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Conceptual learning material, made contextual



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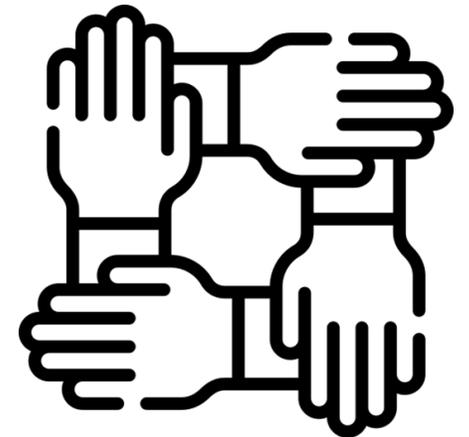
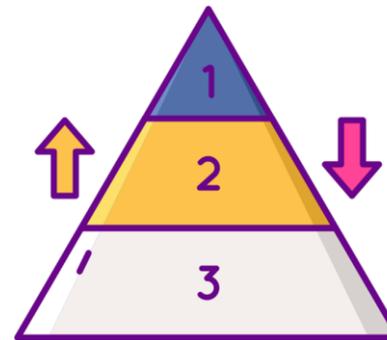
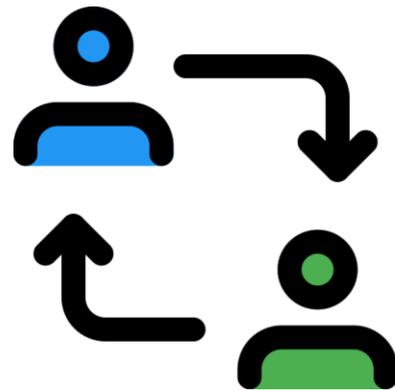




Overview



- 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



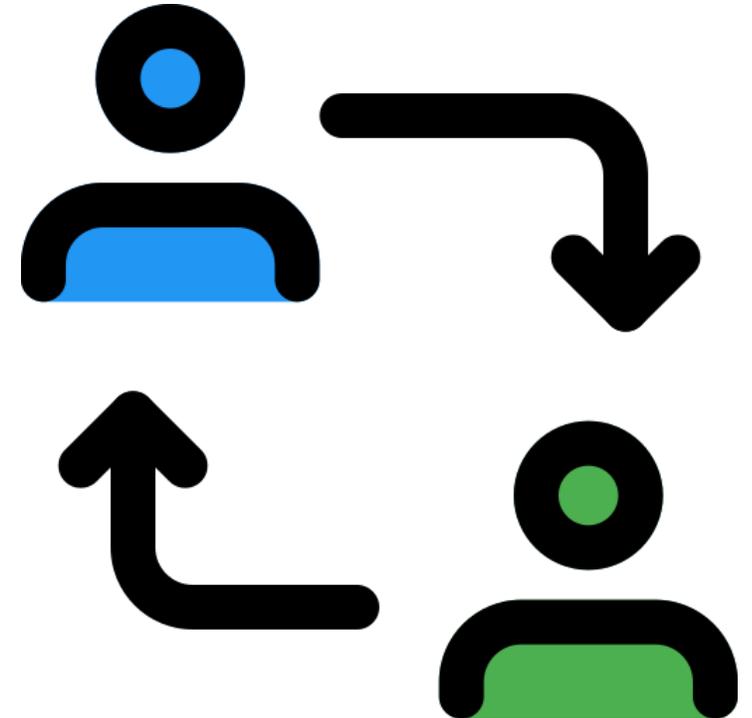
- Early medical training, clear **transition**: classroom learning → clinical setting
- Contextual **shift** from the desk to the bedside is critical
 - exciting, dramatic and traumatic for the student
 - difficult: intellectually and emotionally
- Students:
- **exposed** to real and often very ill patients
 - 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





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

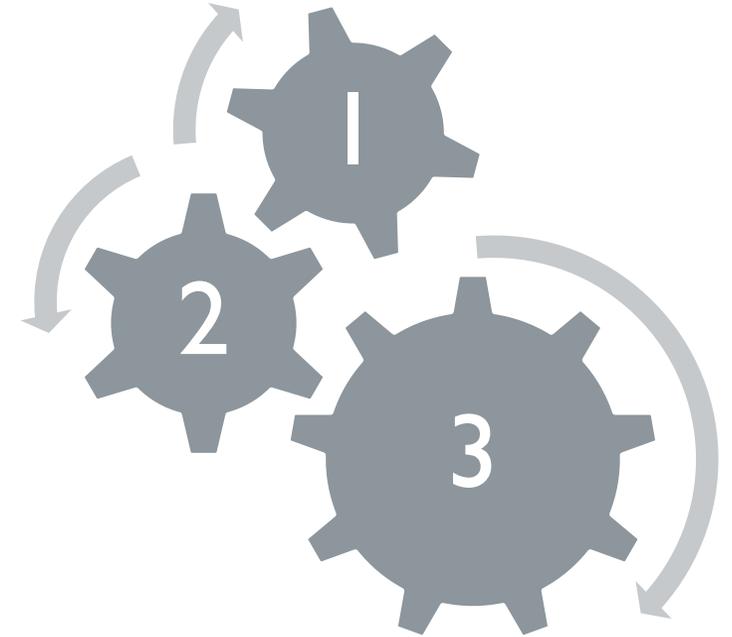


- **Learning:** complex and multifaceted
- Varied learning **styles**
 - cognitive and psychosocial behavior in response to the learning environment
- **Educator** should be able to adapt pedagogy dependent on the learning style and teaching setting
 - to augment the learning experience
- Increasing **role** of context in education

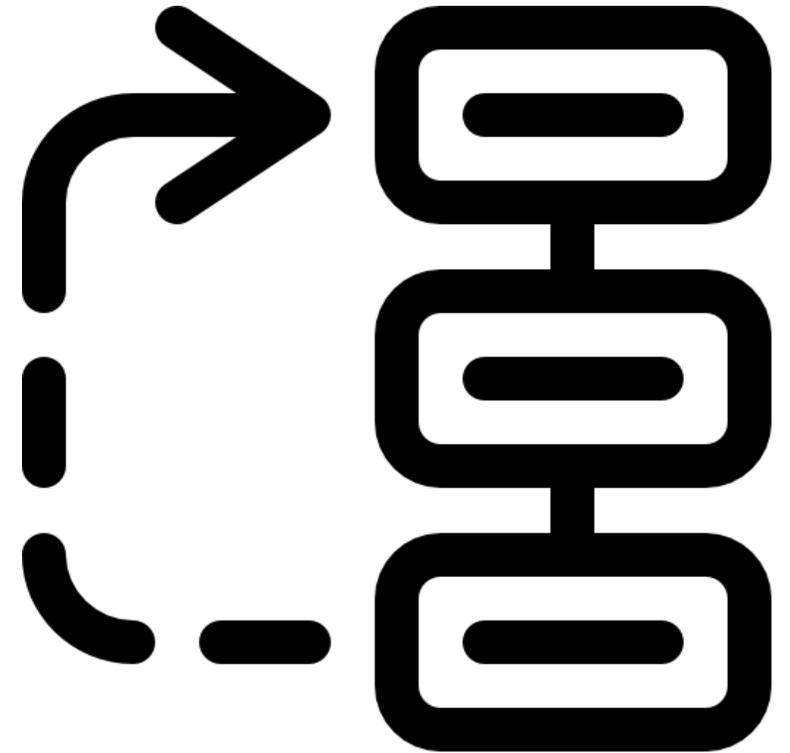




- The student is **expected**:
 - generate connections between presented information
 - pre-existing theoretical knowledge
- Making **connections** is
 - important for conceptual understanding
 - clinical/ **critical reasoning**
- Conceptual growth is **tiered**
 - requires development of basic knowledge
 - 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



Prins, Bulte and Pilot, 2018
Krause et al., 2016
McMillan, 2010



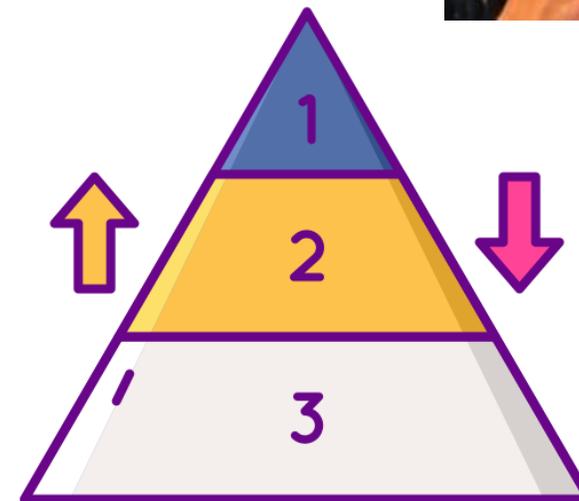
- Success in the **teaching space**
 - quality of the course material
 - implementation thereof
- The application of contextual learning in the classroom does not involve new tools.
- It involves an **investment** into new teaching styles and strategies
 - willingness to go outside of the box (classroom)
 - 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

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

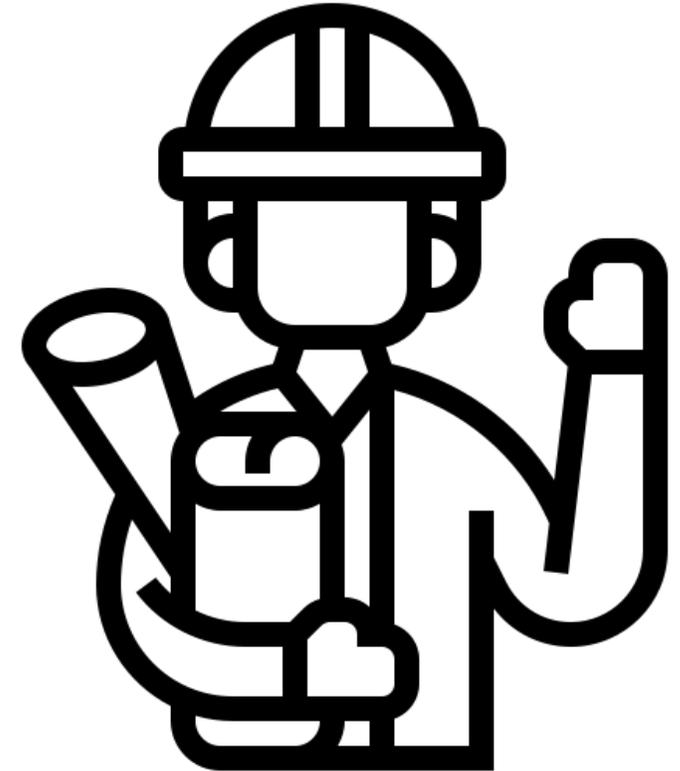


- The **experienced** ie lecturer
 - function by recognizing patterns, **well-organized** knowledge, **discipline-based organizing scheme**
 - deduce concepts in an automated form
- The **novice** ie students
 - function in a linear fashion
 - need opportunities to develop/ practice the concepts and 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





Graduate Attributes

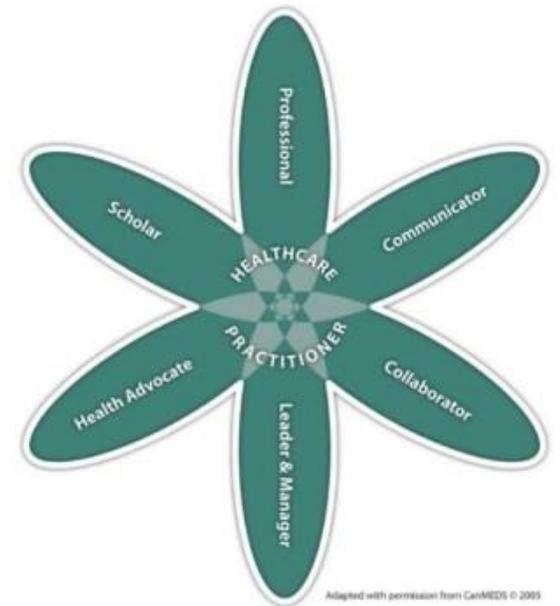


Beyond the classroom

educational context that delivers graduates that are socially responsive
inspired towards lifelong learning and curiosity
impact disciplinary and social domains

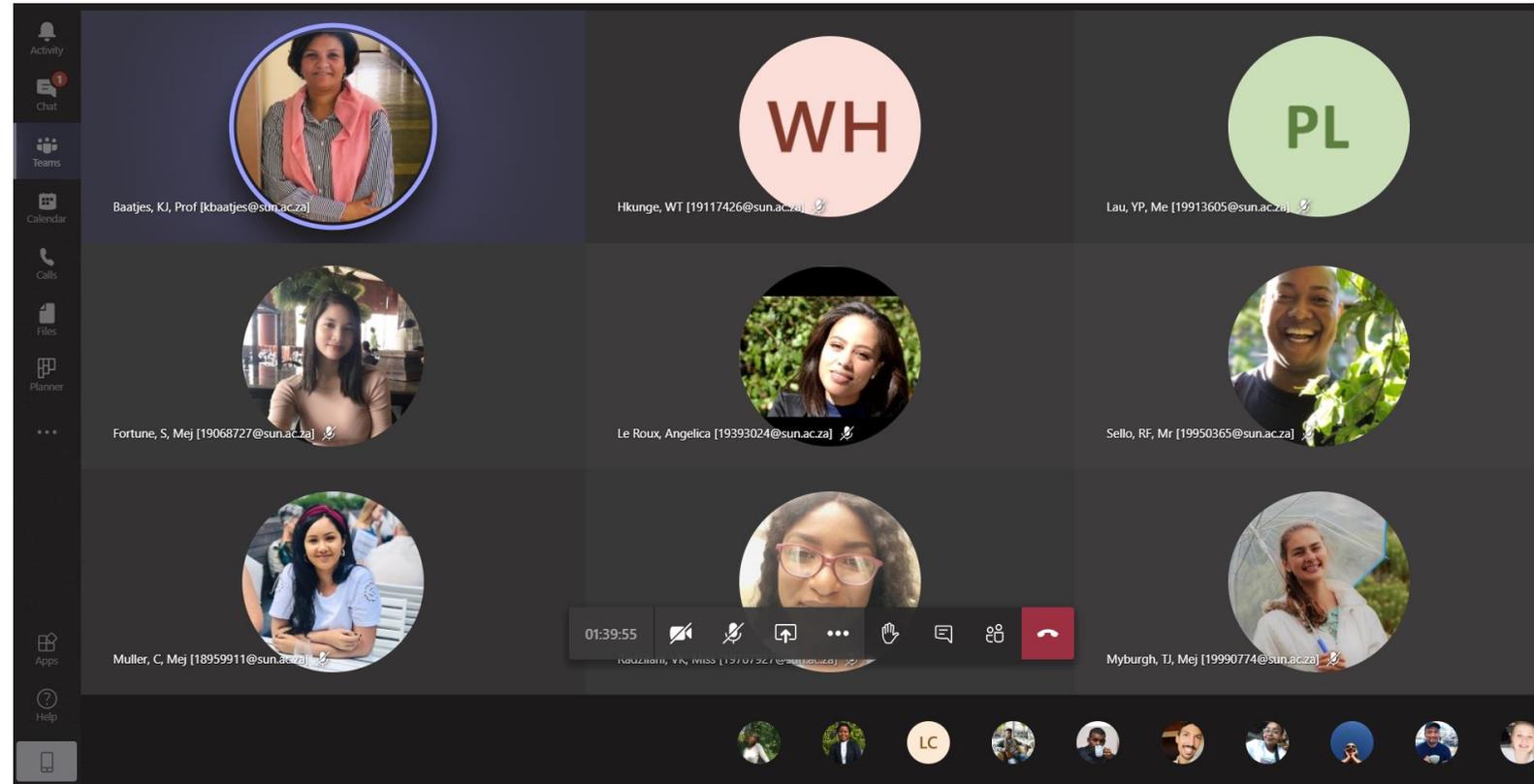
- **SU**
- An Enquiring Mind-Lifelong learner,
- Critical and creative thinker,
- Exercises responsibility for learning and using knowledge
- An Engaged Citizen-Leader and collaborator;
- Social entrepreneur;
- Effective in a diverse environment
- A Dynamic Professional-Problem solver;
- Uses sustainable 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





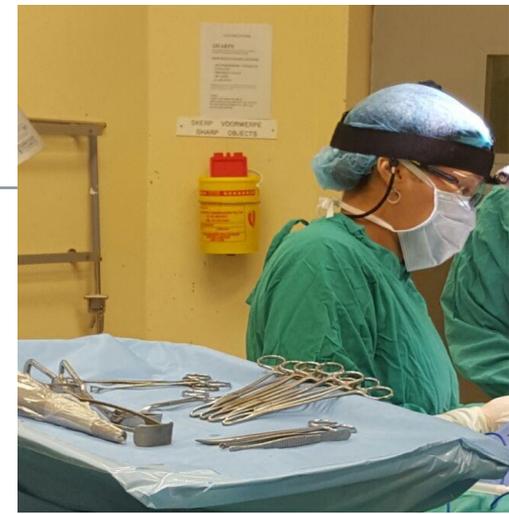
- Going back to the Thursday morning clinic...
- Challenges
- MBChB II
- COVID 19---Online clinical teaching
- Practical aspects





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

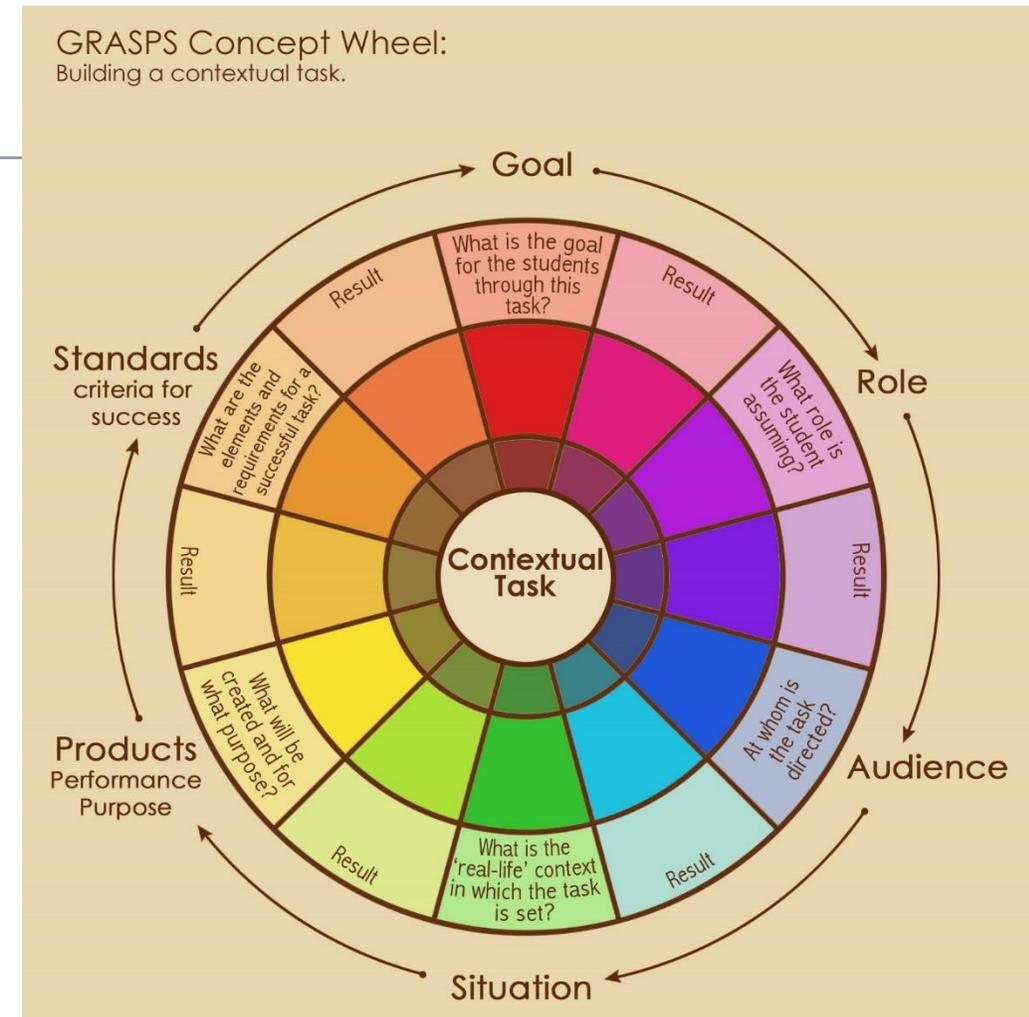


Sung, Hwang and Yen, 2015
Greeno, 2008; Wu & Tsai, 2007
Sadler & Zeidler, 2005;
Johnson, 2002



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

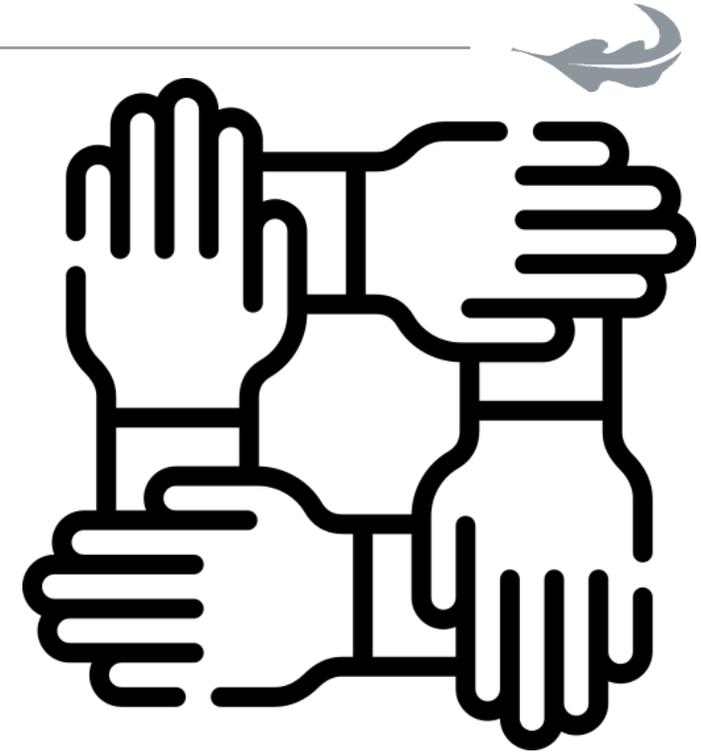


Iter 2017



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.”

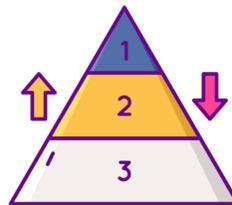
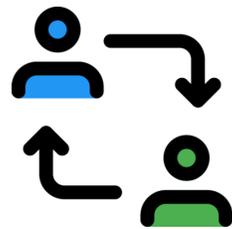
*J. Farmer
MBChB*



Thank you



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