Conceptual learning material, made contextual

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Overview

- My context
- Background
- How to facilitate context
- Hidden curriculum
- Assessment
- Conclusion
My Clinical Context

• 9am
• Thursday: Breast and Endocrine Surgery outpatient clinic
  Tygerberg Academic Hospital

• New group of 4th year medical students
  • waiting in the clinic corridor, their first clinical rotation

• Today, each will examine and present a patient/s to the consultant

• Apply theoretical knowledge obtained in the last three years
  • to a real patient
  • real complaints, symptoms, signs and emotions

• Within a fully functioning unit
  • Fast pace
  • High demand for time and efficiency
Background

- Early medical training, clear transition: classroom learning → clinical setting

- Contextual shift from the desk to the bedside is critical
  - exciting, dramatic and traumatic for the student
  - difficult: intellectually and emotionally

- Students:
  - exposed to real and often very ill patients
    - must learn to adapt to the academic hospital setting, a working and learning space
  - participate in realistic tasks
    - relating to the patient and expectations within a learning context, with high cognitive demand
  - experience:
    - severe discomfort, sudden knowledge deficit and appear unable to apply their knowledge in practice
    - struggle to filter all the theoretical knowledge to the specific patient

- Lastly, busy clinical environment is difficult to predict and control
  - primary focus is health care
  - not education

Koens et al., 2005
So, what is required of the student to achieve the transition, to transcend from the purely theoretical to application in the clinical/practical context?

What is required of the **lecturer**/clinician to aid the transition for the student/facilitate the shift?
Taking a step back

- **Learning**: complex and multifaceted

- Varied learning **styles**
  - cognitive and psychosocial behavior in response to the learning environment

- **Educator** should be able to adapt pedagogy dependent on the learning style and teaching setting
  - to augment the learning experience

- Increasing **role** of context in education

Romanelli, Bird and Ryan, 2009; Koens et al., 2005; McMillan, 2010; Davtyan, 2001; Freeman, Field and Dyrenfurth, 2001
• The student is expected:
  • generate connections between presented information
  • pre-existing theoretical knowledge

• Making connections is
  • important for conceptual understanding
  • clinical/ critical reasoning

• Conceptual growth is tiered
  • requires development of basic knowledge
  • opportunities to network concepts
  • repeated exposure to multiple scenarios with a range of situations

• The student must practice to filter information according to
  • incoming facts
  • prior knowledge and experiences
• Filtered information should be **prioritized** into actions according to importance/ urgency

• Must be **transferable** within a context/ scenario/ situation to another

• **Integrate** academic and practical learning
How to facilitate context

- Providing career related **realistic** examples as point of departure in the course

- Fostering activities where concepts can be **practiced**
  - improve student **motivation** for learning

- Interactive activities/ scenarios showcase the meaning and **relevance** of the concept
  - recognition of their **own** personal relationship to these concepts
  - enhance problem solving

- Ignite the students' existing knowledge and level of experience
  - **assemble** the content towards developing deeper knowledge
  - **systematic** format

- Help the student to move from abstract to concrete concepts
  - building of **patterns**/ algorithm of approach

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Prins, Bulte and Pilot, 2018
Krause et al., 2016
McMillan, 2010
• Success in the **teaching space**
  - quality of the course material
  - implementation thereof

• The application of contextual learning in the classroom does not involve new tools.

• It involves an **investment** into new teaching styles and strategies
  - willingness to go outside of the box (classroom)
  - analyze the learning needs and objectives
  - develop a delivery system/environment to meet those needs

• the context should ideally…
  - increase commitment to learn
  - increase willingness to invest more effort in the learning task

• kindle an academically oriented "hands-on" practitioner

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Prins, Bulte and Pilot, 2018
Krause et al., 2016
McMillan, 2010
How to teach context into concepts

• Start with what you **know**

• Embed into **traditional** lecture formats
  • practice problems found at the end of chapters in textbooks
  • create own from work experience/ colleagues/ industry specialists

• **It is not** enough

• Next level
  • development of instructional materials
  • advance to practical examples across a variety of contexts with differing perspectives
  • use your experience to help the novice

Winograd, 2003
Freeman, Field and Dyrenfurth, 2001
The experienced and the novice

- The **experienced** ie lecturer
  - function by recognizing patterns, **well-organized** knowledge, **discipline-based organizing scheme**
  - deduce concepts in an automated form
- The **novice** ie students
  - function in a linear fashion
  - need opportunities to develop/practice the concepts and engage with varying scenarios
- **Teacher** should facilitate **progress** by:
  - making the critical reasoning process **overt**
  - helping novices to develop their thinking processes by way of **example**
  - listen
- **explicit** **display of thought processes** through a problem/scenario
  - own problem-solving methods
  - model the expected approach
- **Educator/ Practitioner**
  - **inherent** difficulty encountered in real life practice
  - admitting their **own** lack of knowledge
  - set the tone for students to admit their limitations and to ask questions

Densen, 2011
Reilly 2007
Rikers et al. 2004
Ramani 2003
• Creating **authentic** contexts and instructional activities allow the student
  • acquire the knowledge, skills, and attributes
  • crucial for the **workplace** environment

• Inculcates **application**, rather than mere accumulation, of knowledge

• Replicating a cohesive, multidisciplinary work-like environment
  • allows professional experiences
  • may make concepts tangible/ relatable
  • practical involvement under supervision- **invaluable**

• Ultimate exposure is the **real-life** job scenario
  • overarching **disciplinary** concepts
  • competencies/ skills/ disposition
Beyond the classroom
educational context that delivers graduates that are socially responsive
inspired towards lifelong learning and curiosity
impact disciplinary and social domains

• **SU**
  • An Enquiring Mind-Lifelong learner,
  • Critical and creative thinker,
  • Exercises responsibility for learning and using knowledge
  • An Engaged Citizen-Leader and collaborator;
  • Social entrepreneur;
  • Effective in a diverse environment
  • A Dynamic Professional-Problem solver;
  • Uses sustainable and effective technology;
  • Innovative
  • A Well-rounded Individual-Exposed to cultural, intellectual and sporting life;
  • Takes responsibility for own development;
  • Takes informed and considered decisions

• **FMHS**
  • Healthcare Practitioner,
  • Communicator,
  • Collaborator,
  • Leader and Manager,
  • Health Advocate,
  • Scholar and
  • Professional
• Going back to the Thursday morning clinic…
• Challenges
• MBChB II
• COVID-19---Online clinical teaching
• Practical aspects
Beyond Medicine

• Different fields require development of different contexts

• Contexts to help students connect the knowledge learned from the textbooks to life
  • simulated
  • student participate by having interactions with people, events, or objects within that environment
  • practical conditions placing students in lifelike problem-solving contexts
  • evaluate

• Students to develop from partial and distant participation to full engagement
  • students to transcend towards to full participation in the class/ community/ career
  • the practices of the field

Sung, Hwang and Yen, 2015
Greeno, 2008; Wu & Tsai, 2007
Sadler & Zeidler, 2005;
Johnson, 2002
Assessment

- Align the assessment to the outcomes
- Be clear about the criteria of evaluation

- Assess – application, performance, skill, attitude

- Assess as/ about/ where you taught
  - In clinic/ In theatre
  - Laboratory/ Field etc

- Assessment task
  - authentic, real life
  - emphasize problem solving/ critical thinking

- Feedback opportunities
Conclusion

• Conceptual learning is fortified through Participation in contextual practices

• Benefits of contextual learning are mutual
  Students
  Faculty

• opportunity to provide students with realistic scenarios
• ability to role model the career/ speciality/ hidden curriculum/ mentor

“The diversity and frequency of cases in the emergency setting allowed me to revisit and consolidate concepts and procedures from multiple medical fields and systems. I encountered numerous conditions about which I had only studied theoretically, and to see the presenting signs coupled with context and interpersonal interactions made committing the conditions to memory much easier.”

J. Farmer
MBChB V
Thank you

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