~~Curriculum~~ Program Renewal: Balancing Clinical Competence and Critical Skills Development

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(T&L Fellow 2019–2022)

Take home messages:

- Development of critical skills (graduate attributes) begins on Day 1 of Year One

- Integrated scaffolding is key

- PBL is a sustainable evidence–informed method to enable critical skills development while learning clinical competence

- Program renewal = change management

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Overview

- Background into why program renewal

- Design–based research (DBR) for program renewal

- 4C–ID model and PBL

- (critical) lessons learned
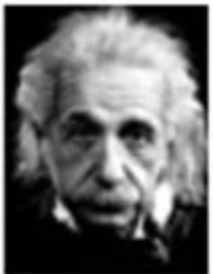
"The world as we have created it is a process of our thinking. It cannot be changed without changing our thinking."
— Albert Einstein

BSc in Physiotherapy

- Four-year professional degree

- Minimum standards for training set by the Board for Physiotherapy, Podiatry and Biokinetics of the HPCSA

- World Physiotherapy – Physiotherapy Competency Framework

- WHO – Rehabilitation Competency Framework
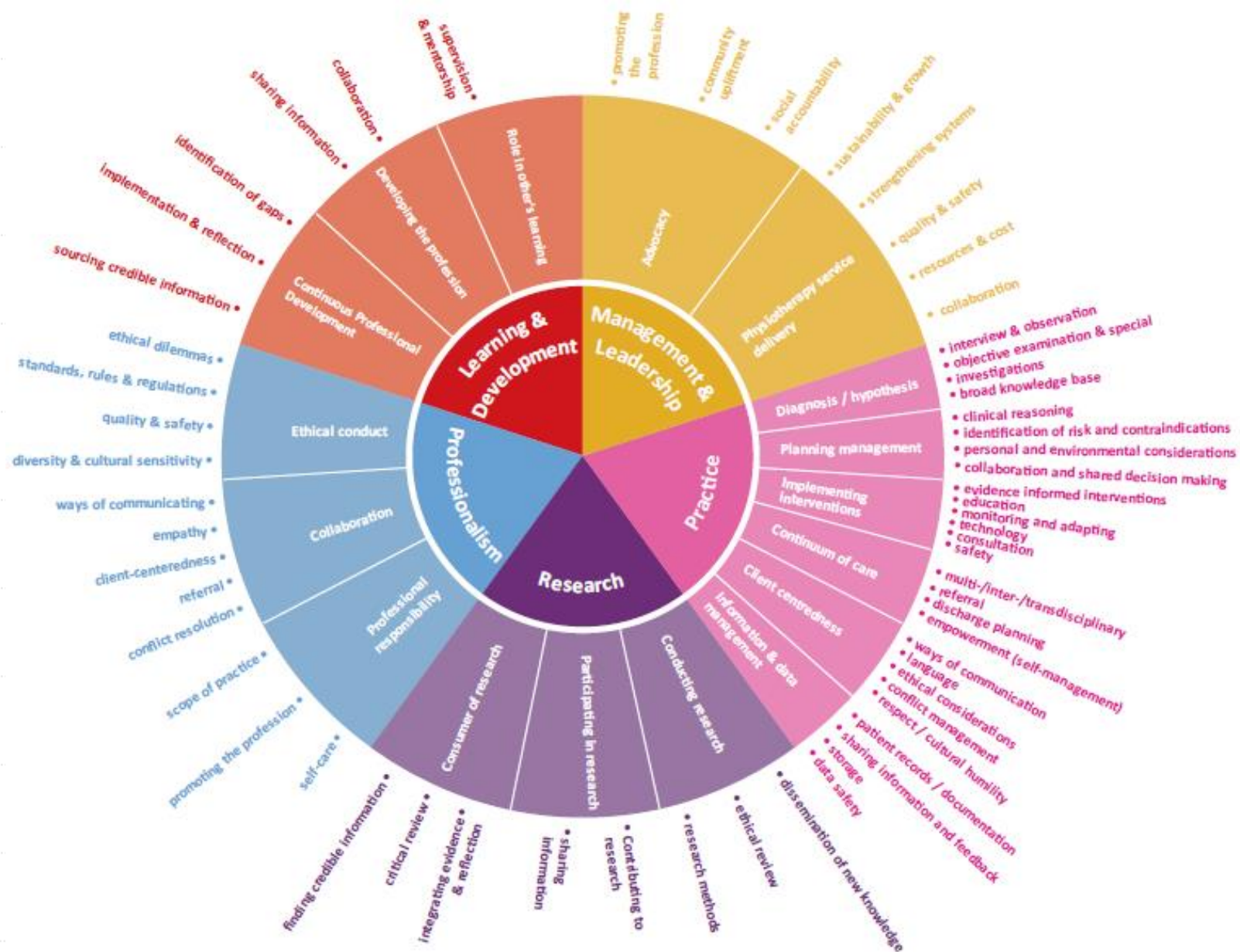
- Technology competence

Lacking:
- Contextual relevance
- Analytical thinking and innovation
- Creativity, originality and initiative

Ms Marieke Mocke: **Competency framework development in physiotherapy: an updated perspective**

Why change our program?

Updated minimum standards

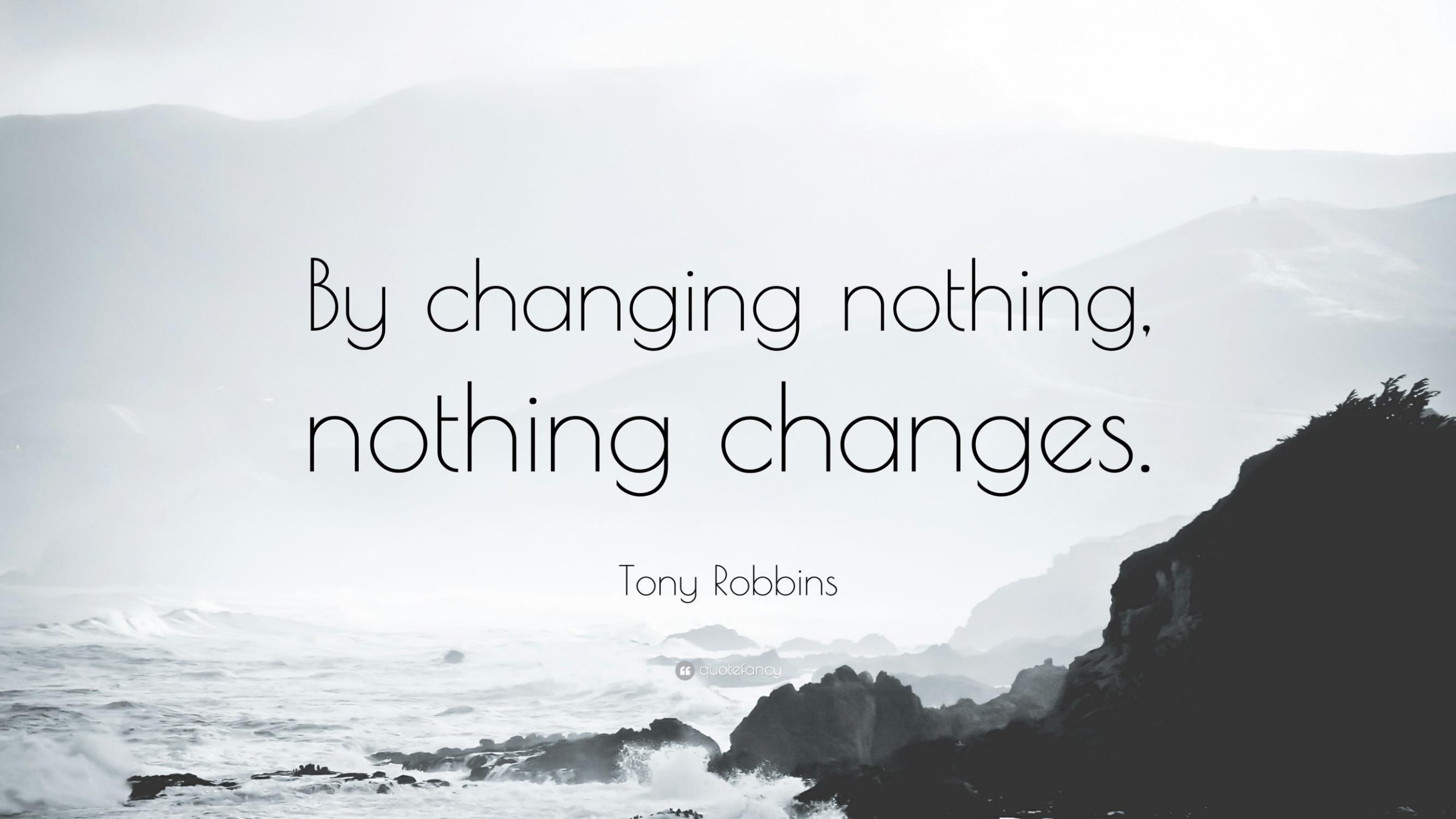Discontinuation of first 6 months of current program

Drop in student throughput rate

Overloaded curriculum
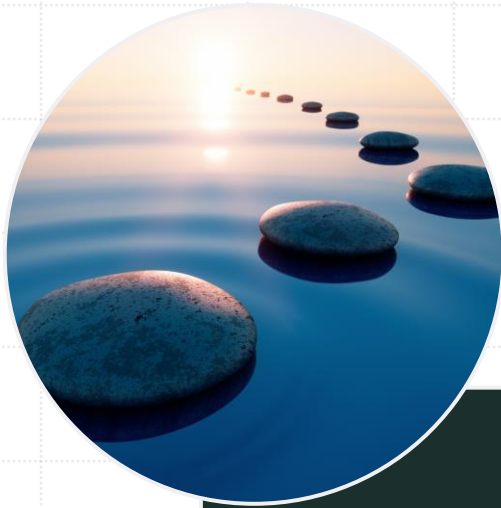
Changing clinical platform

Relevance (and duplication) of content

By changing nothing, nothing changes.

Tony Robbins

Core issues:

- Gaps - advocacy and leadership
- Fragmentation/compartmentalization
- Lecture overload and duplication
- Assessment
- Increased mental health problems / lack resilience
- Lacking technologies – T&L and service delivery

Conclusion:

It's not what we teach, but rather how we teach!

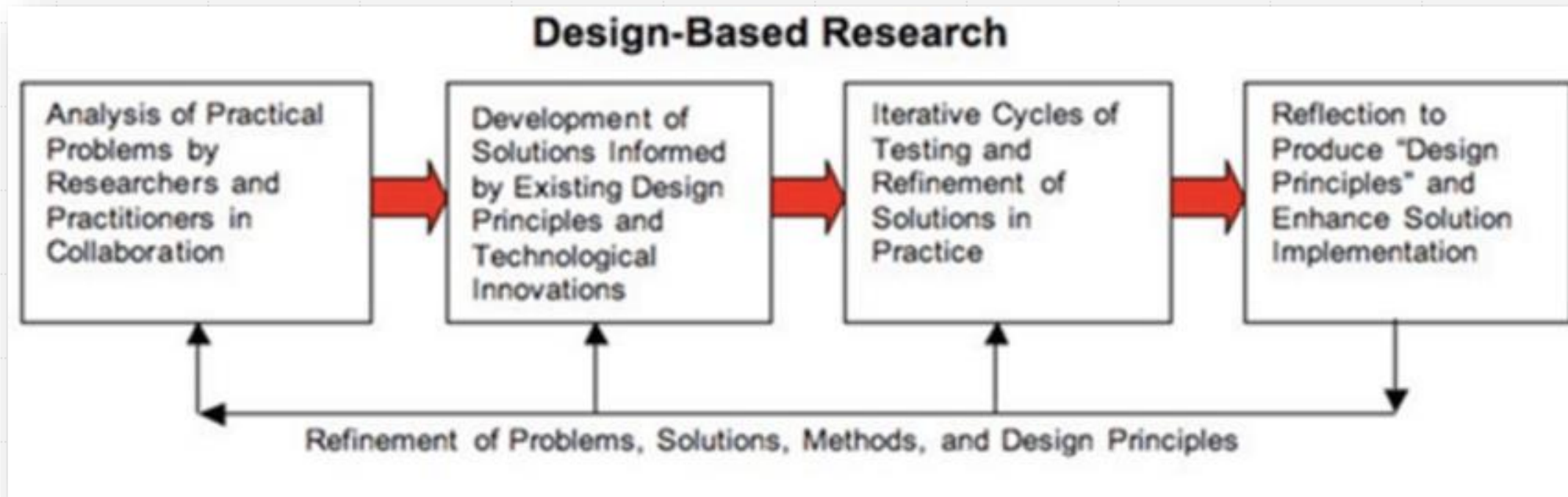# R&R
(reflection and research)

Design-based research (DBR)

- Supports the exploration of educational problems and refining theory and practice

- by defining a pedagogical outcome and then focusing on how to create a learning environment that supports the outcome (Reeves, Herrington, & Oliver, 2005)

4 Phases of DBR
- (adapted from Reeves, 2006)

Design-Based Research

| Analysis of Practical Problems by Researchers and Practitioners in Collaboration | → | Development of Solutions Informed by Existing Design Principles and Technological Innovations | → | Iterative Cycles of Testing and Refinement of Solutions in Practice | → | Reflection to Produce "Design Principles" and Enhance Solution Implementation |

Refinement of Problems, Solutions, Methods, and Design Principles

I: Precedent analysis

- Content mapping

- Benchmarking

- Stakeholder engagement (students, clinicians, alumni and supervisors)

- Evidence-informed (best practice) T&L

Redefining our vision & philosophy of TLA

Transform Healthcare in Africa through innovation and excellence in teaching and research

- Better the student learning experience

Goal

To get students ready for Community Service

= getting students comfortable with not knowing
(Bleakley 2015)

Tolerance of Ambiguity

(Frenkel-Brunswik 1948)

- recognise own limitations

- source credible information in time

- make sense of information

- apply new knowledge

- evaluate and reflect

- disseminate

be lifelong learners (Scholar Attribute)

If we are to ensure student success:

- Lecture less, instead engage more with students
- **process** is more important than the product
- More andragogy and a little less pedagogy
- Digital literacy and fluency (DigiComp2.1 for Citizens)
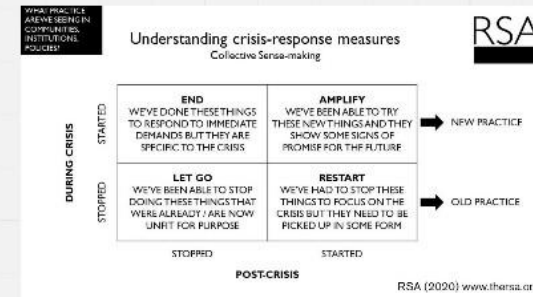
II: Design

- Competency focused
  - Professional identity formation
  - Evidence-informed practice
  - Ethical practice (social accountability)
  - Communication
  - Collaboration / Teamwork
- Clinical training across 4 years
- Promote technology proficiency for service delivery

Future Change Framework

(renewed) BSc in Physiotherapy

- **Increase blended learning (Advanced BL course)**
  - Focussed on learning
  - Acknowledges NB pedagogy/andragogy, WOL and various modes of delivery
  - Values F2F
  - Technology augmented learning

6 Ways of Learning (Diana Laurillard)

Read–Watch–Listen: Learning through acquisition

Investigate: Learning through inquiry

Practice: Learning through doing
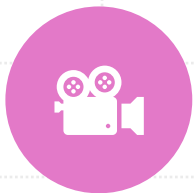
Produce: Showcasing learning through production of an output/task.

Discuss: Learning through critical dialogue and articulation of thinking

Collaborate: Learning through communal and participatory knowledge

Conversational Framework

It provides an overarching theoretical design framework for thinking about how best to assist and encourage learning using technology to support meaning-making.

Evidence
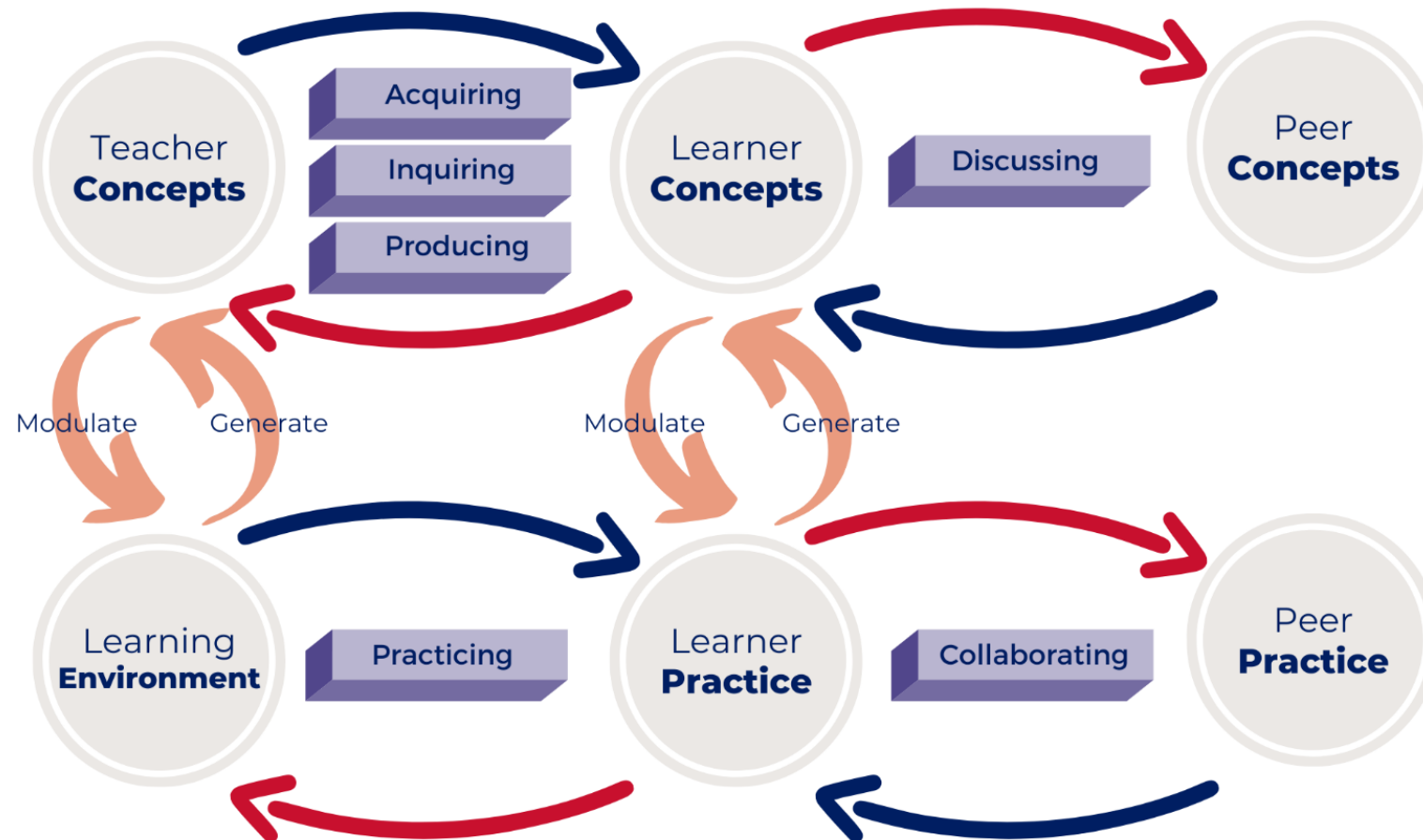
Promotes engagement

Self-regulation / autonomy

Open Access Full Text Article

REVIEW

A Systematic Review of Systematic Reviews on Blended Learning: Trends, Gaps and Future Directions

Improved motivation

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Abstract: Blended Learning (BL) is one of the most used methods in education to promote active learning and enhance students' learning outputs. Although its existence in over a decade, there are still several challenges associated with it. For instance, the teachers' and students' individual differences, such as their behaviors and attitudes, might impact their adoption of BL. These challenges are further exacerbated by the COVID-19 pandemic, as schools and universities had to combine both online and offline courses to keep up with health regulations. This study conducts a systematic review of systematic reviews on BL, based on PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines, to identify BL trends, gaps and future directions. The obtained findings highlight that BL was mostly investigated in higher education and targeted students in the first place. Additionally, most studies reported learning outcomes, suggesting more research and collaborations to facilitate BL adoption in developing countries in particular. Furthermore, a lack of ICT skills and infrastructure are the most encountered challenges by teachers, students and institutions. The findings of this study can create a roadmap to facilitate the adoption of BL. The findings of this study could facilitate the design and adoption of BL which is one of the possible solutions to face major health challenges, such as the COVID-19 pandemic.

Keywords: blended learning, hybrid learning, flipped learning, distance education, literature review, research trend

Improved skills progression

Improved academic performance

- 57 Systematic Reviews in 44 journals
  - 14 health sciences
  - 5 STEM
  - 3 languages
  - 12 multiple courses
  - 23 unspecified
- Only 1 from SA
- First one published in 2012

Develop > higher order thinking

(renewed) BSc in Physiotherapy

- Increase blended learning

- Problem-based learning

  - PBL first originated in medical education in the 1960s at the medical school at McMaster University in Canada (Schmidt and van der Vleuten)

  - has since been promoted and modified in more than 60 medical schools

    - Learners are challenged to actively derive meaning through:

      - the revisiting, reorganization, and reconstruction of knowledge

      - both individually and through interaction with others

Problem Based Learning Framework

NON-LINEAR

Learners work in multiple directions and explore diverse avenues, theories, ideas and solutions.

AUTHENTIC

Use real-world, relevant problems that are meaningful to participants.

GUIDE AND SCAFFOLD

Steer learners in the right direction, using prompting questions and provide resources.

PERSONALISED

Personalise learning, connecting with learner individual styles and creativity. Provide opportunity for extension.

PBL

Problem Based Learning Model

ASSESS 8
Use multifaceted assessment strategies to evaluate learners understanding and skills.

SHARE SOLUTION 7
Learners may share their solution/s through presentations, written pieces, graphic organisers, video or other means.

REFLECT & COMPARE 6
Reflect on multiple perspectives. Compare initial ideas/beliefs to new ideas/beliefs. Reflect on growth in understanding and skills.

CRITICALLY ANALYSE 5
Review, analyse and evaluate information. Assess the validity and reliability of information and sources.

1 **DEVELOP PROBLEM**
Design a problem that reflects the learning objectives and the real world. Ensure it is complex enough to sustain inquiry for the desired duration.

2 **ACTIVATE EXISTING KNOWLEDGE**
Identify what learners do know. Activate their existing knowledge and understanding to prep learning.

3 **IDENTIFY REQUIRED KNOWLEDGE**
Prompt learners to realise what they don't know and what they need to know. This will inform their research.

4 **RESEARCH**
Experimenting, searching the web, watching videos, emailing experts, reading texts, viewing images, listening to podcasts, stories or speakers, or working through a trial and error process.

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Learning theories in PBL

Cognitive and socio-constructivism

- recognising that while knowledge is constructed, expanded on through experience and meaning-making, the impact of social and cultural interactions on learning cannot be overlooked (Hmelo-Silver & Eberbach, 2012; Kaufman & Mann, 2013)

- social constructivism recognises the interplay between the individual, environment and learning activities, all key concepts in PBL (Kaufman & Mann, 2013; Yew & Goh, 2016). Through the interaction of these three elements, metacognition is developed and self-efficacy is fostered (Kaufman & Mann, 2013)

Transformative learning

- This is a reflective process and if strategically developed cases or problems are designed, can provide the tipping moments needed for transformation (Mezirow, 2018). Reflection is critical to the development of self-regulation and life-long learnership (Hmelo-Silver, 2004; Kaufman & Mann, 2013) and professional identity

But....

- Searching for information takes time

- Discussion and debate take time

- Developing a product/artifact takes time

Enough time to cover all the content?

- Reimaging not just how we teach but also what we teach (Ventimiglia & Pullman 2016)
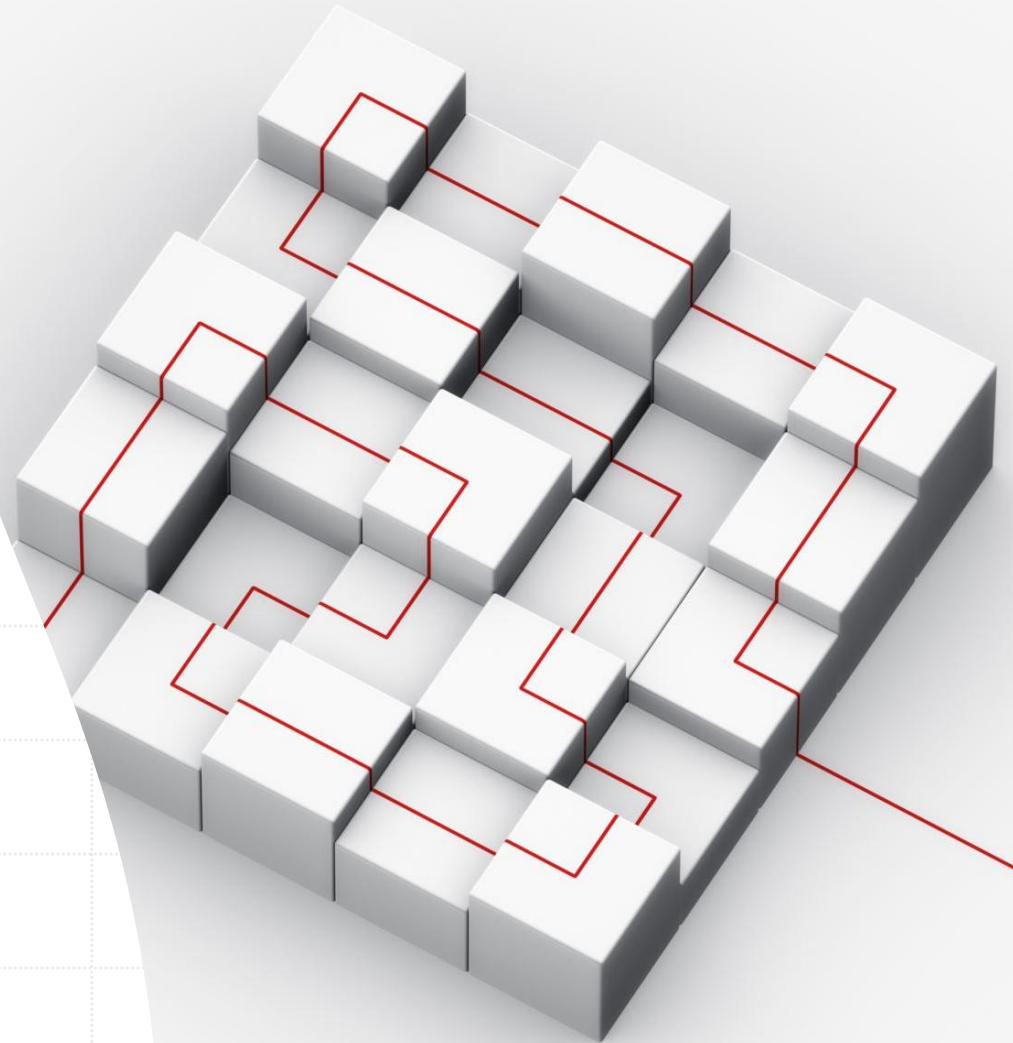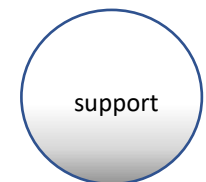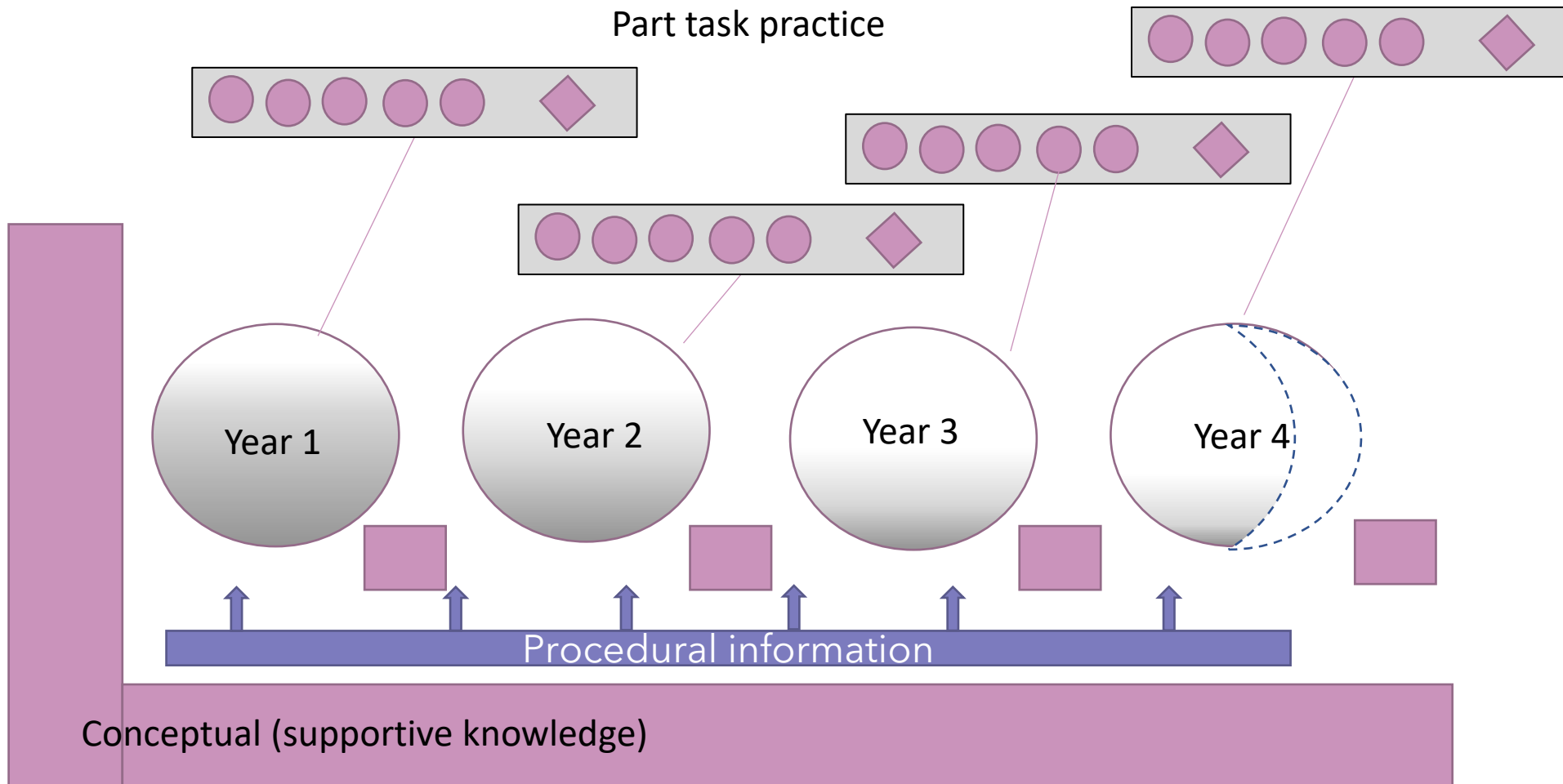
Challenges in PBL

- Lack of IT skills
  - "Despite having grown up with access to an increasing amount of technology, students now need to learn how to use technology to solve problems in academic and professional settings"
  (Ventimiglia & Pullman, 2016 – From written to digital: The New Literacy)

- Poor motivation and expectations

- Resource intensive

(renewed) BSc in Physiotherapy

- Increase blended learning

- Problem-based learning

- Four Component Instructional Design model
  - Defragmentation
  - Compartmentalisation
  - Transfer paradox

4C-ID model (complex learning theory)

Part task practice

Procedural information

Conceptual (supportive knowledge)

Year 1

Year 2

Year 3

Year 4

support

Benefits

Deals with complexity without losing sight of separate elements and the relationship between those elements (Merrienboer 1997)

Improves successful knowledge construction and deeper learning (Merriënboer and Kirshner 2018)

Embedded instruction for problem solving

Improved motivation, better engagement, deeper learning (Cordova & Lepper, 1996; Perin, 2011, Melo 2018, Wopereis et al. 2016)

Embedding instruction within meaningful context

Improved knowledge translation (Vanderwaetere et al 2015) and ToA (Bleakley, 2021)

III Implement, evaluate, and revise

- Full implementation of year 1 in 2023

BUT pressed the pause button

- Assumptions:
  - understand social accountability
  - experience in reflection
  - understand the PBL process
  - comfortable with letting go some content to focus on developing process

Take home messages:

- Development of critical skills (graduate attributes) begins on Day 1 of Year One

- Integrated scaffolding is key
  - 4C-ID model (auxin – August 2022)

- PBL is a sustainable evidence-informed method to enable critical skills development while learning clinical competence

- Program renewal = change management
  - Reflective TLA practitioners

Thank you!

Adam Grant ✔
@AdamMGrant

Great minds don't think alike. They challenge each other to think differently.

The people who teach you the most are the ones who share your principles but not your thought processes.

Converging values draw you to similar questions. Diverging views introduce you to new answers.

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