

Dynamic assessment, strategy instruction and learner empowerment

Peter Yongqi GU

Victoria University of Wellington, New Zealand

**Third International Conference on Situating
Strategy Use**

Osaka, Japan

13 to 15 October 2019

Presentation outline

1. Learning strategies! Oh jolly!
2. Strategy instruction practices
3. Assessment practices in learning strategy research
4. Dynamic assessment in strategy instruction

Part 1

Defining learning strategies?

Warning: Under the influence of sake

Hangover from last night's sake

- “...it’s time to put an end to the conceptual fuzziness fallacy that has done disproportionate damage to the field. Applied linguistics should have grown out of the naivety a long time ago. Fuzziness is a natural feature of human concepts, and learning strategies as a construct is no fuzzier than alternative constructs such as “self-regulation”, “self-regulated learning” (Dinsmore, 2017) or, for that matter, motivation (Murphy & Alexander, 2000), learning (Alexander, Schallert, & Reynolds, 2009), or any other academic concept.” (Gu, in press)

True or False?

- Learning strategies are existing facts.
- Rules governing learning strategies are generalizable.

Ontological realism

- LS are multiple, intangible mental constructions, socially and experientially based, local and specific in nature, and dependent on the individual persons or groups using the strategies.

Ontological relativism

True or False?

- Learning strategies are objective, observable / discoverable.
- Researchers and learning strategies are independent entities.

Objectivist epistemology

- Strategies are interpreted by researchers and learners.
- Strategies are co-constructed in situated contexts.

Transactional and subjectivist epistemology

A definition acceptable by all?

What intellectual folly!

So what should we do?

- Make your stance clear.
- operationalise your learning strategy construct for your empirical study.
- Live happily with the fuzzy nature of human concepts.
- Go and do something more constructive!

Part 2: Strategy instruction practices

Our major considerations:

- The nature of strategic competence
- Approaches to strategy instruction
- Effectiveness of strategy instruction
- Usefulness: Bridging research and practice

The nature of strategic competence

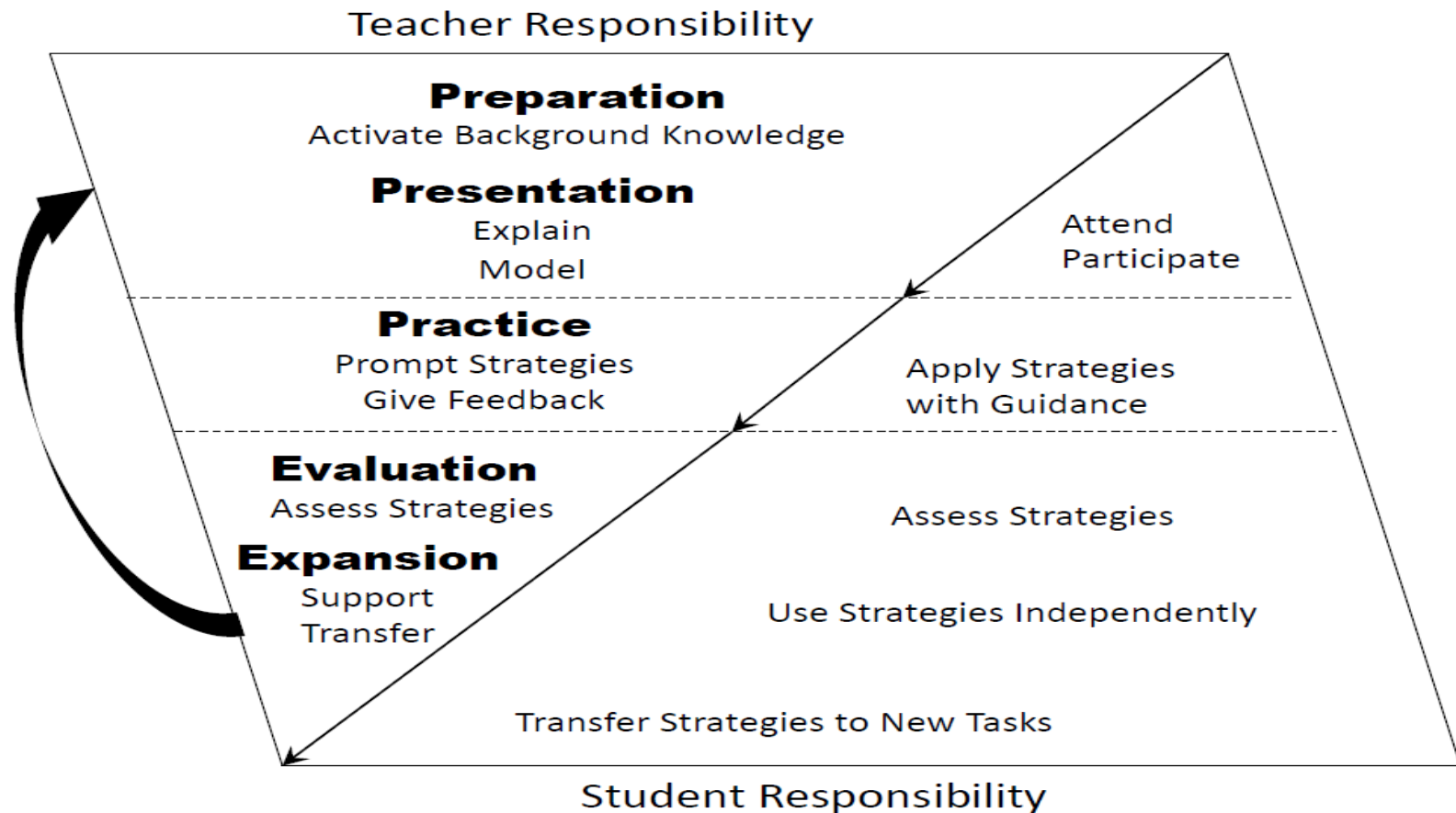
- Strategic competence involves
 - Declarative knowledge of strategies **Explicit instruction**
 - Procedural knowledge of strategies **Practice opportunities**
 - Conditional knowledge of strategies **Situated instruction**
- Each type of strategic knowledge needs different ways of instruction
- Strategy instruction should aim for all three types of strategic competence
- Part of differentiated instruction involves knowing which aspect of strategic knowledge we are aiming at.

Strategy instruction

Approaches we have explored

1. Strategy-based instruction (SBI): LLSI in the language classroom such as the Cognitive Academic Language Learning Approach (CALLA) (O'Malley and Chamot, 1990; Chamot, 2009)
2. Stand-alone 'learning to learn' courses (for example Cohen & Weaver, 2005)
3. Learner guide-books (H. D. Brown, 2001)
4. Language textbooks with built-in strategy training: e.g., Heinle & Heinle Tapestry series (Oxford & Scarcella, 2001); Cornerstone series for primary school students (Chamot, Cummins, & Hollie, 2009); Keystone series for secondary school students (Chamot, De Mado, & Hollie, 2009); Keys to Learning (Chamot, Keatley, & Anstrom, 2009).
5. Learner guidance web sites (Cohen, Pinilla-Herrera, Thompson, & Witzig, 2011)
6. Self-access materials in the form of learning tips in many self-access centres around the world.

Strategy instruction procedures in the CALLA model



Butler's (2002) Strategic Content Learning (SCL)

	Instructional targets	General instructional principles
Stage 1	Analysing tasks and metacognitive knowledge about academic work	<ul style="list-style-type: none">• Teacher supports students to identify cues that define task demands.• Teacher facilitates discussions in which students a) analyse task demands, b) articulate performance criteria, c) consider why analysing tasks is helpful, d) articulate personalised strategies for analysing tasks

Butler's (2002) Strategic Content Learning (SCL)

	Instructional targets	General instructional principles
Stage 2	Personalised approaches to learning and metacognitive knowledge about strategies	<ul style="list-style-type: none">• Teacher guides students to a) think through tasks successfully, b) reflect on the process of learning, c) articulate and evaluate strategies, d) recognise successes, e) revise ineffective methods.• Students record personalised strategies in own words for reference and ongoing strategy development.

Butler's (2002) Strategic Content Learning (SCL)

	Instructional targets	General instructional principles
Stage 3	Self-monitoring, self-evaluation, and positive self-perceptions	<ul style="list-style-type: none">• Teacher assists students to a) compare outcomes to task criteria, b) interpret and use instructor feedback, c) revise ineffective approaches, d) link success to effortful strategy use, e) articulate personalised strategies for monitoring.• Students record revisions to strategies in their own words for reference and ongoing strategy development.

Defining features of SCL

- “The central SCL instructional guideline is for teachers to support students' **reflective engagement** in cycles of self-regulated learning” (Butler, 2002, p. 84).
- SCL places explicit attention to how students **adapt strategies reflectively and flexibly** within recursive cycles of **task analysis, strategy use, and monitoring**.
- SCL can be adapted to one-on-one, small-group, and whole-class instruction.

Comparing CALLA with SCL

	Chamot's CALLA	Butler's SCL
Starting point	Useful strategies for both content and language tasks	Content learning tasks
What strategies should be taught?	Pre-determined	As they arise in problem solving
Who selects the strategies to be taught?	Expert/teacher	Teacher-learner joint problem solving
Instructional approach	Deductive teaching of useful strategies	Inductive discovery of useful strategies
Nature of strategies being taught	More generalised and task independent	More specific and task-embedded
Immediateness of effect	Slow gratification	Quick gratification
Potential transfer to new tasks	Easier	Harder

How effective is strategy instruction?

An example of writing strategy instruction
among Singapore primary school children

The Singapore Strategy Intervention Project

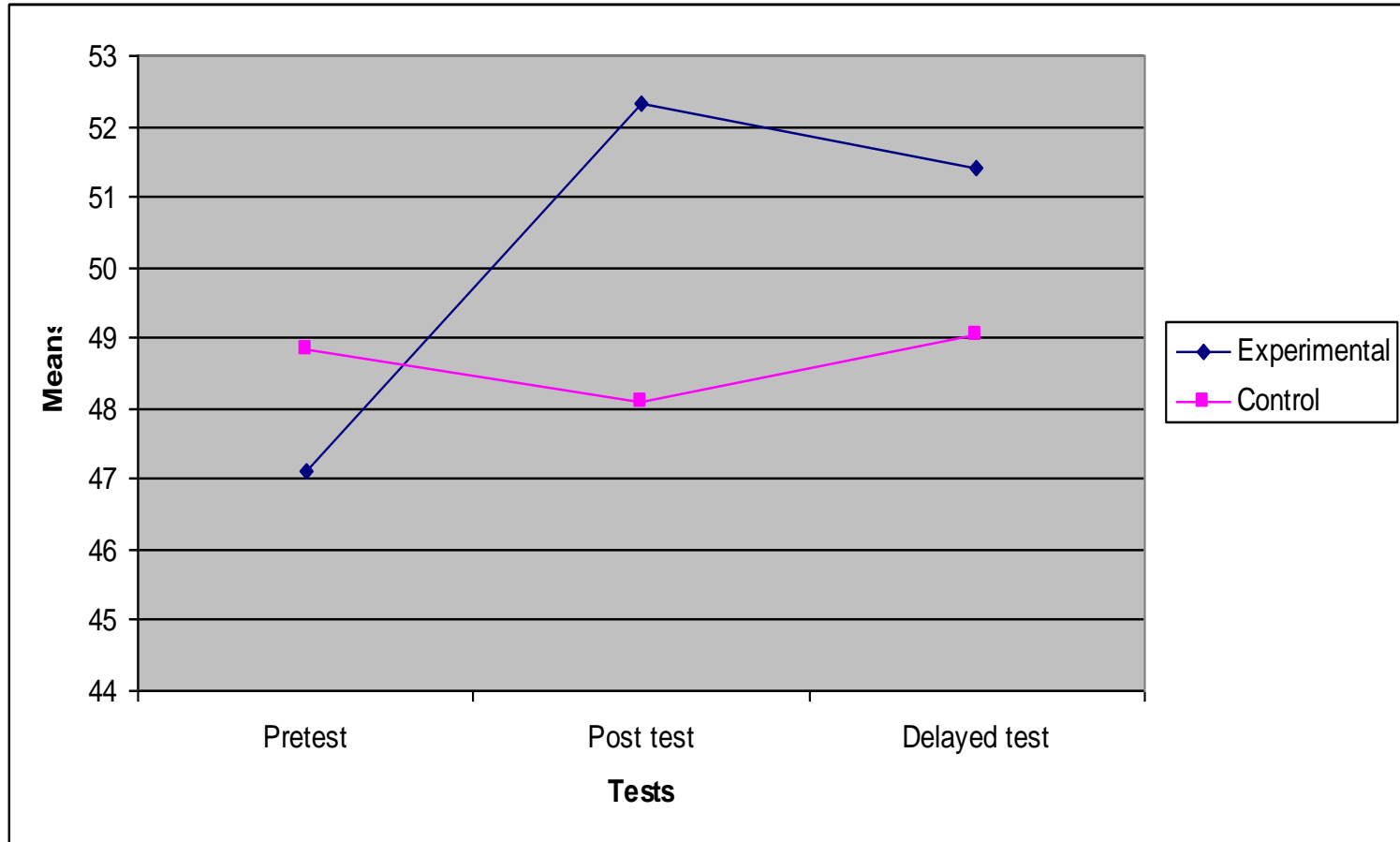
Preparation	5-10 minutes
Presentation <ul style="list-style-type: none">• Step 1: explaining• Step 2: modelling	15 minutes
Practice	20-25 minutes
Evaluation	10 minutes
Expansion <ul style="list-style-type: none">• Similar tasks in homework• Other EL lessons	

Writing scores

Experimental vs. control groups

	Groups	Mean	SD	N
Pre Test	Experimental	47.11	8.55	119
	Control	48.85	6.36	127
	Total	48.01	7.54	246
Post Test	Experimental	52.34	7.68	119
	Control	48.08	7.10	127
	Total	50.14	7.68	246
Delayed Test	Experimental	51.42	6.23	119
	Control	49.03	6.27	127
	Total	50.19	6.35	246

Plot of mean score differences



Usefulness: Bridging research and practice

- In order for research ideas to ‘make the long leap from the ivory tower to the schoolhouse’ (Schneider, 2014, p. 31), four simple tricks need to be present: the ideas have to be visible, believable, practical, and sharable.
- Are we there yet?

Summary

- In strategy instruction, we have normally focused on the how and the why. We have also done some thinking on the what in terms of strategic competence.
- A formal **strategy assessment** step should be built into strategy instruction programmes to **diagnose students' strategic learning needs** for more targeted and differentiated strategy instruction.

Part 3

Assessment practices in learning strategy research

Assessing strategic learning

Types of tools

Type	Selected-Response Assessments	Constructed-Response Assessments	Personal-Response Assessments
	Fixed format	Guided format	Open-ended
Example	<ul style="list-style-type: none"> • True-False • Matching • Multiple choice • Pick from a list • Likert-scale questionnaire • Checklist 	<ul style="list-style-type: none"> • Fill-in blanks • Short answers • Performance • Guided interviews 	<ul style="list-style-type: none"> • Think-aloud • Observation • Free interviews • Diary entries • Recollective narratives of learning histories

Questionnaires: Content

- Top-down theoretical constructs, e.g., metacognitive, cognitive, social, and affective strategies
- Bottom-up derived items from interviews, think-aloud protocols

	1	2	3	4	5	6	7
When I see an unfamiliar word again and again, I look it up.							

Questionnaires: Format

- Likert Scale

1 = Extremely Untrue of Me

2 = Untrue of Me

3 = Generally Untrue of Me

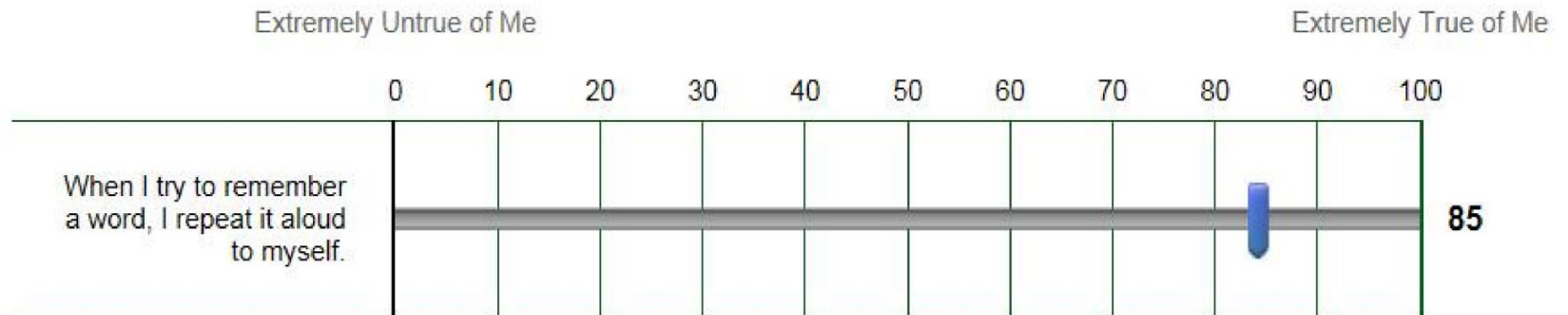
4 = Neutral

5 = Generally True of Me

6 = True of Me

7 = Extremely True of Me

- Slider bar



Think-aloud as an assessment tool:

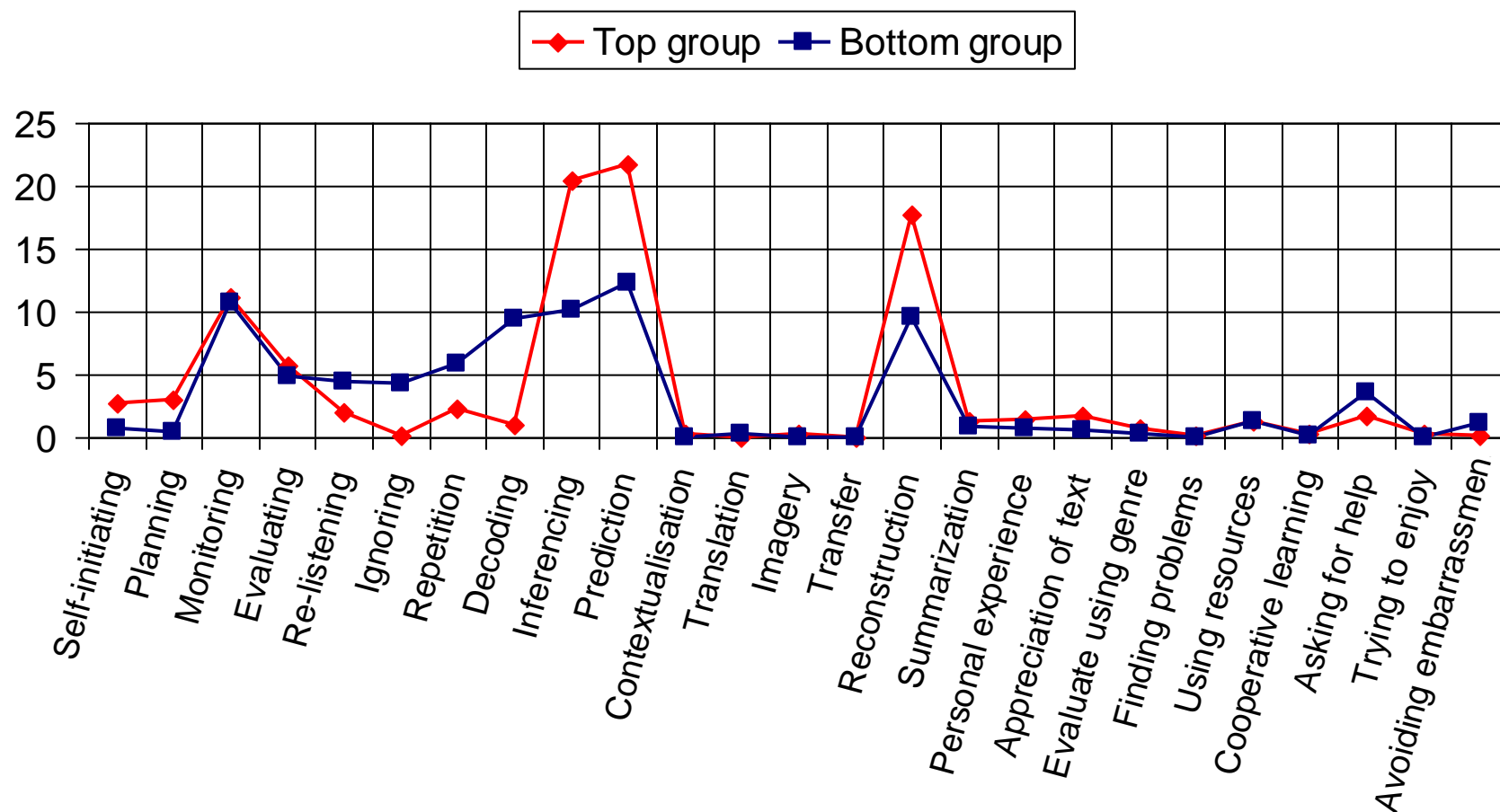
Listening strategies example

1. I: You said you liked the story. Why did you like it?
2. P: (pause 3 sec; looks at wall deep in thought) It (pause 2 sec) tells me about the scenery in the morning.
3. I: OK.
4. P: How it looks like.
5. I: Mm hm. What else?
6. P: (pause 3 sec) Mm (pause 1 sec) the (pause 2 sec) writer gave a very good description of the scenery and (pause 2 sec) other things around him.
7. I: OK.
8. P: (pause 5 sec) And I find it very interesting.
9. I: In what way is it interesting?
10. P: Mm (pause 5 sec) I cannot (pause 1 sec) predict what would happen next.
11. I: Mm. So because you cannot predict, it's interesting.
12. P: (pause 2 sec) And (pause 3 sec) if I were the writer, I won't have (pause 3 sec) wrote about the scenery or the stray dogs.
13. I: Mm. And then what would you have written about?
14. P: (pause 5 sec) I'd have written he just jog (pause 2 sec) and went home.

--Johnny, Primary 5, High-proficiency Learner

Coding and tallying of strategies:

Mean Frequency of Strategy Use by Proficiency Level



Observation checklist for reading strategies

Reading strategies	Not using it	Developing it	Expert user
Guessing unknown word during reading	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Guessing author's hidden meaning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Predicting what author will say in unread text	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Relating text info with own experience	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Monitoring own understanding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Diagnosis:

Suggestions:

Common features shared by these strategy assessment tools

- One shot, static assessment of what learners are able to do.
- The elicitation process is kept as objective/factual as possible. “Leading questions”, or “putting words into the students’ mouths” are to be avoided.
- Inference: High scorers on these measures will be able to perform better than low scorers in the future.
- Question: Will they? Why or why not?
- Question: Is there something not assessed by these strategy assessment tools?

Part 4

Dynamic assessment in strategy instruction

What is dynamic assessment (DA)?

- “In DA, assessment and instruction are a single activity that seeks to simultaneously diagnose and promote learner development by offering learners mediation, a qualitatively different form of support from feedback.
- Mediation is provided during the assessment procedure and is intended to bring to light underlying problems and help learners overcome them.” (Lantolf & Poehner, 2008, p. 273)

In other words,

- Traditional assessment assesses what learners have learned (achievement) or are currently able to do (proficiency);
- Dynamic assessment assesses their learning potential

Background

- DA was developed as a reaction to traditional intelligence test measures, which were seen as static, and did not take into consideration a child's potential for development.
- The concept has mainly been developed and explored in disciplines such as developmental psychology and children with learning disabilities/difficulties (Brown & Campione, 1986).

Lev Vygotsky [1896-1934]

Zone of Proximal Development (ZPD)

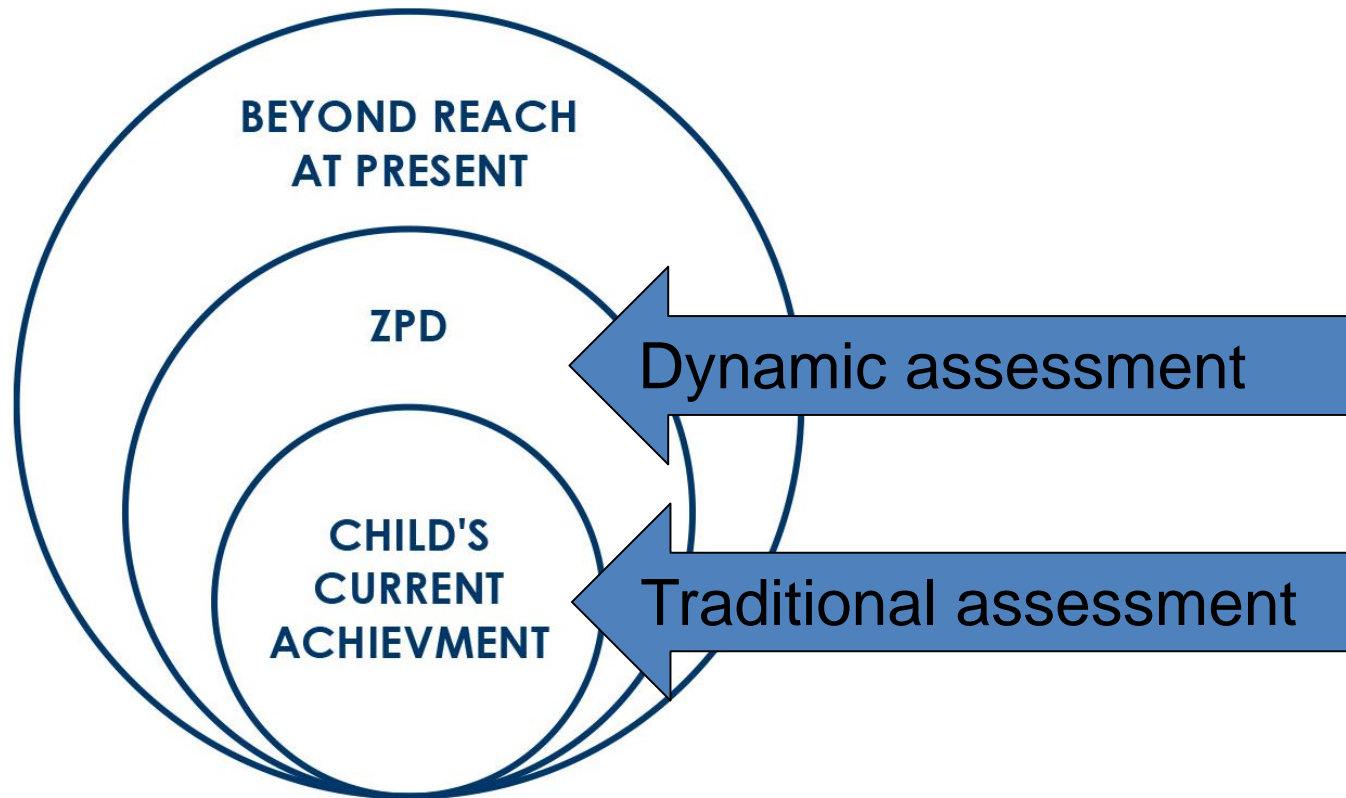
“the distance between the **actual developmental level** as determined by independent problem solving and **the level of potential development** as determined through problem solving under adult guidance or in collaboration with more capable peers”
(Vygotsky, 1978, p. 86)



Learning potential

- Learning potential – the capacity to learn more effectively than demonstrated by present performance or predicted by standardized tests.
- Assumptions:
 - Individuals have greater capacity for learning than they typically demonstrate
 - Assessing only what they have learned or are able to perform does not completely show what they are capable of doing.

ZDP and dynamic assessment



Reuven Feuerstein [1921-2014]

Mediated learning experience

1. Learning Propensity Assessment Device (LPAD) - to identify an individual's learning potential
2. Instrumental Enrichment (IE) – a suite of 14 instruments/strategies (e.g., to gather and apply information; to problem solve) for cognitive intervention.



2 broad approaches to DA

1. Interventionist:

– Test → intervention → test

2. Interactionist:

– Assessment → mediation → assessment

- In SLA, the latter has been the main approach explored.
- Recent years have seen the development of a computerised version of DA, or C-DA.

Lantolf and Poehner (2008)

Interventionist approach: Test-teach-test

Example: Kozulin and Garb (2002), DA of reading

- Stage 1 The pre-test (static test)
 - Item-level analysis of 1/ what is needed; and 2/ what strategies should be used.
- Stage 2 The mediation process
 - Students' own corrected pre-tests used for mediation
 - Part 1: Students take home an 'information page' and asked to revise. Info page contains lexical and grammatical information needed for revision.
 - Part 2: Students taught reading strategies for the four texts: Strategies included using text structure, cohesion devices and background knowledge to elicit meaning. Each mediation session took 50 minutes.
- Stage 3 Re-test using a parallel test a few days after mediation.

The Learning Potential Score

$$\text{LPS} = \frac{(S_{\text{post}} - S_{\text{pre}})}{\text{Max } S} + \frac{S_{\text{post}}}{\text{Max } S} = (2 S_{\text{post}} - S_{\text{pre}}) / \text{Max } S$$

LPS = Learning Potential Score

S pre = pre score

S post = post score

Max S = maximum obtainable score

Kozulin and Garb (2002)

Usefulness of mediation

		Pre-test	Post-test (mediated score)	LPS
Low achieving	Student T	29%	59%	0.89
	Student H	29%	38%	0.47
High achieving	Student L	62%	65%	0.68
	Student A	62%	82%	1.02

Based on Kozulin and Garb (2002)

Another example: learner potential profiling

Learner	Actual score*	Mediated score	Gain score	LPS
1	12	42	30	.78
2	12	51	39	.98
3	12	63	51	1.24
4	92	92	0	1.00
5	80	89	9	1.07
6	12	46	34	.87
7	24	52	28	.87
8	24	52	28	.87
9	88	91	3	1.02
10	88	90	2	1.00

Note: Maximum score = 92.

(Poehner, Zhang, & Lu, 2015, p. 348)

Summary

- Students with the same test score can have very different learning potential.
- Dynamic assessment of learning potential
“provides in-depth information about the different learning needs of the students who have the same standard performance scores” (Kozulin & Garb, 2002, p. 121)
- “...its results can be used for the development of individual learning plans for students with different learning needs” (p. 123)

Interactionist approach

- Often use the **Graduated Prompt Approach** developed by Anne Brown and colleagues (e.g., Campione et al. 1984)
- Dialogic interaction and the co-construction of learners' ZPD
- Each learner's response affects the quality of prompts and hints provided by the assessor during assessment

Levels of explicitness in prompts

1. Pause
2. Repeat the whole phrase questionably
3. Repeat just the part of the sentence with the error
4. Teacher points out that here is something wrong with the sentence. Alternatively, she can pose this as a question, “What is wrong with that sentence?”
5. Teacher points out the incorrect word
6. Teacher asks either/or question (negros o negras?)
7. Teacher identifies the correct answer
8. Teacher explains why.

Lantolf and Poehner (2010, p. 20)

Interactionist DA: an example

S: ...They planned for party.

Static Assessment: S has not grasped the use of articles.

T: (pausing and looking at her with open eyes)

S: Wrong?

T: They planned for party?

S: Yeah.... They ...planned.

T: For party?

S: Yeah....for party.

T: What is wrong with “for party”? Should you use articles?

S: Aah.... Ya... I know what party....They planned for the party.

T: For the party?

S: Yaa....for the party.

Dynamic Assessment: S could use the right article with assistance.

(adapted from Estaji & Farahanynia, 2019, p. 141)

Computerised dynamic assessment (C-DA): An example

Listening passage	Accompanying test item
<p>[Male Speaker:] 您还有什么事？我马上就要出去。</p> <p>‘What other matters do you have? I need to go out right away.’</p> <p>[Female Speaker:] 那好，王厂长，改天我再来拜访你。</p> <p>‘OK, President Wang, I will visit you another day.’</p>	<p>“What does the man want to do?”</p> <ul style="list-style-type: none">A. make a phone callB. visit the womanC. go out for dinnerD. cook at homeE. end the conversation

C-DA listening example: Graded prompts

Level 1 prompt:	That's not the correct answer. Listen again.
Level 2 prompt:	That's still not the correct answer. Did you hear 马上出去 (ma3 shang4 chu1 qu4) and 改天再来(gai3 tian1 zai4 lai2)?
Level 3 prompt:	Let's try it one more time. 马上出去(ma3 shang4 chu1 qu4) means 'to be leaving right now'. 改天再来(gai3 tian1 zai4 lai2) means 'to come again another day'.
Level 4 prompt:	Sorry. The correct answer was 'e'. Click to view an explanation. The explanation for the example item from the listening test reads: The man's utterance 'I am going out' implied that he cannot continue their conversation any more. In other words, he is trying to end the conversation.

(Poehner, Zhang, & Lu, 2015)

Another example of graded prompts

Graded mediation during a reading task

1. Read the text again.
2. Read the beginning of each paragraph.
3. Pay attention to the highlighted words.
4. Look at the first picture and pay attention to the highlighted words.
5. Look at the second picture and read the beginning of each paragraph

(Bakhoda & Shabani, 2019, p. 36)

DA: Interim summary

- As assessment of student ability, traditional static assessment uses the presence/absence of features to capture what has been learned or how a student performs.
- Dynamic assessment goes a step further and attempts to capture what students can do with expert mediation (learning potential).
- Learning Potential constitutes an important part of a learner's ability.
- The mediation process in obtaining Learning Potential serves as scaffolds to learning.

A new concept?

Strategic learning potential (SLP)

- A learner's **strategic learning potential** is the ability s/he shows with mediation.
- The assessment of strategic learning should involve **BOTH** a learner's independent strategic learning and his/her mediated strategic learning.

Example: Think-aloud elicitation vs DA

- **Think aloud elicitation: Avoiding leading prompts**

- S: Mabula carried his beer and bag...
- R: His what?
- S: his beer.

Conclusion: S relied on a decoding strategy

- **DA of SLP: Pushing for strategies**

- S: Mabula carried his beer and bag ...
- R: What is Mabula going out to do?
- S: Hunting
- R: Where is he?
- S: Africa?
- R: What do you think he hunts with?
- S: Arrows? Spear? Oh, yes, he carried his spear...

Conclusion: S can use world knowledge to infer meaning; S can use monitoring to adjust understanding

A proposed approach to strategy instruction: Interventionist DA

- Step 1: Assess the strategic learning potential of groups
 - Pre-scores and post-scores of strategies for horizontal interpretation
 - Improvement scores and SLP scores for vertical interpretation
- Step 2: Customise strategy instruction

A proposed approach to strategy instruction: Interactionist DA

- Step 1: Classroom-based, contingent dynamic assessment of the strategic learning potential of individuals
- Step 2: Customise strategy instruction

DA of SLP: Benefits

- More comprehensive diagnosis of strategic learning ability
- More accurate diagnosis of strategic learning ability
- More detailed diagnosis of strategic learning ability

DA of SLP: potential issues

- What is mediated
- Who does the mediation
- How is the mediation done
- Whether and how is the SLP used for strategy instruction

Conclusion

- Strategy instruction in our field has mainly followed a top-down, whole class, presentation-practice-production approach.
- Strategy assessment in our field has mainly been used as a research tool to elicit the current level of strategic learning (static).
- Dynamic assessment offers a new perspective and a fruitful approach to approach strategy instruction and strategy assessment.

Thank you very much!

peter.gu@vuw.ac.nz