TECHNOLOGY ENABLED CONSTRUCTIVISM …IN ACTION
INTRODUCTION

• “Constructivism goes beyond the study of how the brain stores and retrieves information to examine the ways in which learners make meaning from experience.

• Rather than the transmission of knowledge, learning is an internal process of interpretation”

(McMahon, 1997)
• Simply – how knowledge is constructed in a meaningful way

• 2 types of tasks falls within constructivist pedagogy
  – **MEANINGFUL** – derive applicable, understandable knowledge from it
  – **AUTHENTIC** - is directly related to the course of study and is applicable to the real world
THEORIES OF LEARNING

• **Dewey** - inquiry being a key part of learning

• **Piaget** – learning by doing

• **Vygotsky**’s fundamental contribution
  – social aspect to learning
  – ZPD - relation between what a student knows and the knowledge that exists within the social context

• **Siemens** – connectivism
  – “messy & complex” & “fuzziness”
  – More effective in preparing students for life long learners

• **Transformative learning theory** - grounded in communication with reflection (key component)
Radiographic Practice IV:  
- 4th level subject  
- Part-time - 1 weekend/month contact time  

Heterogeneous Students:  
- 3 disciplines – D, T, US  
- Newies vs Oldies  
- Clinical placement  
- Digital natives vs immigrants  

Resources:  
- No appropriate textbooks  
- Heterogeneous content  
- Reliance on web content  

21st century T & L framework:  
✓ Techno-savvy  
✓ Communication + Collaboration  
✓ Critical thinking + Problem Solving  
✓ Purpose and Mastery - linking theory with practice  
✓ Learning autonomy  
✓ Reflective practice + Lifelong learning
CLASSROOM INTENTIONS
Your location: Learning Modules

**Learning Modules**

- **General Matters**
- **INTRODUCTION TO TRAINING AND PRESENTATION OF DATA** (Hidden)
- **Writing Skills - Assignments, Case Studies, Reflections, Journalling...**
- **LO1 - Poster Presentations**
- **LO1 - Oral Presentations**
- **DIAGNOSTIC Outcomes**
- **NUCLEAR MEDICINE Outcomes**
- **RADIOTHERAPY Outcomes**
- **ULTRASOUND Outcomes**
- **QC and QA (15 - 16 September 2012)** (Conditional)
- **Image Evaluation and Interpretation** (Conditional)

**21 - 22 July update**

The announcement tool proved a challenge, so find attached an update for the weekend.

**Assessments** (Hidden)

**Final group project**

Diagnostic students - Please decide your groups and provide me a final list.

**Case Study Feedback**

**Weekly Readings and Assigned Tasks** (Hidden)
Media Library

Glossary
An alphabetical list of terms relating to this course, and their descriptions.

Diagnostic Resources

Readings - QA in MSCT

Readings - PET/CT

Readings - QA in PET/CT

Radiotherapy Resources

Readings - QA in Radiotherapy

Ultrasound Resources

Readings - QA and Biosafety in Ultrasound

Readings - Radiotherapy Treatment Planning & Verification

Readings - Image Evaluation and Interpretation

Creating Effective Posters

Writing Skills
Some resources to assist with improving writing skills.

Video
TEDTalks_Bring on the Learning Revolution by Sir Ken Robinson
Discussions - Diagnostic Image Evaluation & Interpretation

- Task 2
  Knowledge of cross-sectional anatomy is imperative to understanding the appearances of diseases on MSCT images. IDENTIFY the major organs on the images for the different regions. RECOGNIZE the differences of each structure on the various planes.

- Task 3
  Let's review the articles from the Radiology Assistant (you can use other resources in the Media Library too) RECOGNISE the key anatomical structures of the key anatomical structures of the: major organs in the head, neck and chest, heart and major vessels, visera in the abdomen, musculoskeletal system, systemic and peripheral vasculature RECOGNISE the normal image characteristics/appearances ...

- Task 4
  Let's review the articles from the Radiology Assistant (you can use other resources in the Media Library too) RECOGNISE the abnormal image characteristics/appearances in these regions: major organs in the head, neck and chest, heart, major vessels, and visera in the abdomen, musculoskeletal system, systemic, and peripheral vasculature.

Discussions - PET/CT Image Evaluation & Interpretation

- Task 2 - NM
  Review the articles from the Radiology Assistant (you can use other resources in the Media Library too) IDENTIFY the major organs on the images for the different regions. RECOGNIZE the differences of each structure on the various planes of CT Images Head & Neck Chest Abdomen Pelvis.

- Task 3 - NM
  Review the related articles from the TOC and the links provided (you can use other resources too) RECOGNISE normal and abnormal radiopharmaceutical distributions. HIGHLIGHT the importance of hybrid/fusion imaging.

- Task 4 - NM
  Review the articles, from the TOC and the links provided (you can use other resources too)
  - HIGHLIGHT common PET/CT imaging artifacts/ptials.
  - IDENTIFY potential sources of error in PET imaging.

Discussions - Radiotherapy Image Evaluation & Planning Techniques

- Task 2 - RT
  Review the articles, from the Radiology Assistant (you can use other resources too) IDENTIFY the major organs on the images for the different regions. RECOGNIZE the differences of each structure on the various planes. Head & Neck Chest Abdomen Pelvis. IDENTIFY the target organs and organs at risk in each region.

- Task 3 RT
  Review the articles from the Table of Contents (you can use other resources too) RECOGNISE the key principles for treatment planning.

- Task 4 - RT (Hidden)
  Review the articles, from the Radiology Assistant and Medyclopedia (you can use other resources too) Critically EVALUATE radiotherapy treatment planning, using the advanced therapy units. HIGHLIGHT the plan verification techniques.

Discussions - Ultrasound Image Evaluation & Interpretation

- Task 2 - US
  Using the links provided on MSK Sonography: IDENTIFY the MSK anatomy in the: ankle and foot (YouTube videos and tutorials) hand and wrist elbow and shoulder knee and hip (revision) RECOGNIZE the differences of each structure on the various planes. RECOGNISE the normal and abnormal sonographic appearances.

- Task 3 - US
  Using the links provided on Echocardiography: (you can use other resources too) IDENTIFY the anatomy in the heart and major vessels. (YouTube videos and tutorials) Review the congenital anomalies and abnormalities of the heart and major vessels. RECOGNIZE the differences of each structure on the various planes. RECOGNISE the normal and abnormal sonographic appearances for each presentation.

- Task 4 - US
  Using the links provided on Vascular sonography: (you can use other resources too) IDENTIFY the anatomy of the systemic and peripheral vessels. (YouTube videos and tutorials) Review the congenital anomalies and abnormalities of these vessels. RECOGNIZE the differences of each structure on the various planes. RECOGNISE the normal and abnormal sonographic appearances for each presentation.
You need to reflect on each weekend's activities. This is an important practice, as it helps to "complete the circle".

**Experience**
actions past / present

**Planning**
making plans in order
to take (further) action

**Observation**
documenting what happened

**Reflection**
making sense, investigating, theorising

http://sites.fcps.org/rrt/content/reflective-practice

The further action will always be to improve practice, to improve what you do, who you are....

**The critical cross field outcomes are: (from your study guide)**

- Identify problems in any situation and solve them using critical thinking.
- Critically evaluate and analyse minor problems with equipment, quality of radiographs, processing problems as well as your own and peers’ performance.
- Relate the theory to the practical and clinical situation as well as see the relationship between Radiographic Practice IV and other subjects.
- Reflect on your work and performance and improve it by making the necessary changes.

- **April Journal** (27 Messages)
  N.B. you have a option to reflect in this space or use the wiki. TIPS: How has the weekend's activities impacted on you? How has the new information contributed to your existing pool of knowledge? Why is it relevant? How will this new knowledge impact on your practice? You need to link theory with practice, IDENTIFY the gaps. REMEMBER the Prompt Questions? Refer to Lesson Plan On Reflective Practice.

- **May Journal** (22 Messages / 9 New)
  Do not forget to make an entry. TIPS: How has the weekend's activities impacted on you? How has the new information contributed to your existing pool of knowledge? Why is it relevant? How will this new knowledge impact on your practice? You need to link theory with practice, IDENTIFY the gaps. REMEMBER the Prompt Questions? Refer to Lesson Plan On Reflective Practice.

- **June Journal** (22 Messages)
  Do not forget to make an entry. TIPS: How has the weekend's activities impacted on you? How has the new information contributed to your existing pool of knowledge? Why is it relevant? How will this new knowledge impact on your practice? You need to link theory with practice, IDENTIFY the gaps. REMEMBER the Prompt Questions? Refer to Lesson Plan On Reflective Practice.

- **July Journal** (21 Messages)
  Do not forget to make an entry. TIPS: How has the weekend's activities impacted on you? How has the new information contributed to your existing pool of knowledge? Why is it relevant? How will this new knowledge impact on your practice? You need to link theory with practice, IDENTIFY the gaps. REMEMBER the Prompt Questions? Refer to Lesson Plan On Reflective Practice.

- **August Journal** (20 Messages)
  Do not forget to make an entry. TIPS: How has the weekend's activities impacted on you? How has the new information contributed to your existing pool of knowledge? Why is it relevant? How will this new knowledge impact on your practice? You need to link theory with practice, IDENTIFY the gaps. REMEMBER the Prompt Questions? Refer to Lesson Plan On Reflective Practice.

- **September Journal** (20 Messages)
  Do not forget to make an entry. TIPS: How has the weekend's activities impacted on you? How has the new information contributed to your existing pool of knowledge? Why is it relevant? How will this new knowledge impact on your practice? You need to link theory with practice, IDENTIFY the gaps. REMEMBER the Prompt Questions? Refer to Lesson Plan On Reflective Practice.
Assignments

Clinical Logbooks Marks
Due Date: 31 October 2012 12:00

Oral Presentations - Summative Final
Due Date: 13 October 2012 12:00
Please upload your final presentations in a PDF format, for moderation. Thanks

Oral Presentation - Clinical Applications (Conditional)
Due Date: 16 September 2012 23:59
Please convert your presentation to a pdf file before uploading.

2012 Group Project Final
Due Date: 16 September 2012 23:59
Please upload final submission for marking and moderation.

Poster RE-submission
Due Date: 24 August 2012 23:59

Case Study - Final
Due Date: 24 August 2012 23:59
Please upload your final submission as a SINGLE PDF file.

Poster Presentation Final
Due Date: 17 August 2012 23:59
Please save your poster as a PDF and upload here.

Outcomes for 18 - 19 August
Due Date: 15 September 2012 23:59
See attachment for FULL instructions.

Formative Poster Presentation
Due Date: 19 March 2012 23:59

2012 Draft Group Project
Due Date: 25 March 2012 23:59
Please UPLOAD your Draft Assignments here. Please feel free to use the Safeassign tool on the Homepage to assist with determining extent of plagiarism.

Oral Presentations on Developments in Radiography Equipment
Due Date: 22 April 2012 18:00

2012 Poster Presentation Draft
Due Date: 20 May 2012 23:59
Create a POSTER, highlighting advances in technology in your discipline. You are required to use a case study approach, where you select a patient/s with an
Did it work? Was it effective?
Let’s see what they had to say about this learning & teaching strategy!
“...is fairly new to me...” VS... “sit back and listen...we have been „spoon-fed“...wasn't too much that we needed to do on our own.”

“new and completely contrasting teaching strategy in comparison to all my previous.”
“a really cool, catchy innovation that is well suited for the youth of today”

“initially blown over by the online classroom... doing my B-Tech after 20 years ....... not very familiar with computers and accessing the internet... ...grasped the concepts of online learning and was soon reaping the benefits of it.”

“great to explore in an online environment....information can be easily assessed...”
“more learning and interaction in an online classroom....a culture for future students.”

“living in the 21st century is amazing; being part of the evolution in IT is just mind blowing!”
LEARNER AUTONOMY

“social constructivism facilitates...learning through group interaction”
“we as individuals are also able to construct an understanding of concepts”
“You have definitely thought us how to learn”

” Students should learn the art of self-study and management of ones work. Social constructivism is self explanatory...being in charge of ones learning”

“a modern approach that allows a greater sense of responsibility and “power” onto the student.”

“give us direction” + “that back bone that we needed to move forward” + “same time allowing us to self teach .....most valued aspect”

“ made me realise that I’ve grown as an individual ... we are responsible for our own lives”
CRITICAL THINKING

“blogs are great ways that **force learners to critical think deeper** especially after reading opinions and information from other learners.”

“At first I thought making an entry was lame and girly .... it **allows students to critically think and analyse views, concepts and ideas**”

“**used to think in a linear fashion** but now I realise ....... questioning and analyzing data, **learning to think laterally + questioning situations with greater resolve and clarity**”

“Bb ...one to **become a critical thinker**”  “I can **now think on a different level**”  “She made me **think about things and look at things differently** in my profession as well as in the way I worked.”
PURPOSE & MASTERY

“main strength of this subject is active learning” + “learning... more meaningful”
reflect and link the theory to the clinically setting to ensure that we can apply
the skills in our daily work and in the advancement of the profession.”

“meant more work for me ..... however as the year progressed I started to
depend on the web links and files that were on blackboard even for my
clinical work”

“but i think i learnt the most from the links in blackboard ...”

“...improved ability in questioning, analyzing, evaluating and maintaining a
sense of awareness ...positive impact on my academic & professional
development”

“subject has taught me to be more than just a “button Pusher”
“...it helped us gain a lot of self confidence and understanding of the
subject”
“always a sense of ‘social presence’” + “personally enjoyed our class discussions and interactions...aided in my understanding”

“more interactive and allows one to stay focused” + “strengths - the sharing of information among peers. there was constant interaction with the facilitator and other students.”

“social constructivism facilitates the process of learning through group interaction... individuals construct an understanding of concepts for ourselves.”

“information can be easily assessed, a live discussion can take place...more interactive environment.”

“colleagues could also participate in discussions and assist with their views and opinions”

“..every student was involved ...with the facilitator, ...students can also view one another's tasks... answered incorrectly and areas that need improving.

“students could do more learning and interaction in an online classroom”

“...is very interactive...and I have always gone back to read comments of other students.

“challenge yourself to think out of the box and not limited to your learning experiences.”
“empowers the student with a range of skills to perform clinically as well as encouraging self directed and lifelong learning.”

a tedious and sometimes and annoying task....and here I am reflecting on the entire year, this time with more enthusiasm and pleasure.”

“I know I was making connotations between what I knew and what I was learning ...now with a greater learning ... evaluate the clinical.... “

“.... busy running around with an internal dialogue of too much chatter.... the internal chatter has been replaced by a mature thinking ...and great understanding that learning is a continuous process on my journey to self improvement.”

“subject has caused me ... question what I was doing ... in my work place”

“....I began questioning why certain scans was done and why should they...”

“more responsible as an individual and more aware of what is going on in our profession.”
NR said…

• “The HIGHLIGHT for me was the fact that the lecturer "brainwashed" students into believing that the online class was the way to go.

• The focus totally shifted away from copying notes.

• And I must confess, the online classrooms did work.

• I hope this would be a culture for future students.”
CHALLENGES

• Assumption – access off-campus
• Self-belief – trust with new knowledge
  – Traditional “spoonfeeding”
  – Lack of independence
• Autonomy
• Self motivation
• Technological glitches
The New Paradigm: Constructivism

“You cannot teach a man anything; you can only help him find it within himself.”

-- Galileo