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Critical thinking for transformation:

An extension to the 5-steps of evidence-based practice incorporating ways of thinking and practising

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Background

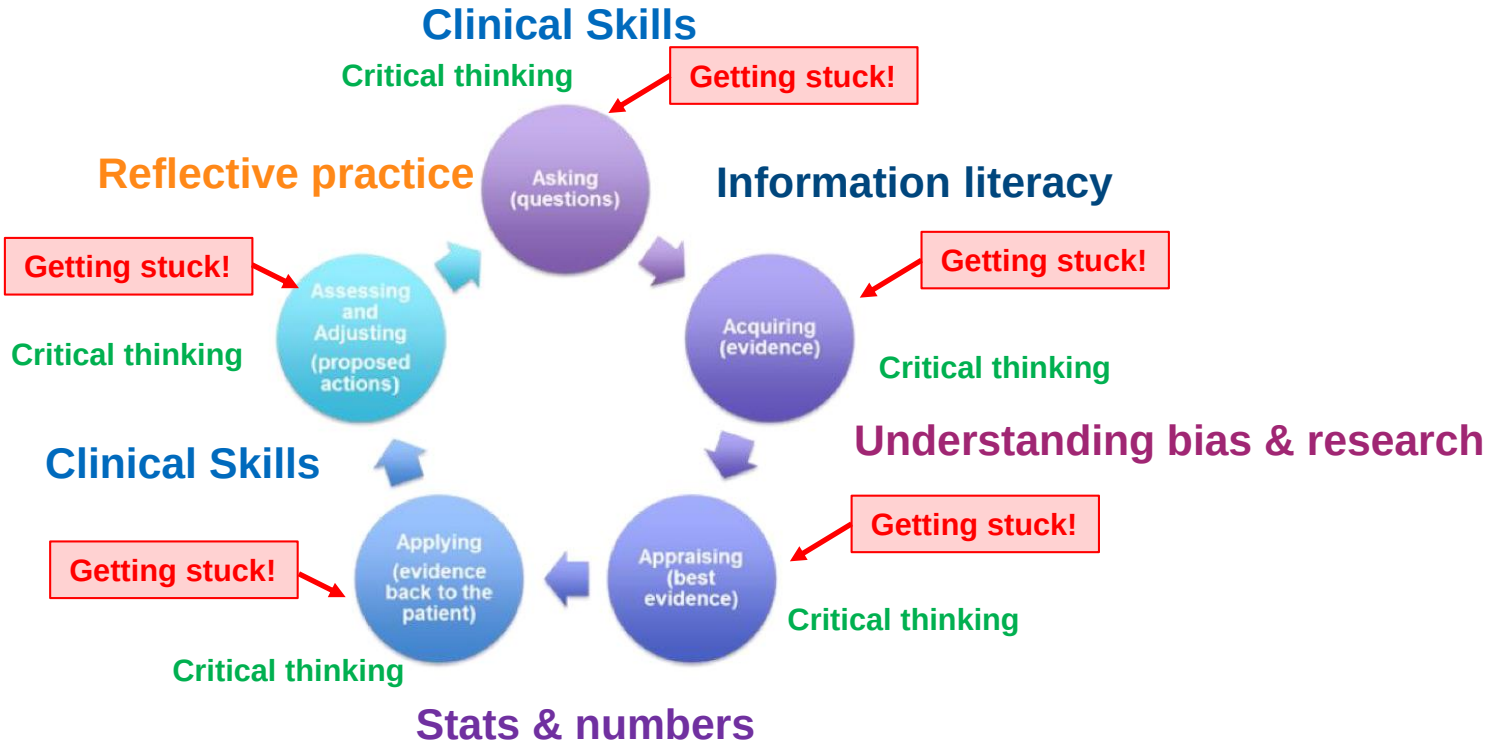

Figure 1. Evidence-based Practice Cycle

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Aims – Threshold Concepts

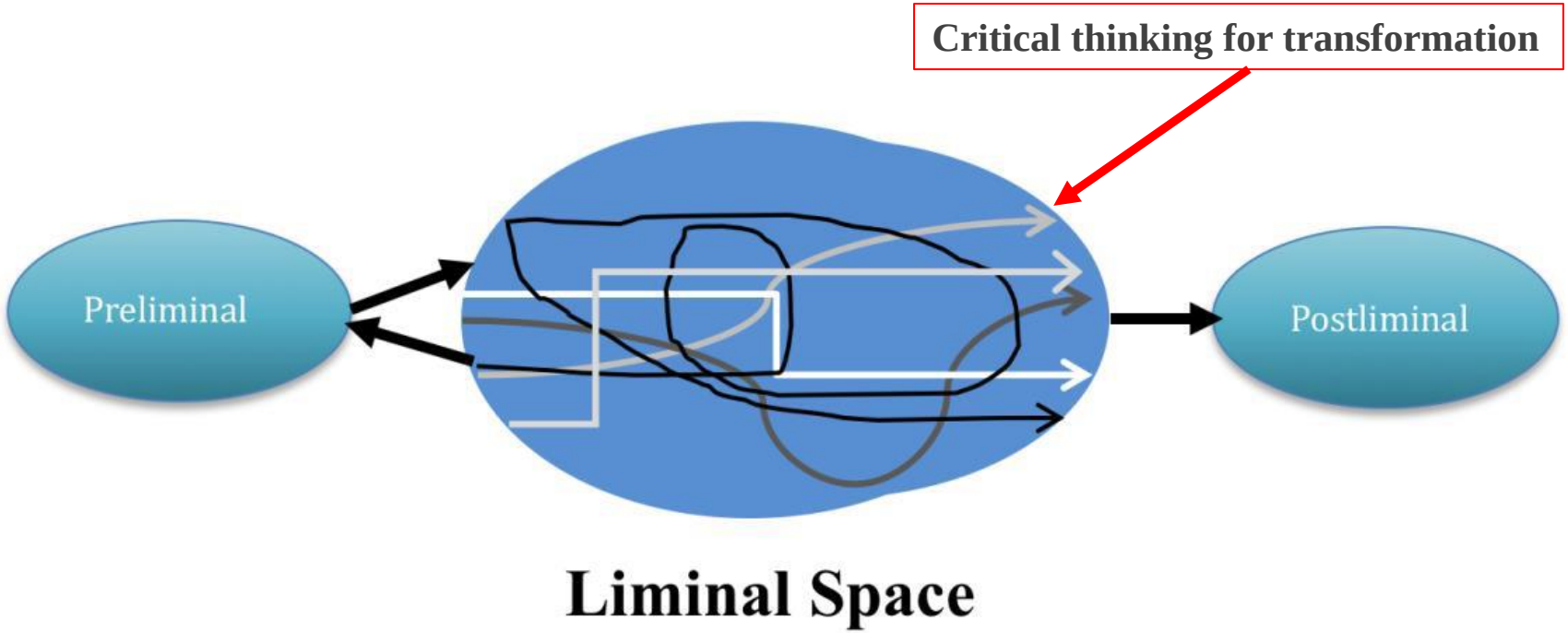


Figure 2. Representation of individual student liminal threshold concept learning journeys (Meyer & Land, 2003, 2004) (Figure based on Kabo and Baillie 2010, p. 307)

Methods

Constructivist, interpretivist paradigm

Qualitative Research

- Recruitment, consent and interviewing of experts and students
- Regular submission of reflective journals by 8 case study participants
- Interviews and audio journals transcribed >>> qualitative textual data

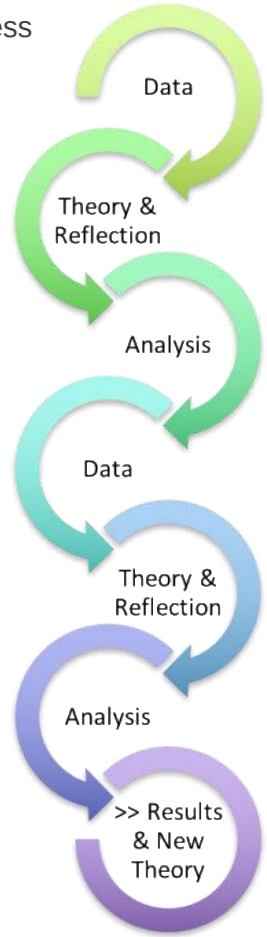
Data analysis

- NVIVO: transcribed interviews and reflective journal entries
- Abductive thematic analysis

Theoretical framework

- Threshold Concept Framework + Vygotskian theory

Figure 3. Diagram depicting an abductive analysis process



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Theoretical Framework: Vygotsky

Fig 4. Conceptual learning according to Vygotsky

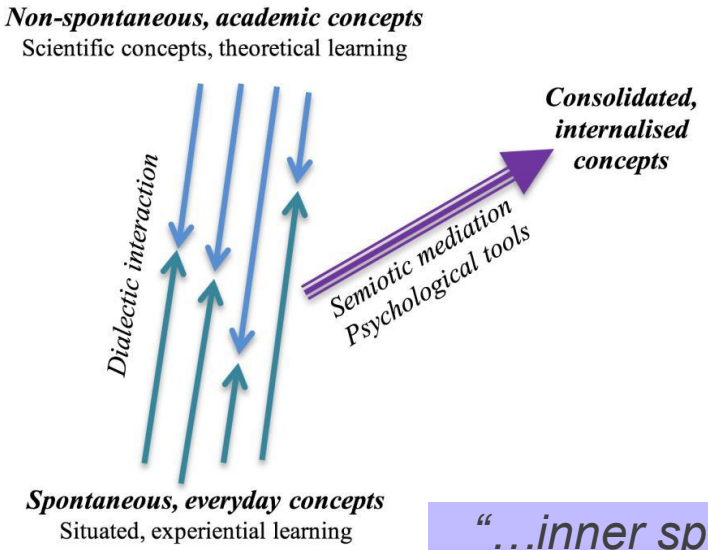
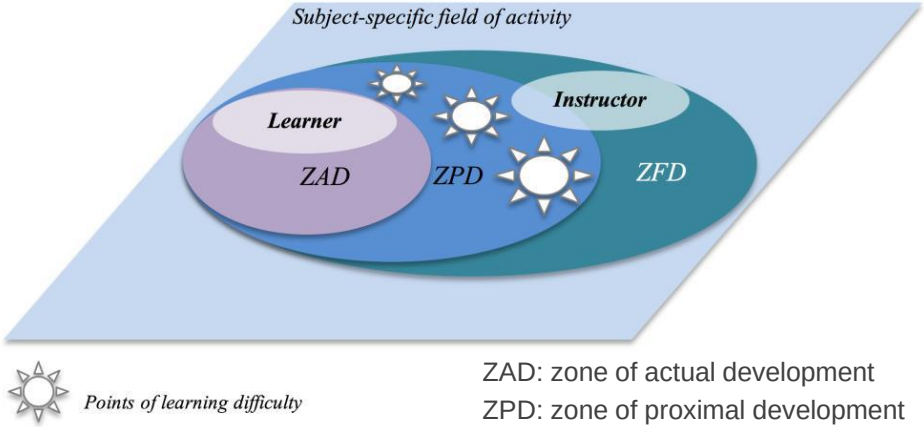


Fig 5. Image portraying zones of development (after Zaretskii, 2009)



ZAD: zone of actual development
ZPD: zone of proximal development
ZFD: zone of far development

"…inner speech is speech for oneself; external speech is for others."

Vygotsky 2012, p. 239

Limitations

- Sole-researcher
- Qualitative study of few participants at one university medical school
- Abductive research methodology is novel

- ➢ Process undertaken was rigorous
- ➢ Results considered valid and transferable
- ➢ “A significant contribution to knowledge in the area of threshold concepts both in terms of our conceptual and methodological understanding of liminality.”

This research offers fresh avenues of research for EBP teachers, a new theoretical framework for qualitative research of threshold concepts, and an extension of the knowledge and ways of teaching EBP for healthcare professionals.

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Results: The Conceptual Elements of EBP, Medical Biostats & Research

A complex interlinked web of conceptual disciplinary elements:

- Simple ideas, simple concepts, fundamental ideas, simple and complex threshold concepts.
- Over-arching elements necessary for expert identity, e.g. ways of thinking and practising.
- Threshold capability, skill, and modelling concepts.

- **Statistical significance** is a classic example of a threshold concept.
- **Understanding Bias & Study Design** is a major, complex, integrated threshold concept.
- **EBP as a clinical practice** is an over-arching threshold.

Results: Complex inner speech as a questioning, interrogating tool

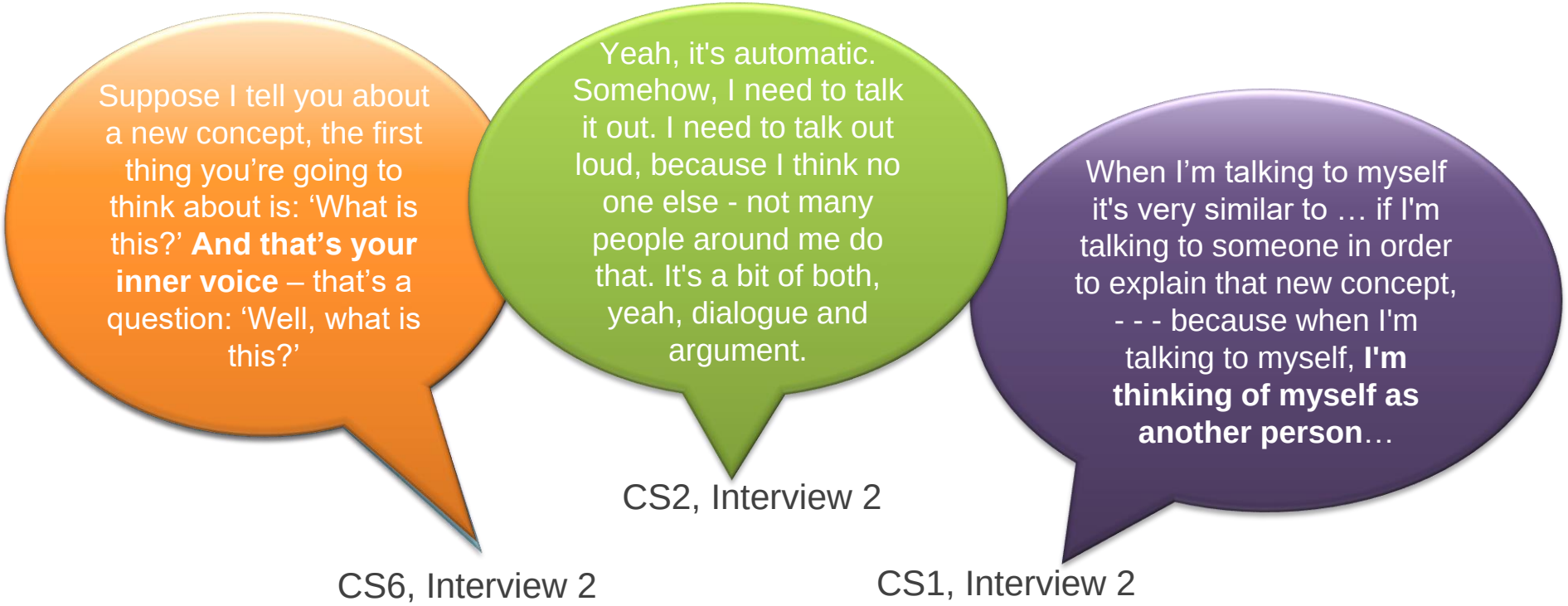
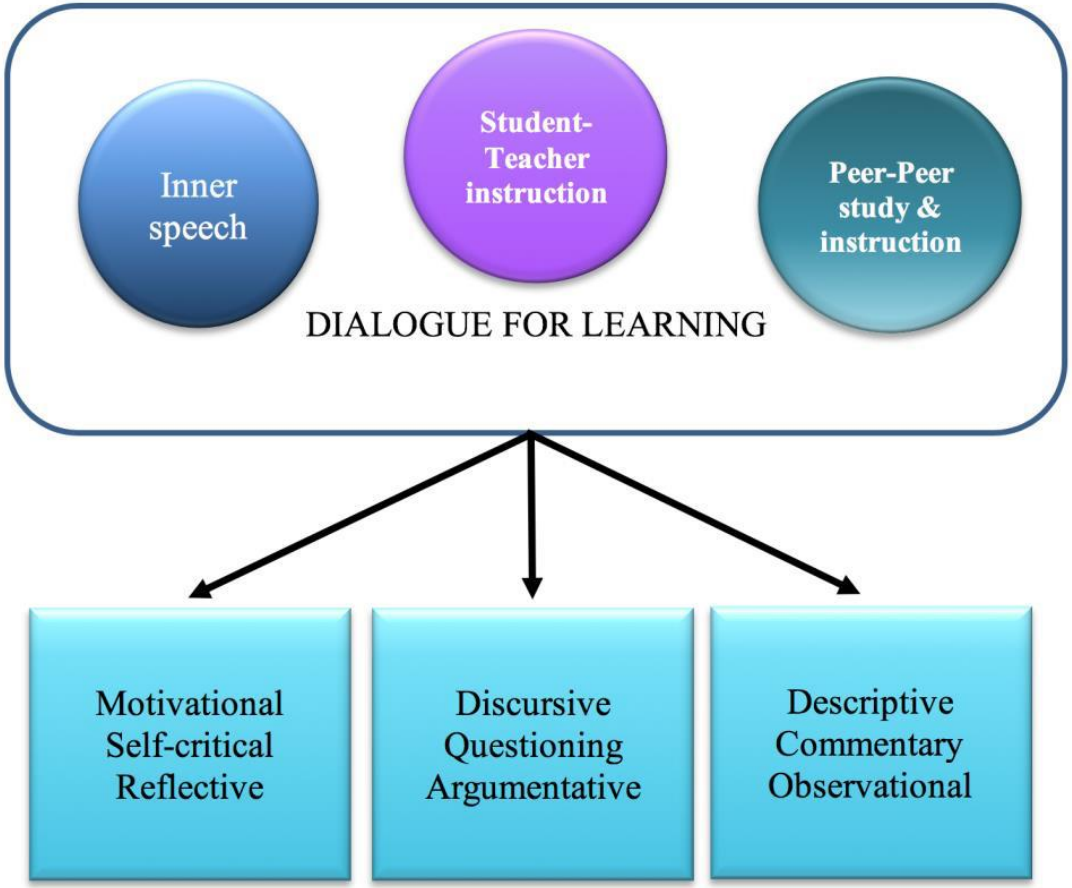


Figure 6. Depiction of the main processes of dialogue for learning



Critical thinking to initiate transformative learning

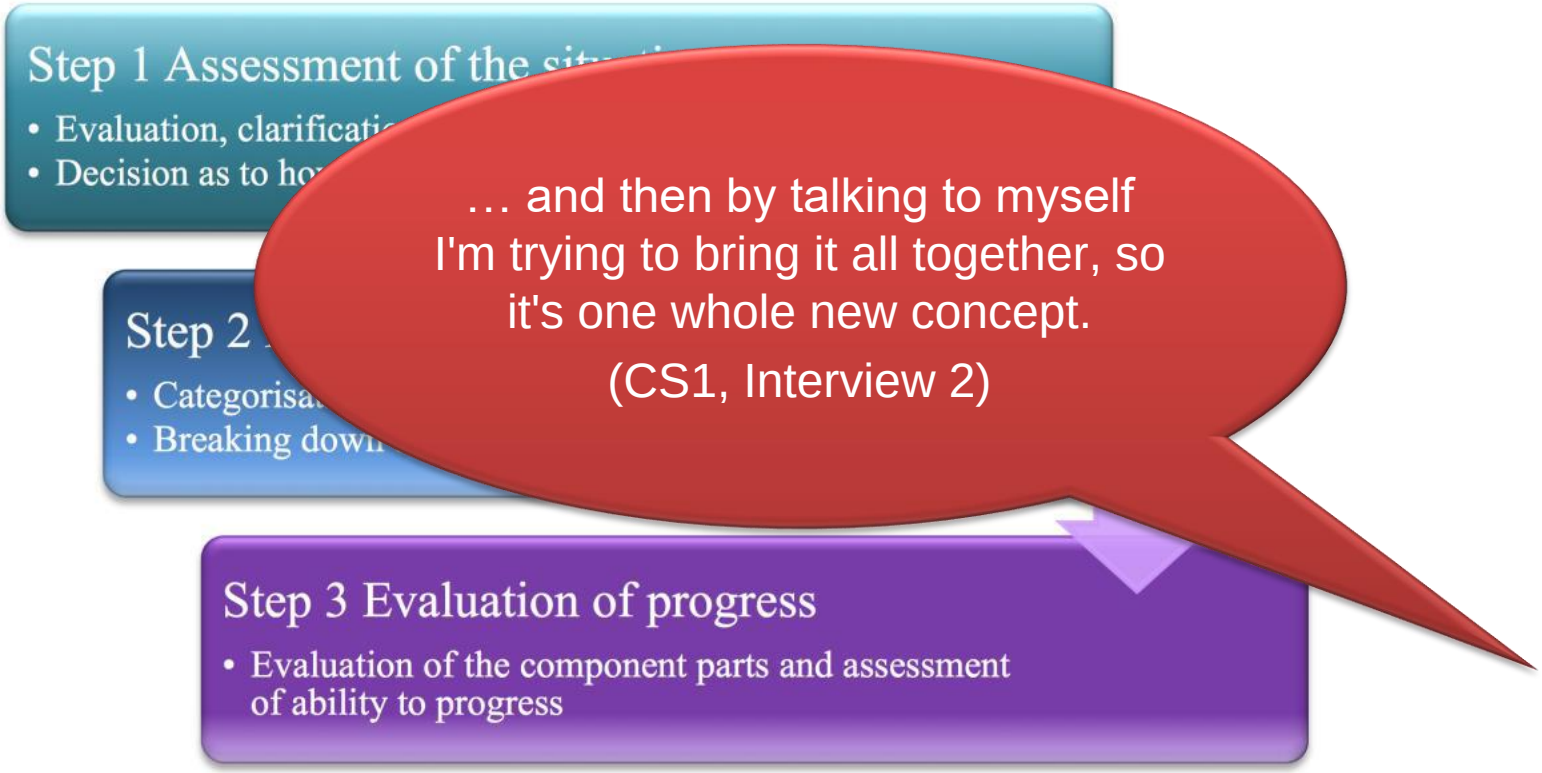


Figure 7. The pre-liminal critical thinking steps to initiate transformative learning

Critical thinking for transformation

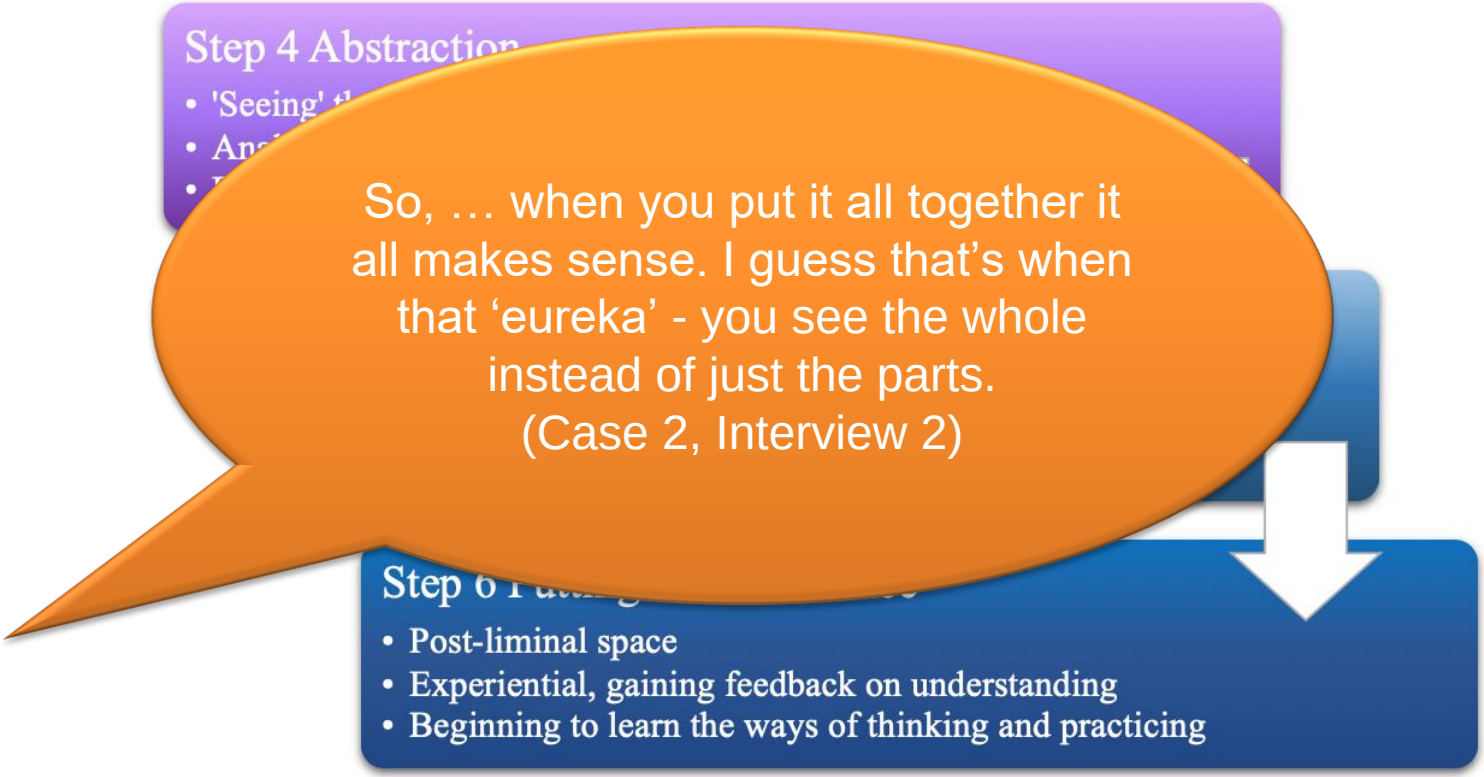


Figure 8. The three liminal critical thinking steps for transformation

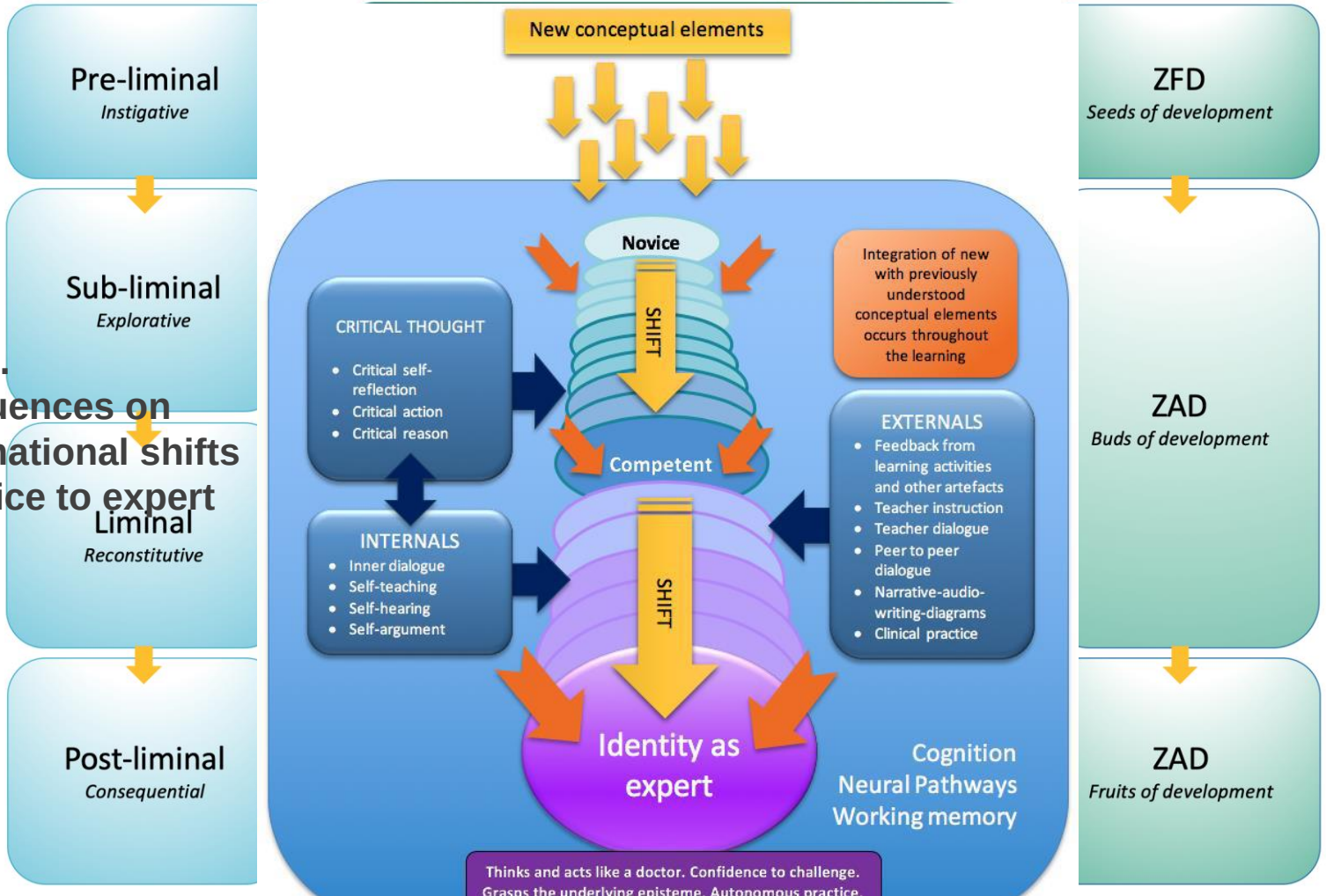


Figure 10. Main influences on transformational shifts from novice to expert identity

Figure 9. Sur **earning**

The Bottom Line

Inner struggle is necessary for transformation.

Focus on the student as **Learner-Teacher** and encourage argumentative self-instruction:

1. Mapping/scaffolding of troublesome concepts to assist individual student's liminal journey using narratives, analogies, mapping the learning journey and key concepts.
2. Develop supportive learning activities to challenge & encourage students to use their inner self-teaching for troublesome concepts.
3. Transformation to expert practitioner is also difficult & transformational >>> focus support on clinical tutor/peer support within the clinical environment.

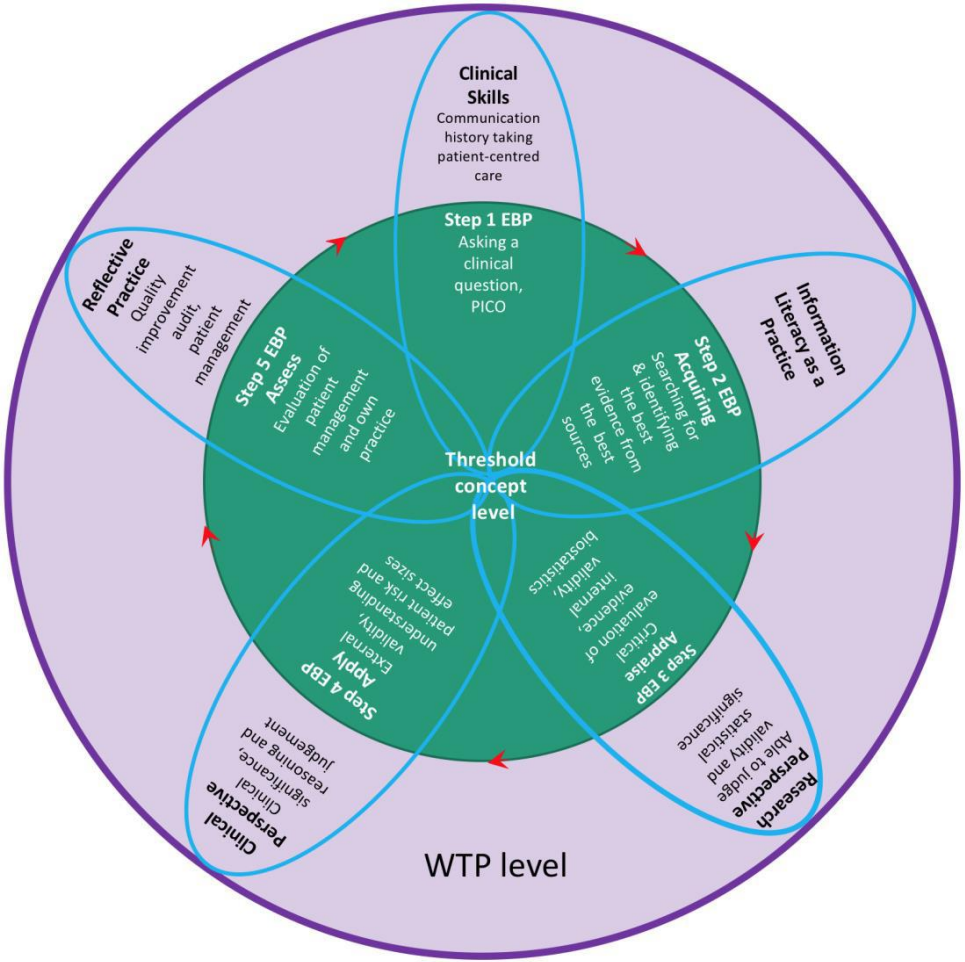


Figure 11. EBP ways of thinking & practising (WTP)

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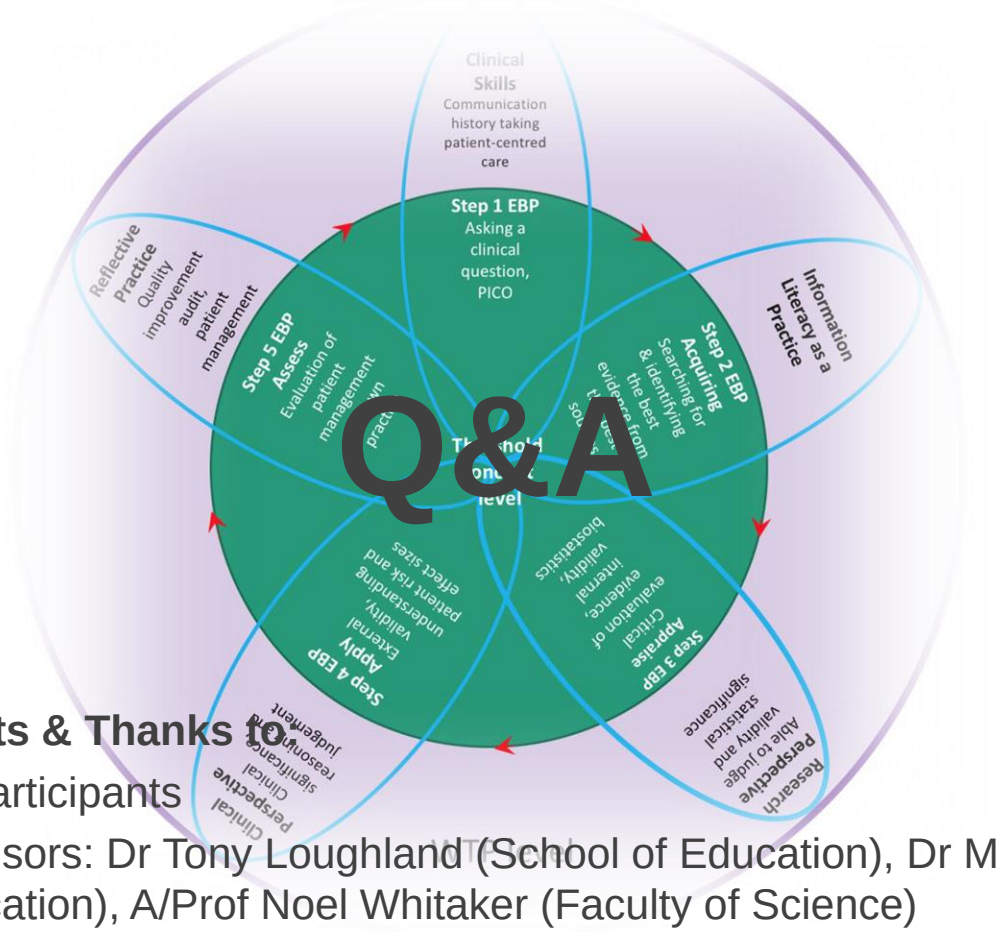

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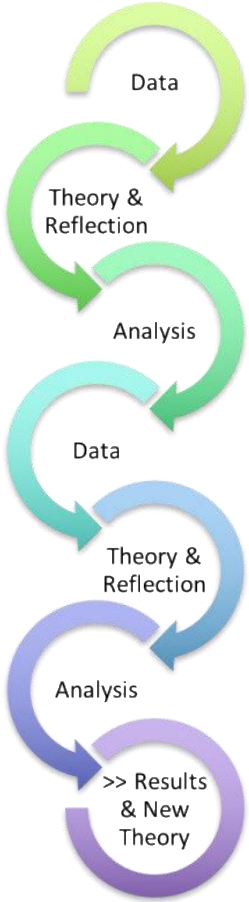
Abductive analysis process:

"…abduction starts with consequences and then constructs reasons: "The surprising fact C is observed. But if A were true, C would be a matter of course.
Hence, there is a reason to suspect that A is true. (Peirce 1934:117)"

Timmermans & Tavory, 2012, p.171

Uses the researchers cultivated knowledge in the analysis rather than denying it.
"*Abduction thus depends on the researcher's cultivated position."*
…
"Unanticipated and surprising observations are strategic in the sense that they depend on a theoretically sensitized observer who recognizes their potential relevance."

T&T, 2012, p. 173



Repeated Figure 2. Diagram depicting an abductive analysis process

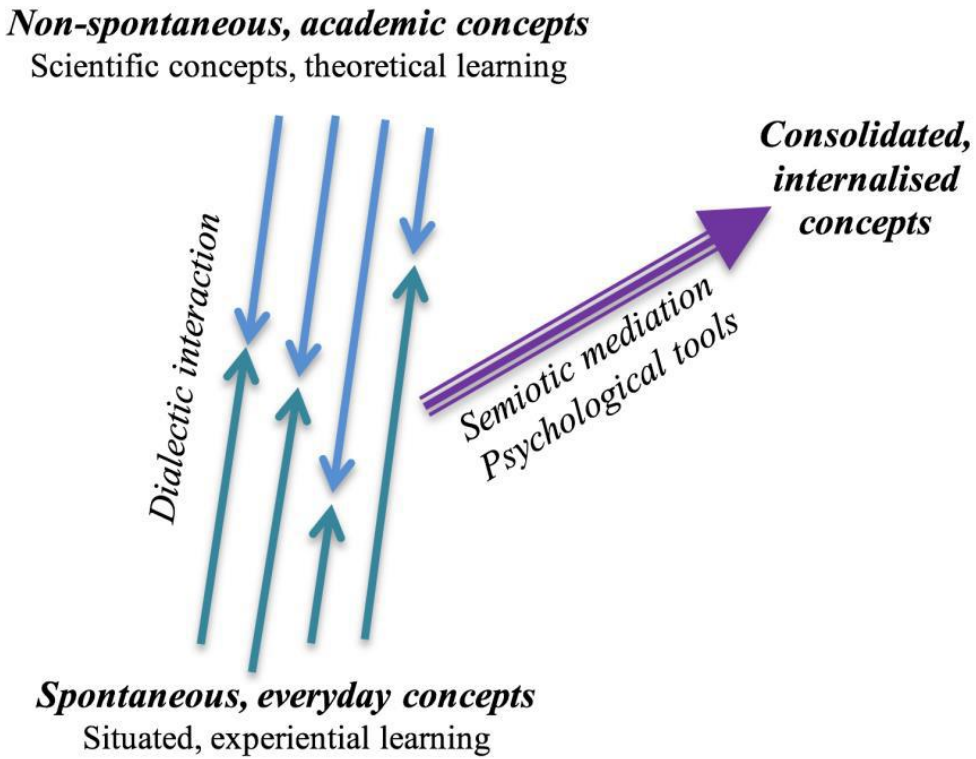
Vygotsky on language and thinking

(Vygotsky, 2012)

"…inner speech is speech for oneself; external speech is for others." Vygotsky (2012, p. 239).

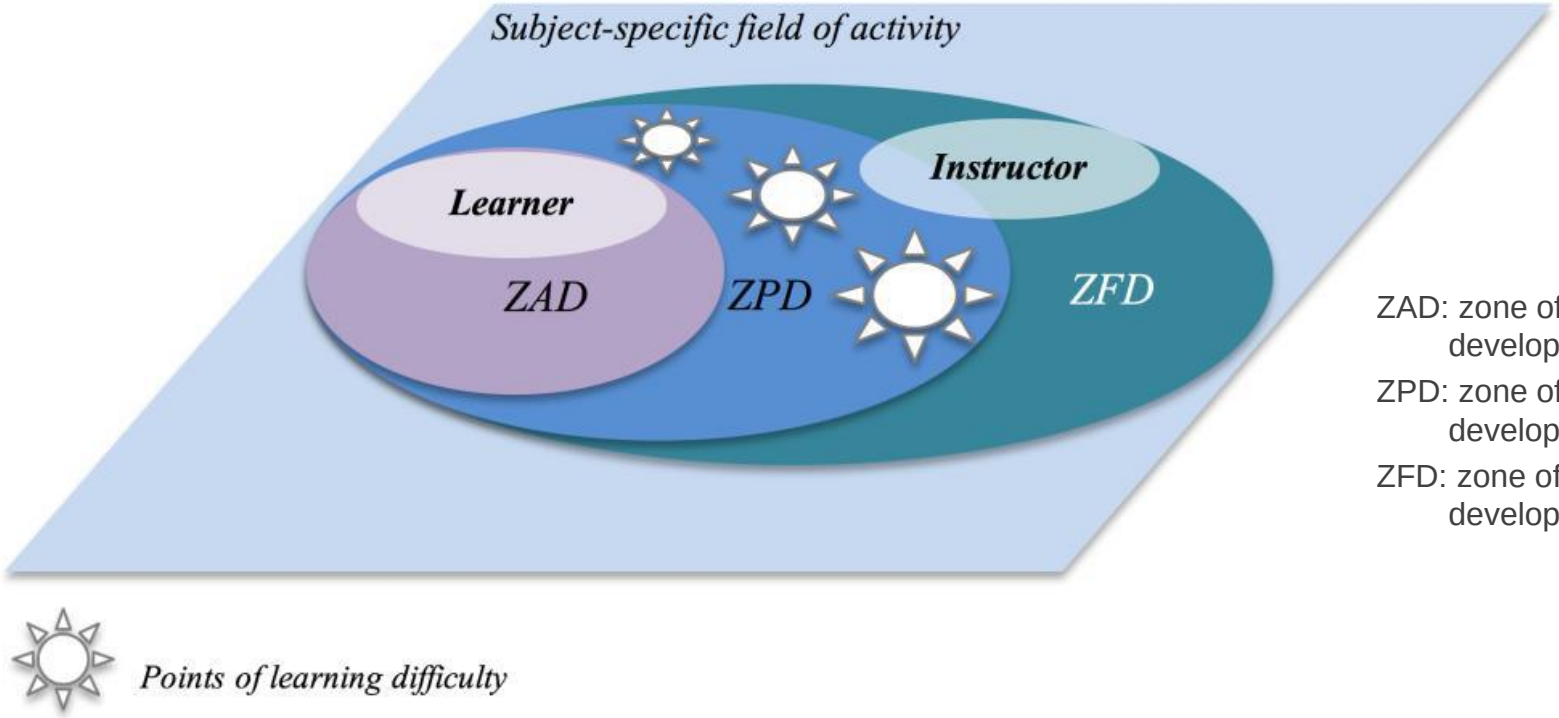
- Classified as a **monologue** compared to **external speech** which is mostly **social dialogue**.
- Inner speech is for self - for "**intellectual perception**" for mastery of non-spontaneous concepts and to enable conscious learning processes.
- Words and language are **"psychological tools"** of the mind to mediate basic thought processes for more complex processes.
- Critical thinking and conceptual learning are inherently linked.

Additional Figure 1: Conceptual learning according to Vygotsky



Additional Figure 2. Zones of Development (Vygotsky, 2012)

(Figure based on Zaretskii 2009, p. 82)



ZAD: zone of actual development;

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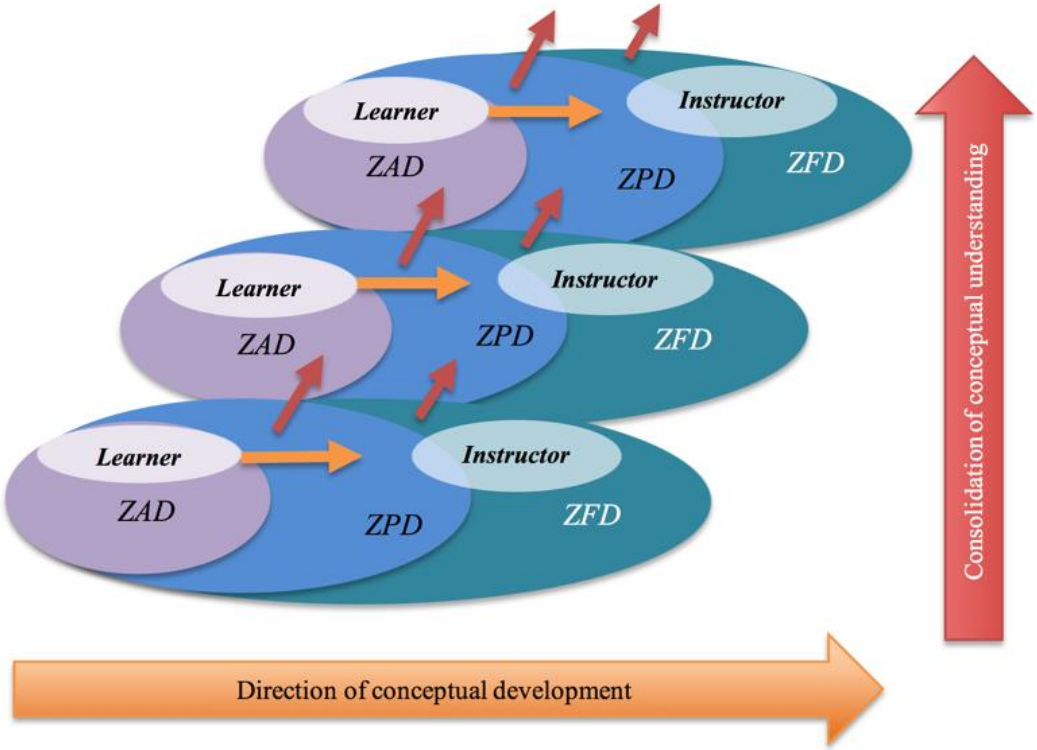
Additional Figure 3. Visual representation of learner progression through conceptual thresholds as zones of development (After Zaretskii, 2009, p. 82)



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