SOLO Taxonomy and Assessing Learning to Learn

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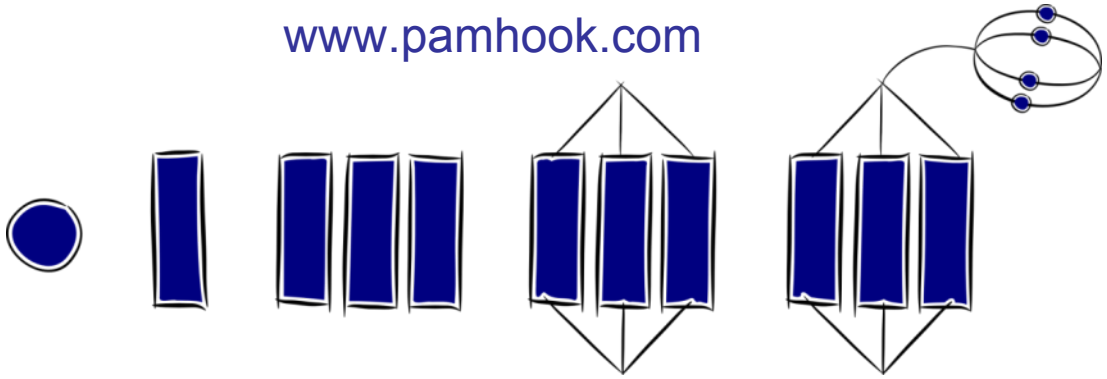

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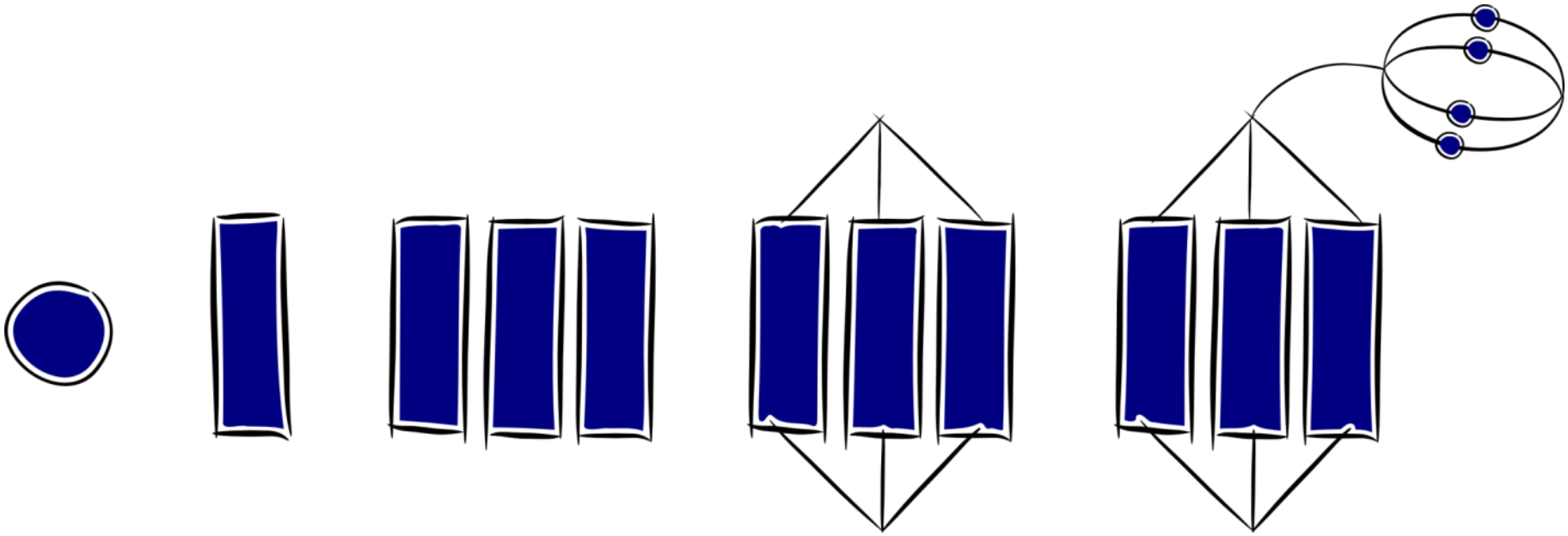
SOLO Taxonomy - Biggs and Collis 1982

The **S**tructure of **O**bserved **L**earning **O**utcomes



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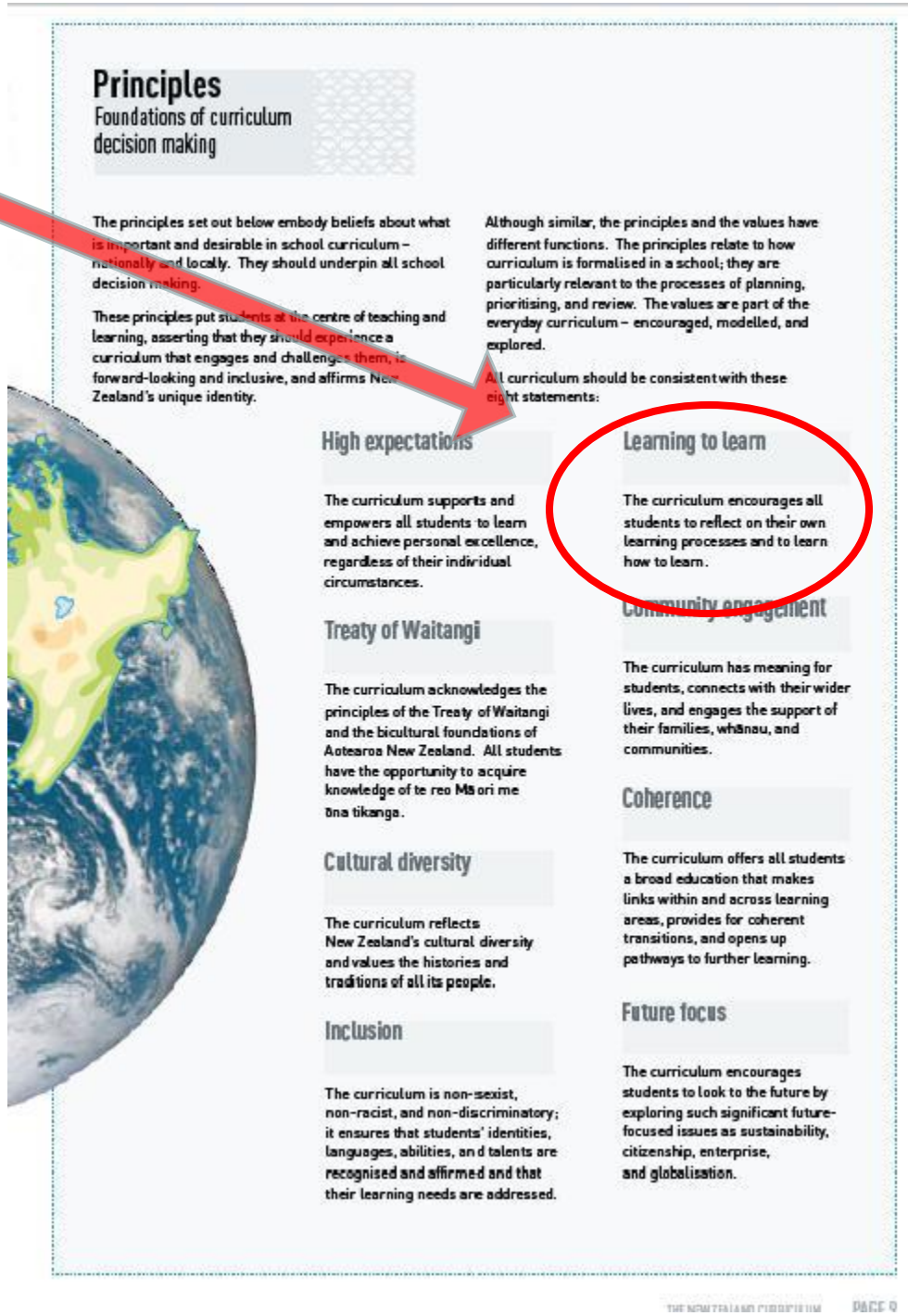
Biggs, J.B., and Collis, K.F. (1982) Evaluating the Quality of Learning-the SOLO Taxonomy (1st ed) New York: Academic Press.

Learning to learn

The curriculum encourages all students to reflect on their own learning processes and to learn how to learn.



Principles

Foundations of curriculum decision making

The principles set out below embody beliefs about what is important and desirable in school curriculum – nationally and locally. They should underpin all school decision making.

These principles put students at the centre of teaching and learning, asserting that they should experience a curriculum that engages and challenges them, is forward-looking and inclusive, and affirms New Zealand's unique identity.

Although similar, the principles and the values have different functions. The principles relate to how curriculum is formalised in a school; they are particularly relevant to the processes of planning, prioritising, and review. The values are part of the everyday curriculum – encouraged, modelled, and explored.

All curriculum should be consistent with these eight statements:

High expectations

The curriculum supports and empowers all students to learn and achieve personal excellence, regardless of their individual circumstances.

Learning to learn

The curriculum encourages all students to reflect on their own learning processes and to learn how to learn.

Treaty of Waitangi

The curriculum acknowledges the principles of the Treaty of Waitangi and the bicultural foundations of Aotearoa New Zealand. All students have the opportunity to acquire knowledge of te reo Māori me ōna tikanga.

Community engagement

The curriculum has meaning for students, connects with their wider lives, and engages the support of their families, whānau, and communities.

Cultural diversity

The curriculum reflects New Zealand's cultural diversity and values the histories and traditions of all its people.

Coherence

The curriculum offers all students a broad education that makes links within and across learning areas, provides for coherent transitions, and opens up pathways to further learning.

Inclusion

The curriculum is non-sexist, non-racist, and non-discriminatory; it ensures that students' identities, languages, abilities, and talents are recognised and affirmed and that their learning needs are addressed.

Future focus

The curriculum encourages students to look to the future by exploring such significant future-focused issues as sustainability, citizenship, enterprise, and globalisation.

THE NEW ZEALAND CURRICULUM PAGE 9

Ministry of Education. (2007). *The New Zealand Curriculum for English-medium teaching and learning in years 1–13* Wellington: Learning Media.

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Baseline Audit:

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“Before we started learning to learn …”

Baseline Audit:

“What is learning?”

Survey your teachers and students to find out what they think or understand by "learning".

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For example collect written, visual or verbal responses to the following questions.

What is learning?
How do you know you are doing it?
How can you tell if it is going well?
How do you know what to do next?

Why do we suggest this?

The baseline data will be useful to show any change in students' "learning to learn" ability after you introduce learning interventions that target different intended learning outcomes

Why do we suggest this?

The baseline data will be useful to show any change in students' "learning to learn" ability after you introduce learning interventions that target different intended learning outcomes

Learning interventions: For example, HOT Maps and rubrics, thinking skills and strategies and ICTs that help students achieve different learning outcomes.

Intended learning outcomes: For example SOLO Taxonomy –unistructural, multistructural, relational, extended abstract learning outcomes.

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Develop questions for a "Learning to learn" survey

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Develop questions for a “Learning to learn” survey

Questions to find out

What learning interventions are used.

When or where they are used.
How often the intervention/s are used. [Fluency]
How consistently the intervention/s are used. [Consistency]
In what context/s the interventions/s are used. [Flexibility]

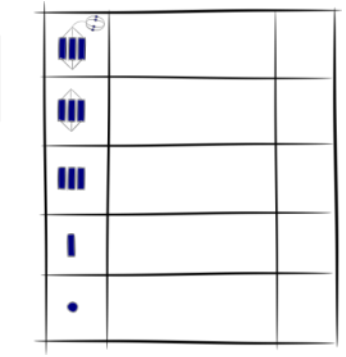
Why the learning intervention/s were used. [Intended learning outcome]

Explore the structure of the assessment questions in the Zimmerman Martinez Pons research paper.

Development of a Structured Interview for Assessing Student Use of Self-Regulated Learning Strategies. Barry J. Zimmerman and Manuel Martinez Pons. *American Educational Research Journal*, Vol. 23, No. 4 (Winter, 1986), pp. 614-628. Published by: American Educational Research Association

An example of questions you might develop after reading Zimmerman and Martinez Pons are seen in the HOT Metacognitive Tools Survey.

Create a thinking skills/strategies for “Learning to learn” SOLO self- assessment rubric.



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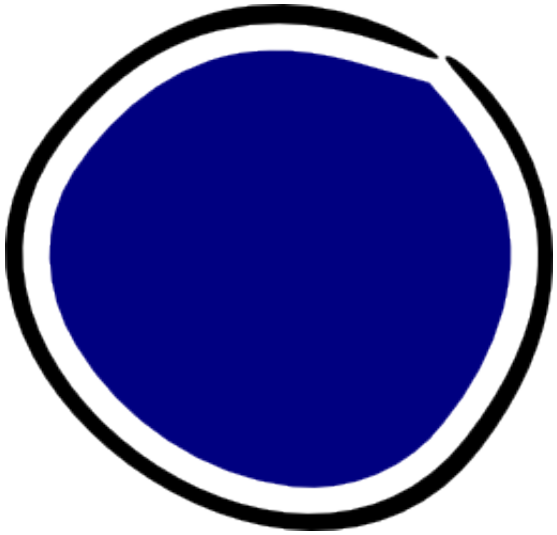
SOLO PRESTRUCTURAL:

Learning outcomes for comparison show unconnected information, no organisation.



“E.g. “I can use [X] thinking skills/strategy if I have help or direction” .”

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SOLO PRESTRUCTURAL:

Learning outcomes for comparison

show unconnected information, no organisation.

“I need help to use [insert thinking skill/strategy].”

SOLO PRESTRUCTURAL:

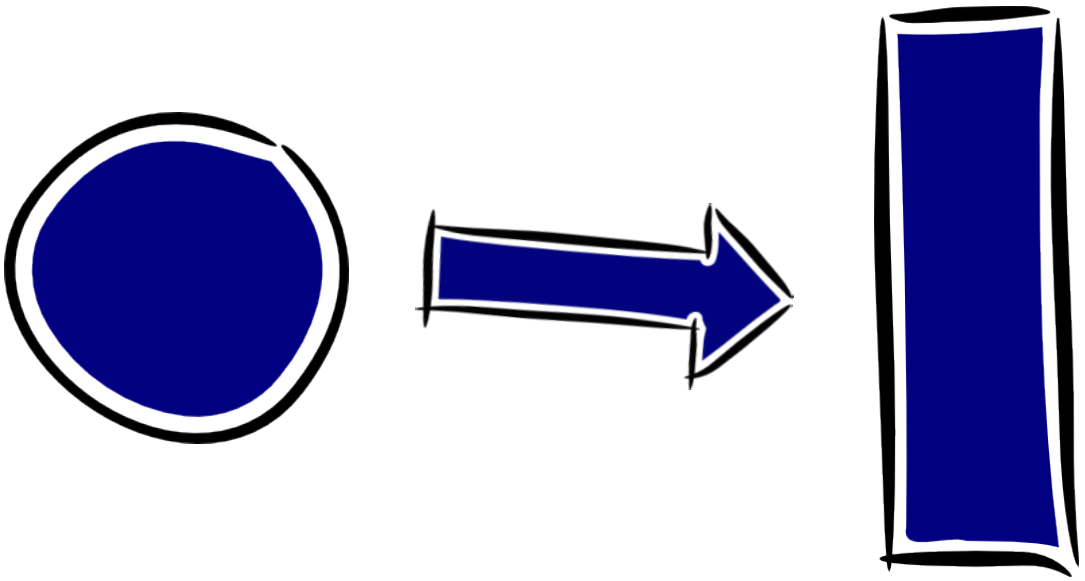
Learning outcomes for comparison

show unconnected information, no organisation.

Student Exemplar: *I need help to use de Bono's PMI strategy. What does the P stand for?*

Where to next:

For student with **pre-structural learning outcomes**.



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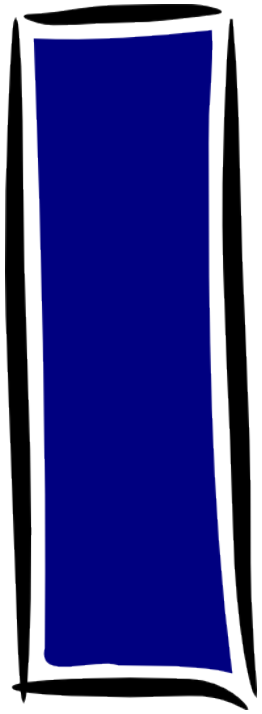
SOLO UNISTRUCTURAL:

Learning outcomes for comparison show simple connections but importance not noted.



"I can have a tilt at using [X] thinking skill/strategy"

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SOLO UNISTRUCTURAL:

Learning outcomes for comparison

show simple connections but importance not noted.

I can identify a minus feature when using the PMI thinking strategy.

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SOLO UNISTRUCTURAL:

Learning outcomes for comparison

show simple connections but importance not noted.

Student exemplar: *A negative feature of compulsory schooling is that it can feel like learning is something being done to you.*

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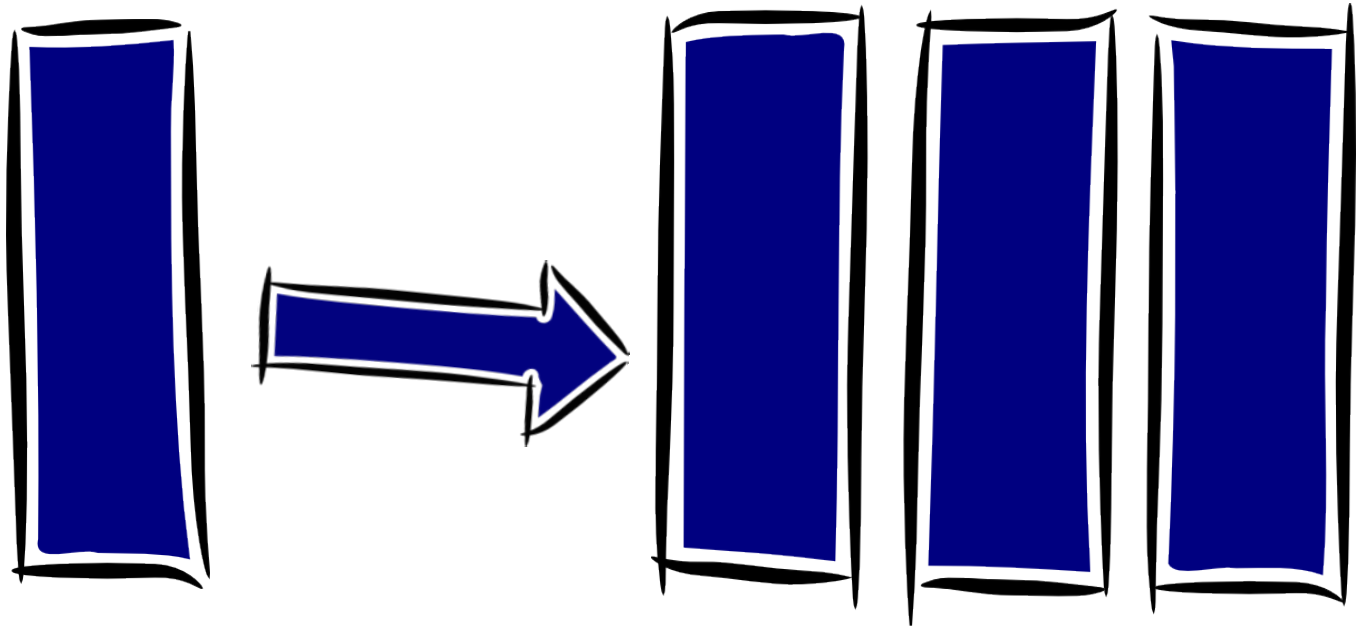
Where to next:

For students with **unistructural learning outcomes**.



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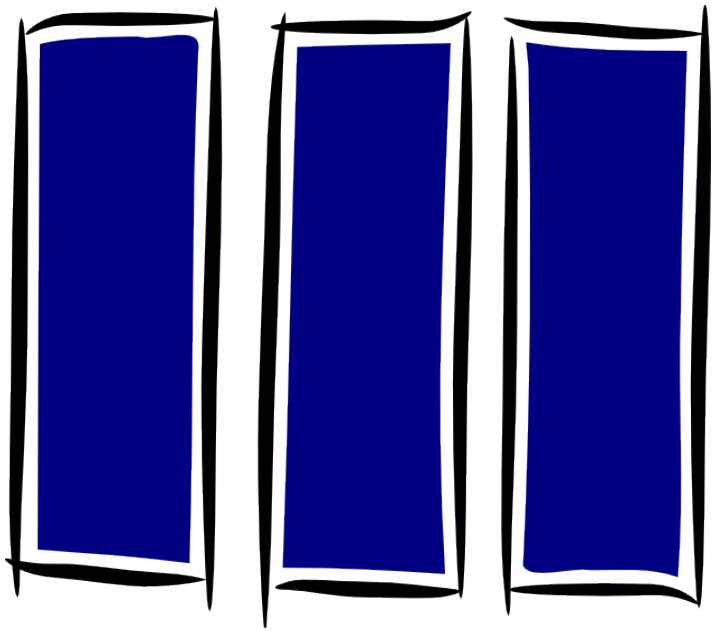
SOLO MULTISTRUCTURAL:

Learning outcomes for comparison show connections are made, but significance to overall meaning is missing.



“I use [X] thinking skill/strategy on a trial and error basis to get a learning outcome”

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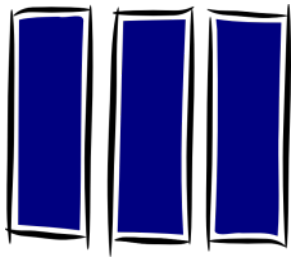
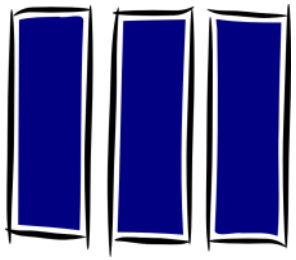


SOLO MULTISTRUCTURAL:

Learning outcomes for comparison show connections are made, but significance to overall meaning is missing.

I can identify a plus, a minus and an interesting feature using the PMI thinking strategy.



SOLO MULTISTRUCTURAL:

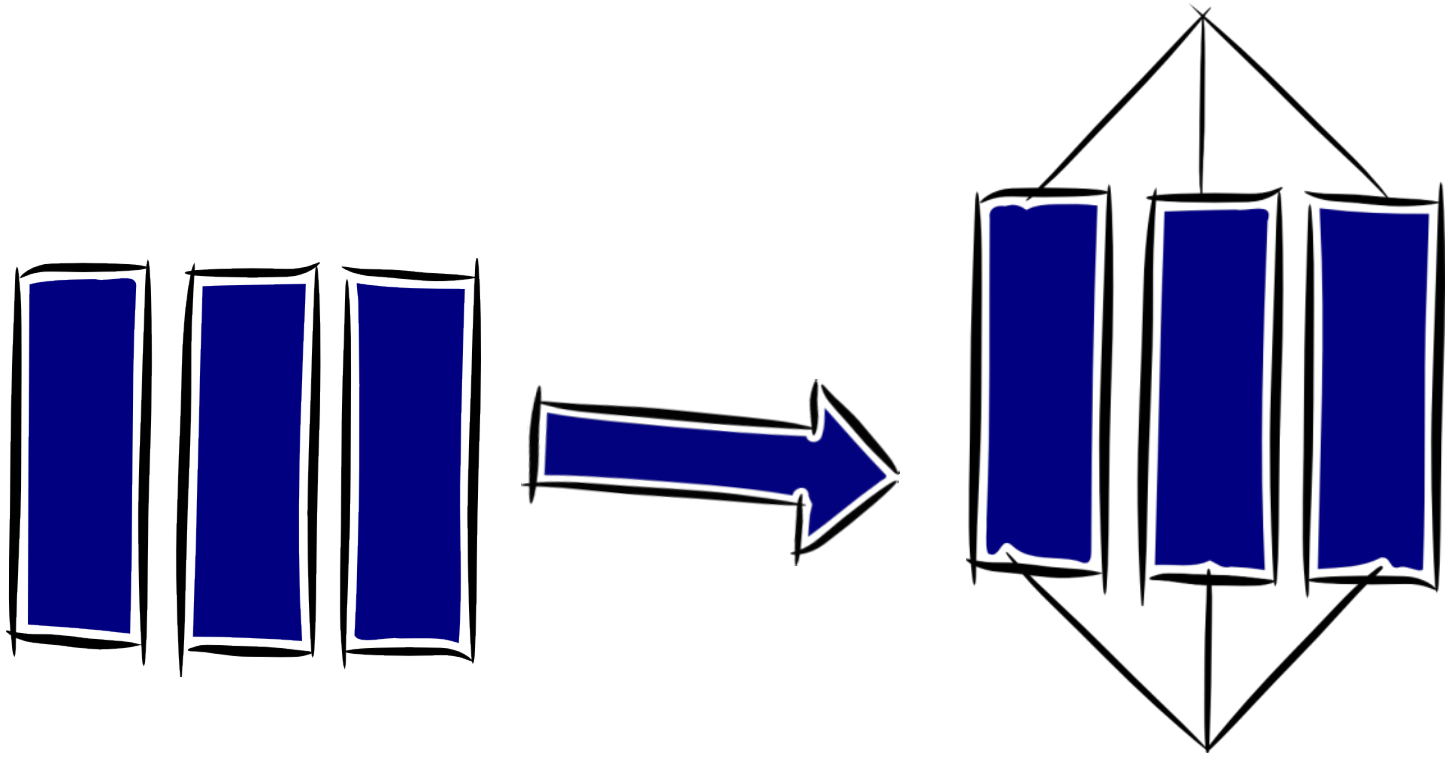
Learning outcomes for comparison show connections are made, but significance to overall meaning is missing.

Student exemplar:

Plus	Minus	Interesting
*A **positive feature** of compulsory schooling is that it ensures all children can access learning from the same curriculum.*	*A **negative feature** of compulsory schooling is that it can feel like learning is something being done to you.*	*An **interesting feature** is how difficult it is to value the learning that happens outside of compulsory schooling.*

Where to next:

For student with **multi-structural learning outcomes**.



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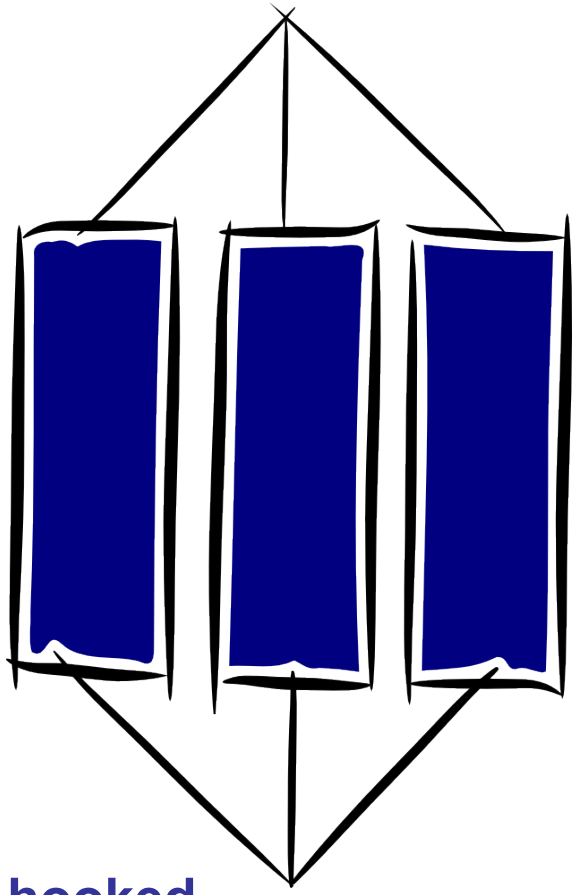
SOLO RELATIONAL:

Learning outcomes for comparison show full connections made, and synthesis of parts to the overall meaning



"I plan to use [X] thinking skill/strategy because it will help get a [Y] learning outcome"

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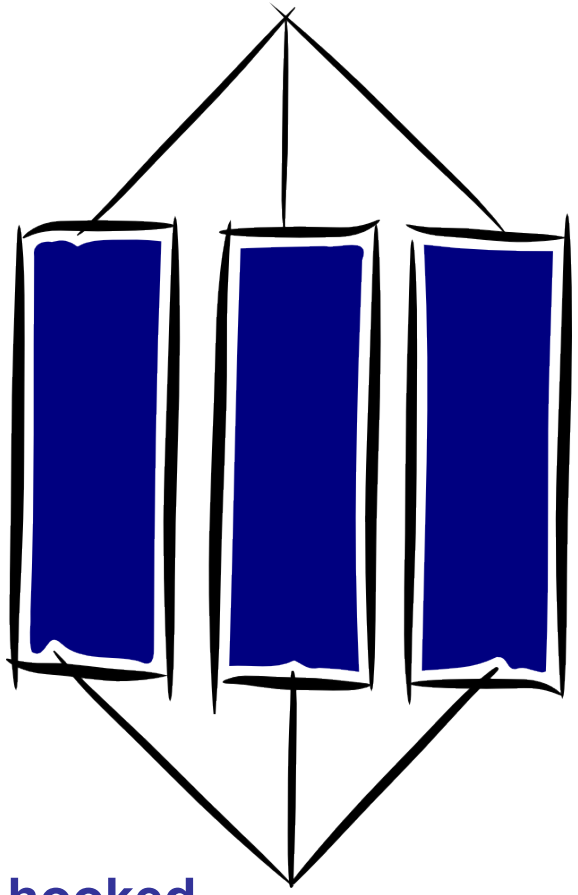
SOLO RELATIONAL:

Learning outcomes for comparison show full connections made, and synthesis of parts to the overall meaning



I plan to identify plus, minus and an interesting features using the PMI thinking strategy because this will be useful when I am trying to compare different outcomes from a common event.

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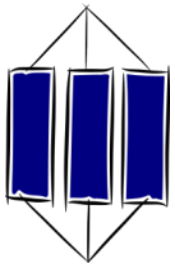


SOLO RELATIONAL:

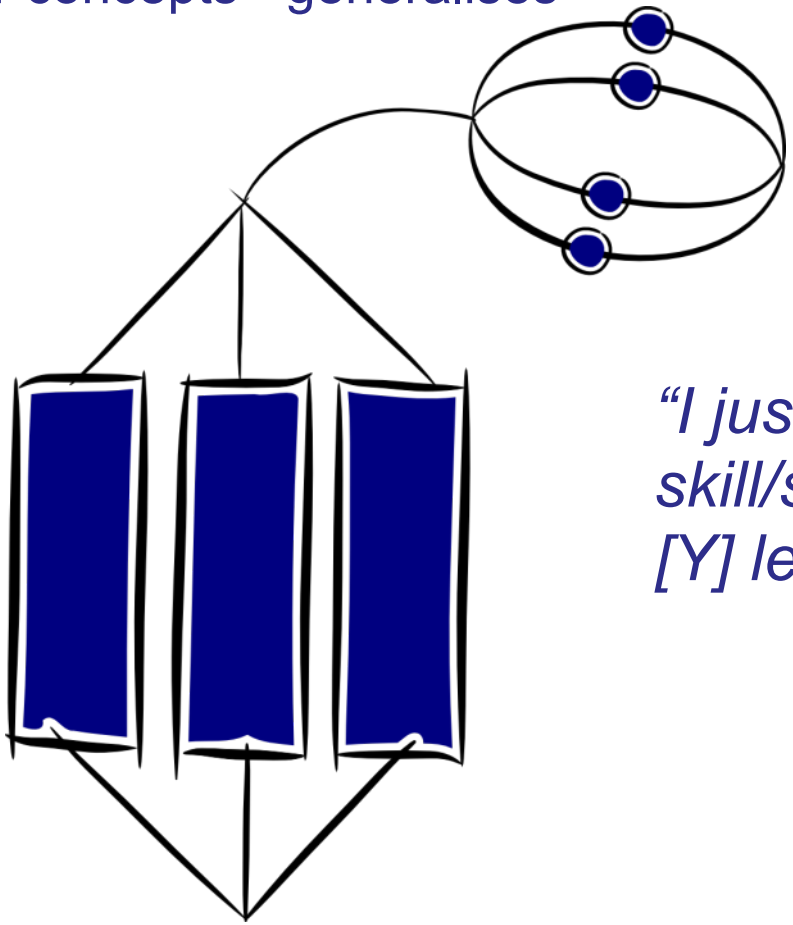
Learning outcomes for comparison

show full connections made, and synthesis of parts to the overall meaning

Student Exemplar: I have chosen to use a PMI to identify the plus, minus and interesting features of compulsory schooling today **because** it will help me think about the changing function of schools in an increasingly networked future world by identifying the features of compulsory schooling worth retaining and features worth changing.

SOLO EXTENDED ABSTRACT:

Learning outcomes for comparison go beyond subject and makes links to other concepts - generalises



"I just sense that using [X] thinking skill/strategy is best if I want to get a [Y] learning outcome because"

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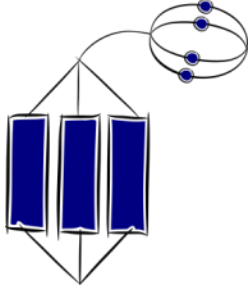
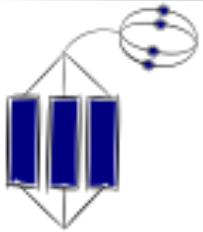


SOLO EXTENDED ABSTRACT:

Learning outcomes for comparison go beyond subject and makes links to other concepts - generalises

Student Exemplar: I needed to clarify my thinking about the changing function of schools in an increasingly networked future world. I didn't really consciously think about using a PMI, it just seemed to be right for the job.

Criterion based SOLO self assessment rubric for using thinking skills and strategies

	*"I just sense that using [X] thinking skill/strategy is best if I want to get a [Y] learning outcome because"*
	*"I plan to use [X] thinking skill/strategy because it will help get a [Y] learning outcome"*
	*"I use [X] thinking skill/strategy on a trial and error basis to get a learning outcome"*
	"*I can have a tilt at using [X] thinking skill/strategy"*
	*"I need help to use [insert thinking skill/strategy]."*

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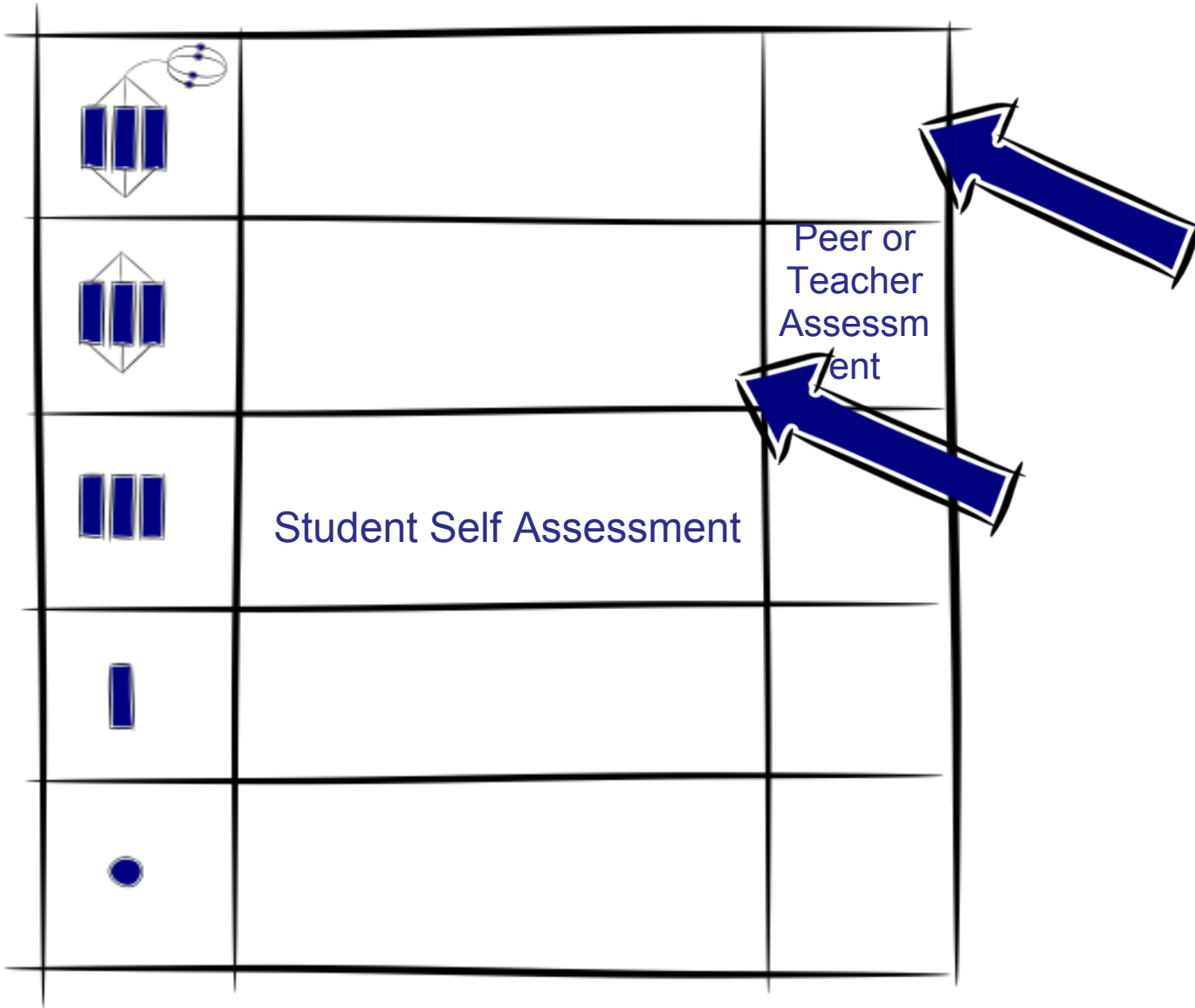
How reliable and/or valid is student self assessment of use of learning interventions?

Measuring the degree of correlation between student self assessment and peer/teacher assessment.



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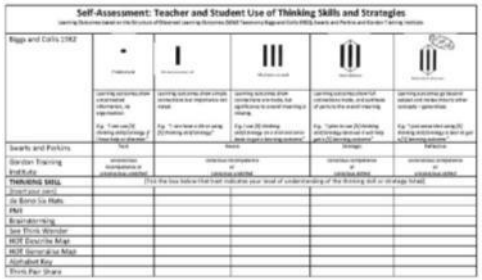
Create a SOLO self-assessment survey of teacher/student use of thinking skills for “Learning to learn” .



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Create a SOLO self-assessment survey of use of thinking skills for “Learning to learn”.

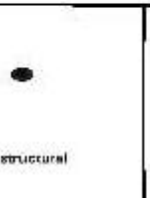
Align the SOLO self assessment rubric discriminators with;

Swartz and Perkins’ tacit, aware, strategic and reflective discriminators, and

Gordon Training Institute’s unconscious incompetence, conscious incompetence, conscious competence and unconscious competence discriminators.

Self-Assessment: Teacher and Student Use of Thinking Skills and Strategies

Learning Outcomes based on the Structure of Observed Learning Outcomes (SOLO Taxonomy Biggs and Collis 1982), Swartz and Perkins and Gordon Trai

Biggs and Collis 1982	 Prestructural		 Multistructural		
	Learning outcomes show unconnected information, no organisation. *E.g. "I can use [X] thinking skills/strategy if I have help or direction"*	Learning outcomes show simple connections but importance not noted. *E.g. "I can have a bit at using [X] thinking skill/strategy"*	Learning outcomes show connections are made significance to ov missing. *E.g. ... and error ...ing outcome"*	...comes show full ...ions made, and synthesis parts to the overall meaning *E.g. "I plan to use [X] thinking skill/strategy because it will help get a [Y] learning outcome"*	Learning outcomes go beyond subject and makes links to other concepts – generalises *E.g. "I just sense that using [X] thinking skill/strategy is best to get a [Y] learning outcome"*
Swartz and Perkins	Tacit			Strategic	Reflective
Gordon Training Institute	unconscious incompetence or unconscious unskilled	...etence ...us unskilled		conscious competence or conscious skilled	unconscious competence or unconscious skilled
THINKING SKILL	[Tick the ...est indicates your level of understanding of the thinking skill or strategy listed]				
[Insert your own]					
de Bono Six Hats					
PMI					
Brainstorming					
See Think Wonder					
HOT Describe Map					
HOT Generalise M					
Alphabet Key					
Think Pair Shar					

Surveying the Use of Thinking Skills and Strategies

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Learning to Learn Programme Evaluation

For more survey and assessment tools check out the HookED Wiki on www.pamhook.com

transforming learning outcomes

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