer

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# Critical Thinking (CT) in Education

- Regarded as a core competence among the twenty-first-century skills
- An array of CT courses, programmes and activities across the educational levels have been introduced (Law & Miura, 2015).
- Studies report that students in Asia are generally weak in CT (e.g. Turner, 2006).
- Dominant definitions of, and criteria used to measure, CT are culturally biased against Asian students (e.g. Grosser & Lombard, 2008).





# CT Frameworks and Models

- CT models and strategies – e.g., Bloom's(1956) taxonomy of educational objectives; Toulmin's (1958; 2003) model of argument; Facione's (1990) The Delphi Report; Beyer's (1995) evaluative thinking model; and Paul & Elder's (2008;2020) CT framework
- King and Kitchener (1994) proposed stages of critical and reflective thinking. The goal is to help students achieve the higher stages of development of critical thinking as a result of their experiences.
- Kronholm (1996) provides an instructional model that helps students advance their critical thinking skills through seven phases of instruction and related activity.





# The problems

Varied definitions & foci

Disconnect

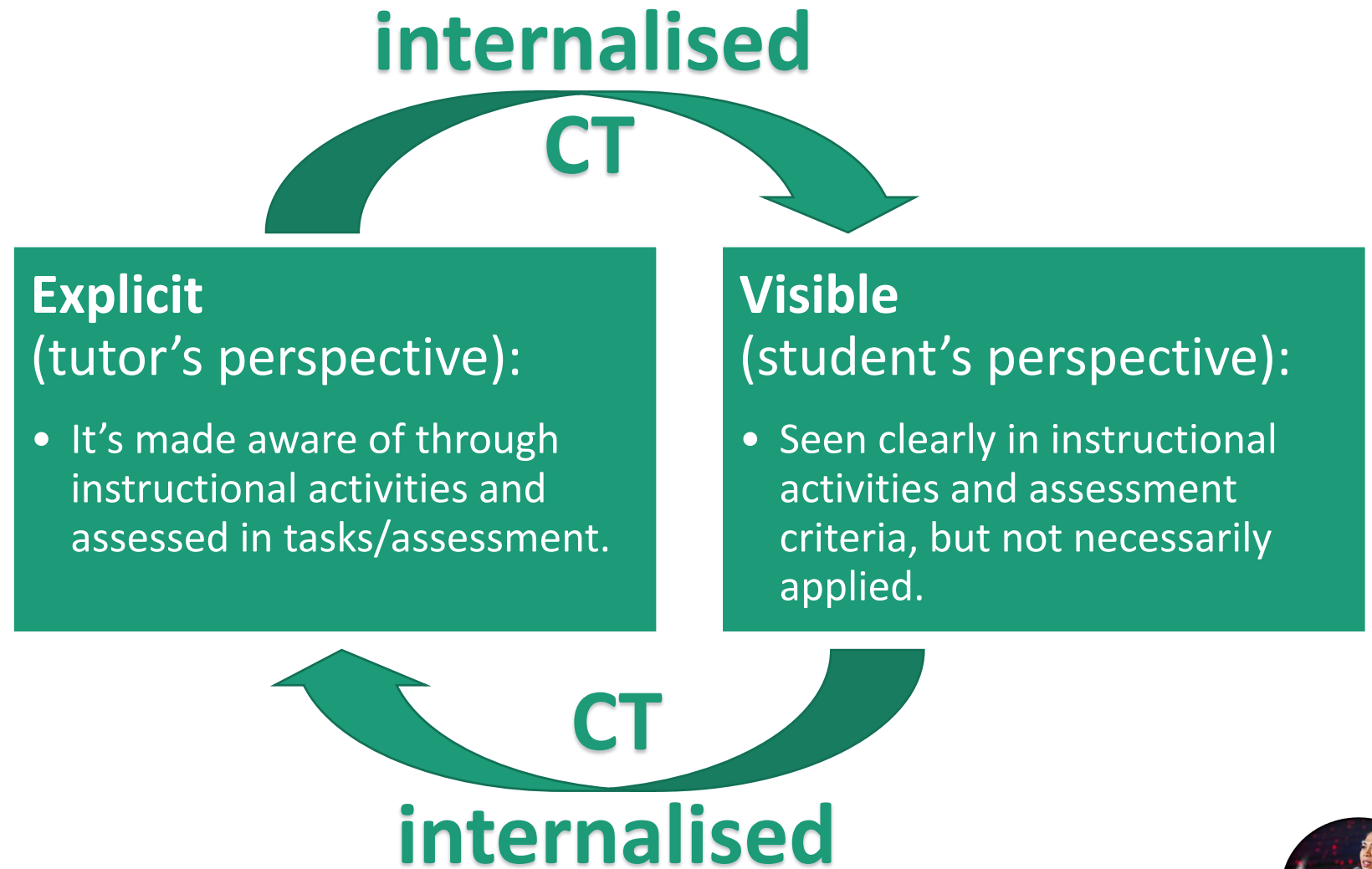
Assessment



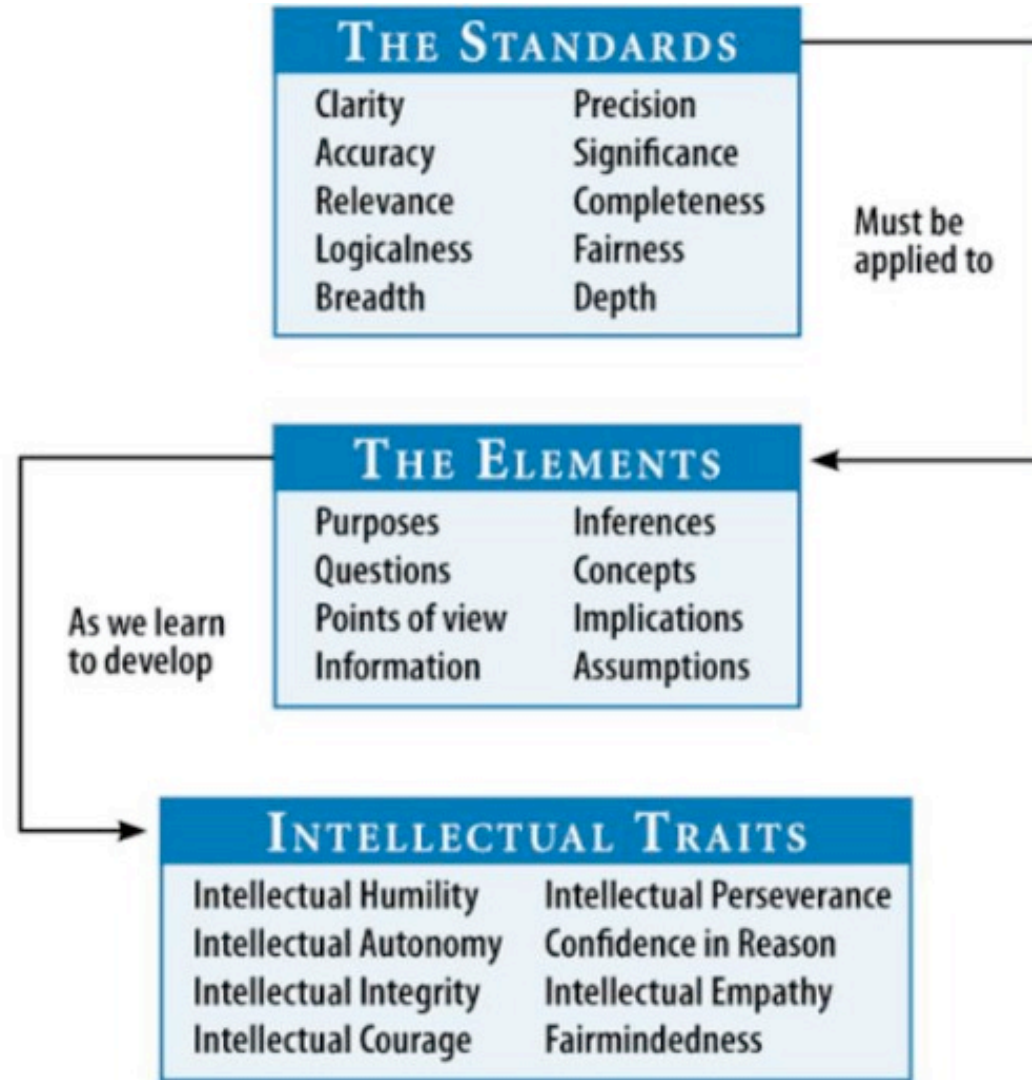


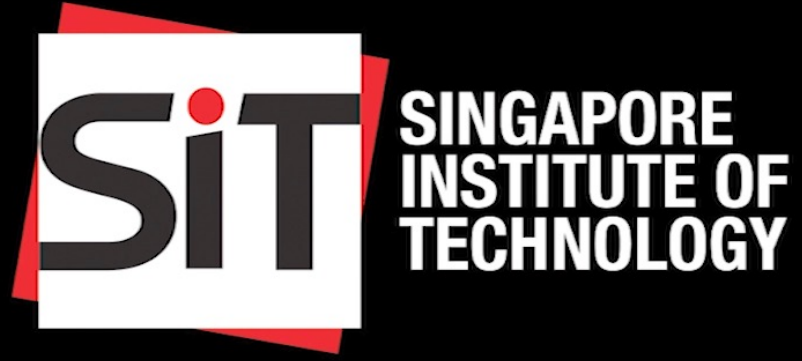


# Making CT Explicit & Visible

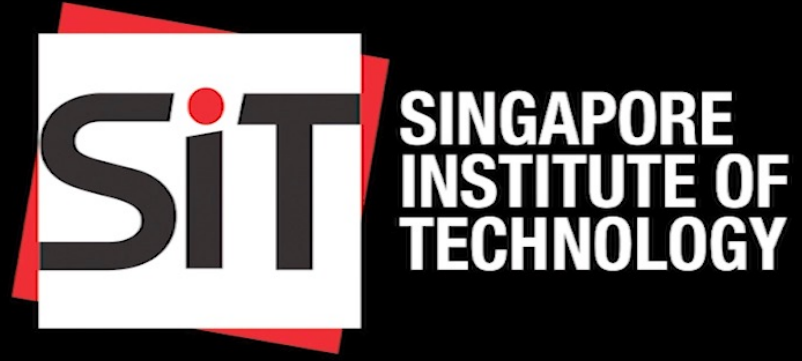


# The Paul-Elder Framework (2019)











# Talk as a Pedagogic Tool

- careful **orchestration** of talk and tasks, in academic learning; sensemaking and **scaffolded** discussion are seen as the primary mechanism for promoting deep understanding of complex concepts and robust reasoning (Michaels, O'Connor, & Resnick, 2008)
- image of a teacher as the ‘**orchestrator**’ of talk has always been limited to one who “conducts responses from the class, signals who should contribute, and controls the outcomes” (Myhill, 2010)
- students are merely “invited to act *on* text, rather than recreate it or reshape it to their own ends (Wallace, 2006).





# Talk as a Pedagogic Tool

- Make room for more **dialogic talk** – open-ended interchanges that invite students to exchange ideas, make claims, defend opinions, and explore questions (Beers & Probst, 2016).
- Dialogic discussions embody 21st-century thinking because they're collaborative in nature – **joint ventures in constructing meaning** driven by students' questions and comments (Zwiers & Crawford, 2011).
- Classroom talk needs to shift away from answering tutors' questions that check for understanding to **discussing the concepts themselves – empowering students to collaboratively construct meaning** (Beers & Probst, 2016). This dynamic student talk starts with and is powered by **student-generated questions and presentations.**







# Dialogic Pedagogy



Tutor and students critically interrogate topic of study, express and listen to multiple voices and points of view and create respectful and equitable classroom relations.

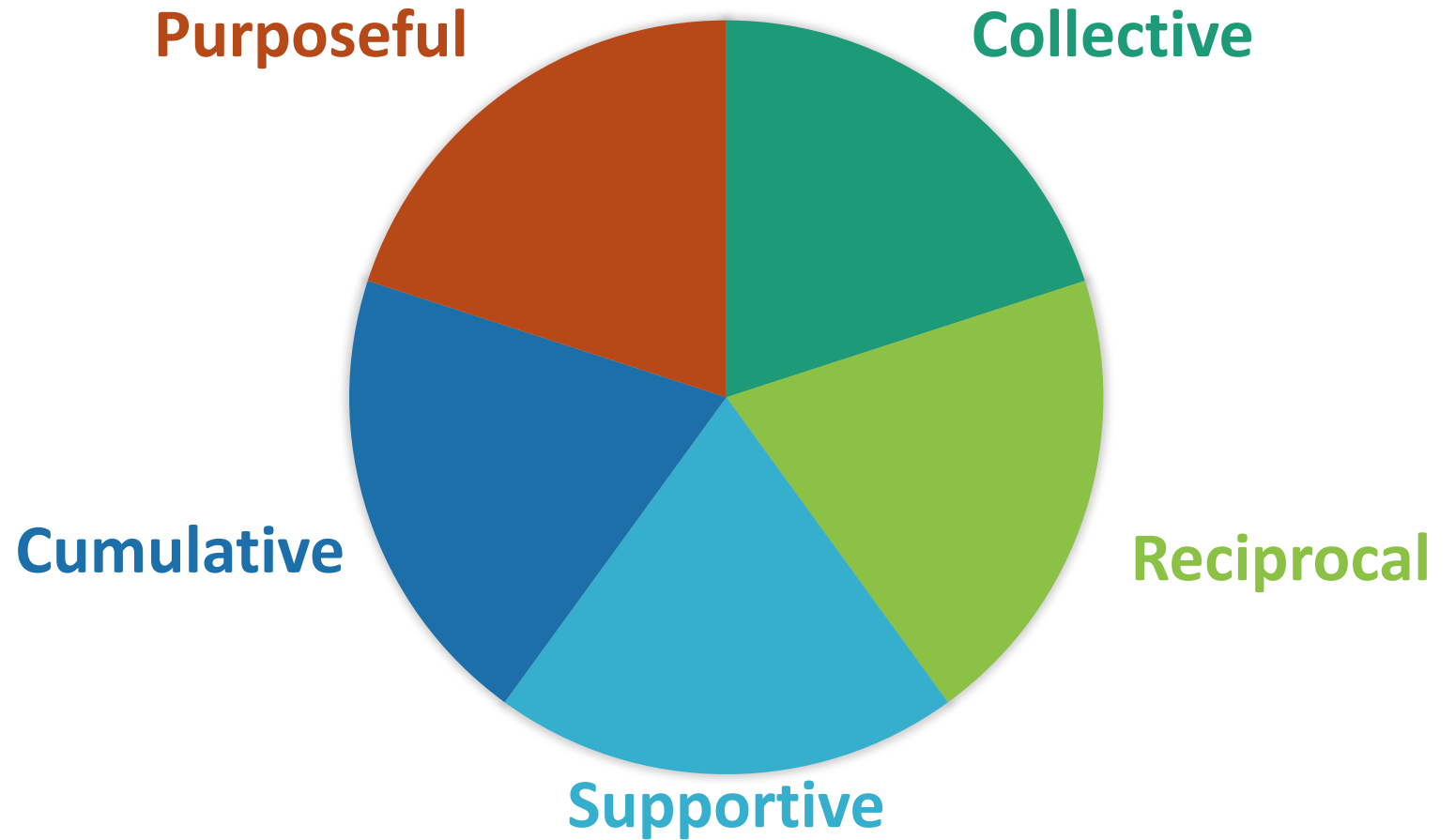
Informed by actual practice, grounded in existing classroom conditions and is multi-dimensional.

Communicative practices include interpersonal relations, exchange and development of ideas, power, student and teacher identities, and aesthetics.





# Dialogic Teaching and Learning



# ACTIVITY 1



1. Think of a hypothetical lesson on a particular topic.

2. Imagine if you had asked your students a question.

3. Following a student's response, what questions can you pose to help the student develop higher levels of criticality?

4. Use the template provided.







# Recommendation 1 – Preparing a Socratic-Dialogic Discussion

Construct a list of prior questions – pose a question you would have to be able to answer before you could answer that question. Do this again and again, for every new question on your list. (Similar to UBD: enduring understandings)

Example: What is history? What do historians write about? What is the past? Is it possible to include all the past in a history book? How many of the events during a given time period are left out in a history of that time period? Is more left out than is included? How does a historian know what to emphasize or focus on? Do historians make value judgements in deciding what to include?



# Recommendation 2 – Using the Elements of Thought to Pose Questions

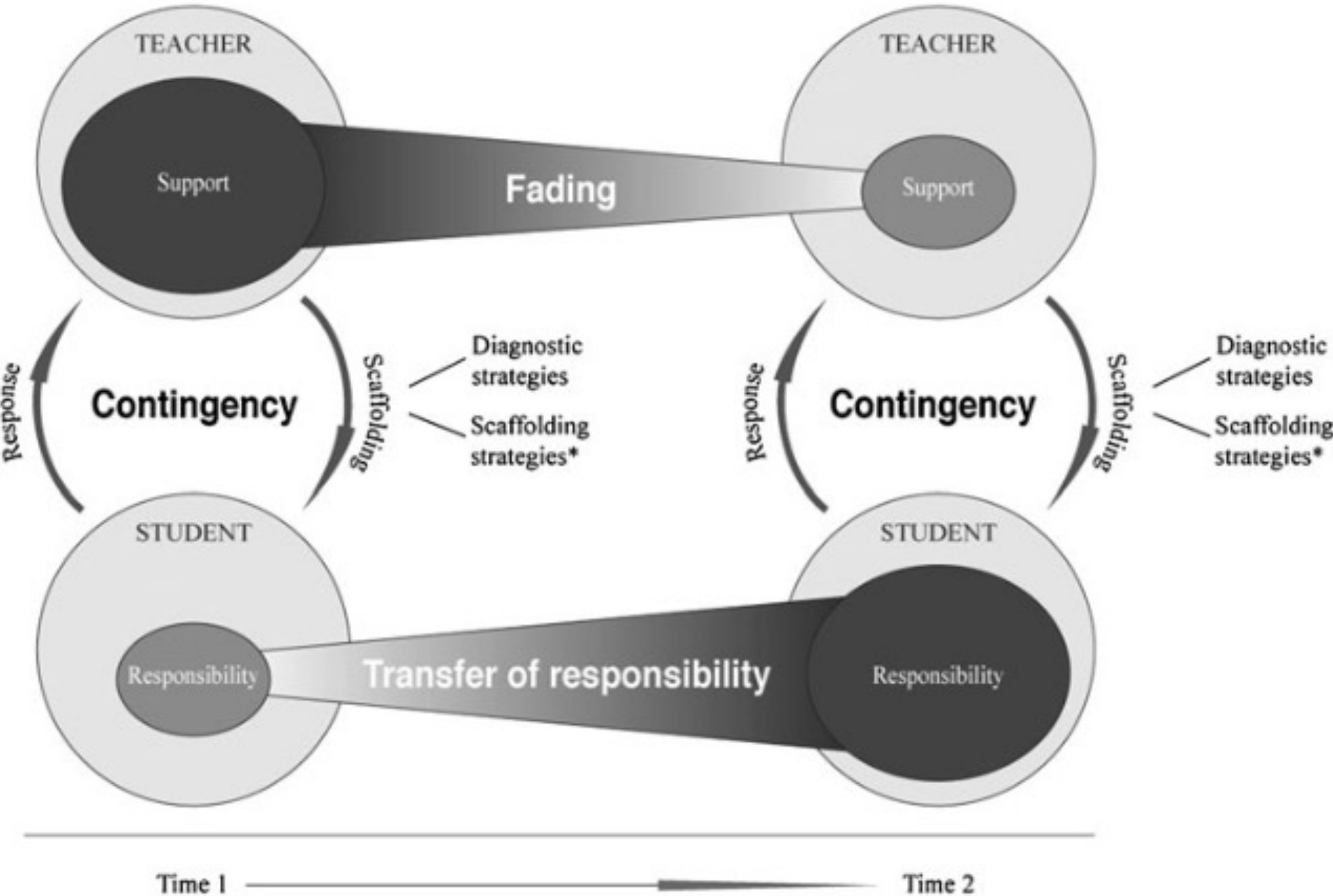


EOT	Questions
Purpose/ Agenda	What are you trying to accomplish in saying this? What is your central aim in this line of thought?
Information	What information are you basing that comment on? What experience convinced you of this? How do we know this information is accurate?
Inferences/ Conclusions	How did you reach that conclusion? Could you explain your reasoning? Is there an alternative plausible conclusion?
Concepts	What is the main idea you are putting forth? Could you explain that idea?
Assumptions	What exactly are you taking for granted here? Why are you assuming that?
Implications/ Consequences	What are you implying when you say that? Are you implying that...?
Point of view/ Frame of reference	From what point of view are you looking at this? Is there another point of view we should consider?
Question	I am not sure exactly what question are you raising? Could you explain it?



**‘Dialogic scaffolding’** interactions (Rojas-Drummond et. al., 2013) is the tutor’s use of **dialogue as a means for ‘scaffolding’ students’ learning and understanding** (Mercer & Littleton, 2007; Rojas-Drummond & Mercer, 2003)

Conceptual Model of Scaffolding



(van de Pol, Volman & Beishuizen, 2010)





# Six means of “assisting performance”

A vertical watercolor illustration of a human brain on the left side of the slide. The brain is colored with a rainbow gradient, transitioning from red at the top, through orange, yellow, green, and blue, to purple at the bottom. The colors are blended and have a soft, painterly texture.

**Modelling**

**Contingency  
management**

**Feeding back**

**Instructing**

**Questioning**

**Cognitive  
structuring**





# Six Functions of Scaffolding

**Recruitment**

**Reduction of the  
degrees of  
freedom**

**Direction  
maintenance**

**Frustration  
control**

**Marking critical  
features**

**Demonstration**

Wood et al. (1976)





## ACTIVITY 2



**Watch A Video**

**Read Transcript**

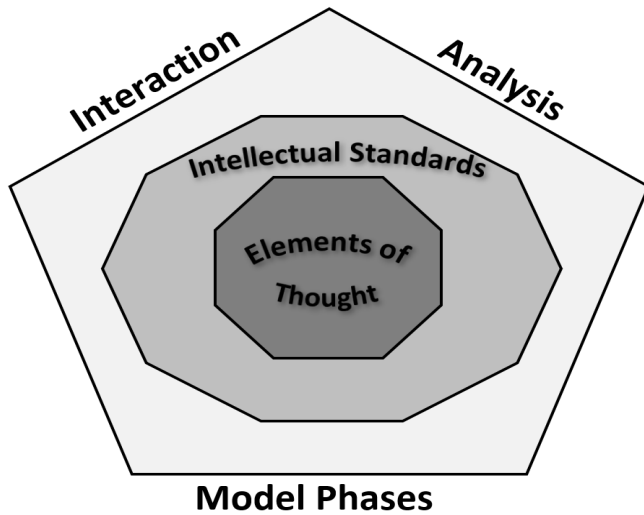
**Use checklists**

**Discuss**





# Discussion



Step 1: Identify Elements of Thought (EOTs)	Step 2: Apply Intellectual Standards onto the EOTs	Step 3: Aim to Achieve one of the IAM Phases
Purpose Questions Points of View Information Inferences Concepts Implications Assumptions	Clarity Accuracy Relevance Logicalness Breadth Precision Significance Completeness Fairness Depth	Phase 1 - Sharing and comparing of information Phase 2 - Discovery and exploration of dissonance or inconsistency among participants Phase 3 - Negotiation of meaning or knowledge co-construction Phase 4 - Testing and modification Phase 5 - Phrasing of agreement and applications of newly constructed meaning

Proposed Conceptual Framework to Guide Students' Use of Critical Thinking in Discussion Forums  
(adapted from Gunawardena et al., 1997; Lucas et al., 2014 & Paul & Elder, 2009)







# Reflections on Practice

- The use of various means of **scaffolding strategies** (with an awareness of the functions), will **promote a more dialogic approach** to teaching and learning.
- This **iterative cycles of supportive, collective, reciprocal, cumulative, purposeful (dialogic) scaffolding** will facilitate students' meaning-making experiences for deeper understanding.
- The use of dialogic scaffolding allows for the development of critical thinking (CT) skills to be **explicit and visible**, such that with intentional integration, the **CT skills can be internalised**.





Dr Nadya Patel  
Asst Prof, SiT



Thank you for  
your attention!

[Nadya.patel@  
singaporetech.edu.sg](mailto:Nadya.patel@singaporetech.edu.sg)