Reflections and Thoughts on the Pedagogical Use of Digital Learning Environments for Improved Students' Engagements in Engineering Education

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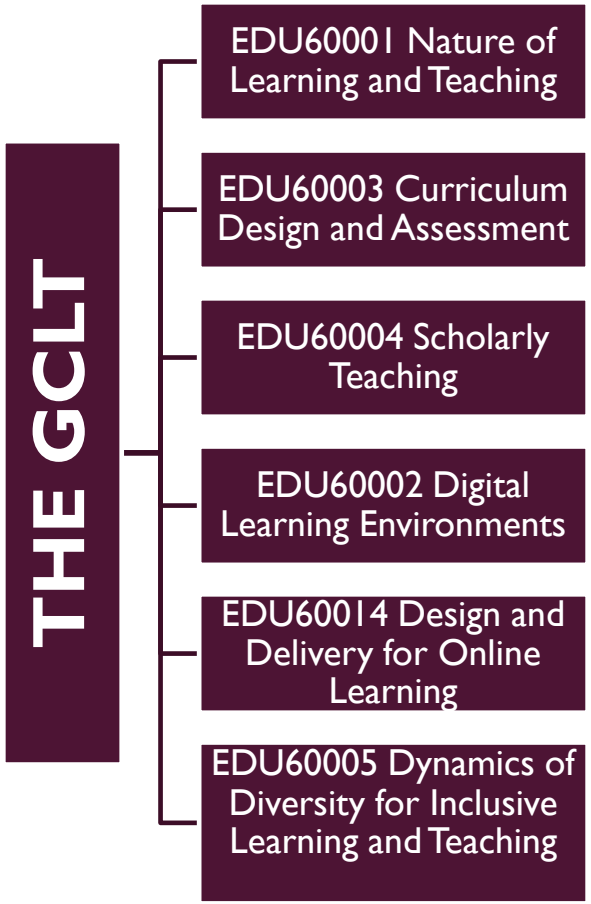
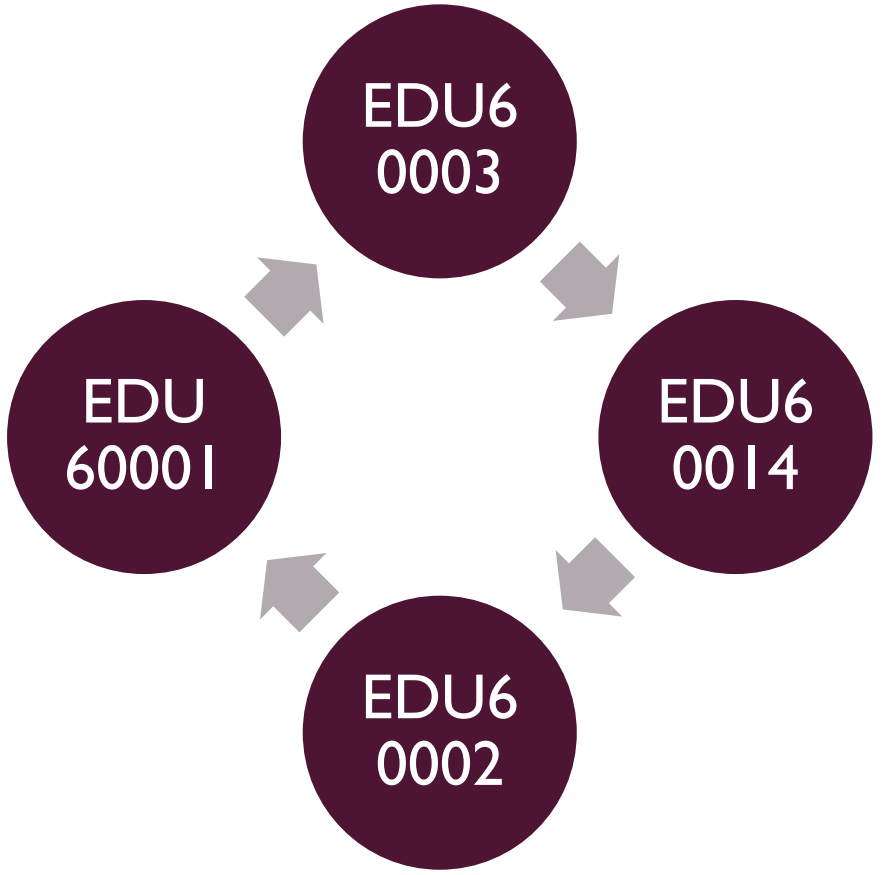
2016 IEEE International Conference on Teaching and Learning in Education (IEEE ICTLE'16)

AGENDA

- INTRODUCTION
- THE GCLT PROGRAM
- THE DLE MODULE
- PEDAGOGICAL CONSIDERATION WITHIN THE DLE
- REFLECTIONS AND THOUGHTS

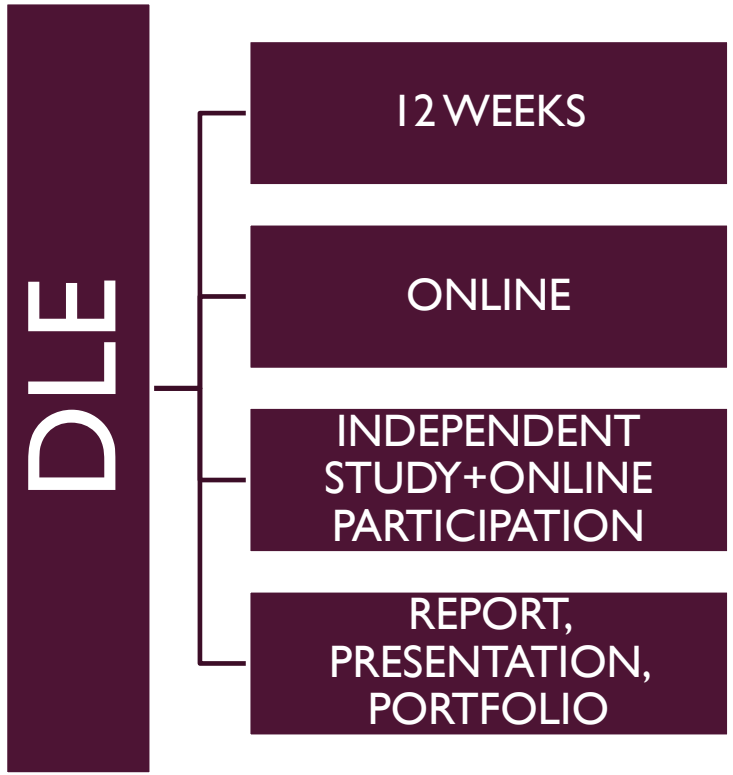
THE GCLT: A STAFF PROFESSIONAL DEVELOPMENT PROGRAM





THE DIGITAL LEARNING ENVIRONMENTS MODULE

THE ANATOMY OF THE DLE MODULE

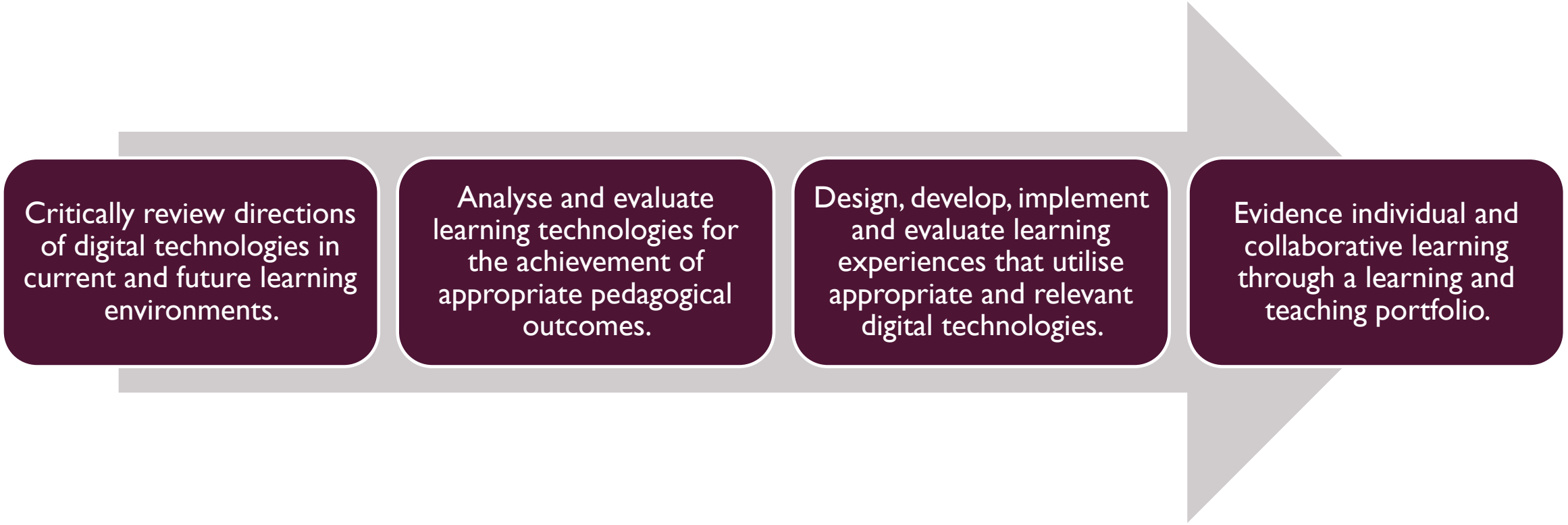


THE DLE MODULE EQUIPS PARTICIPANT

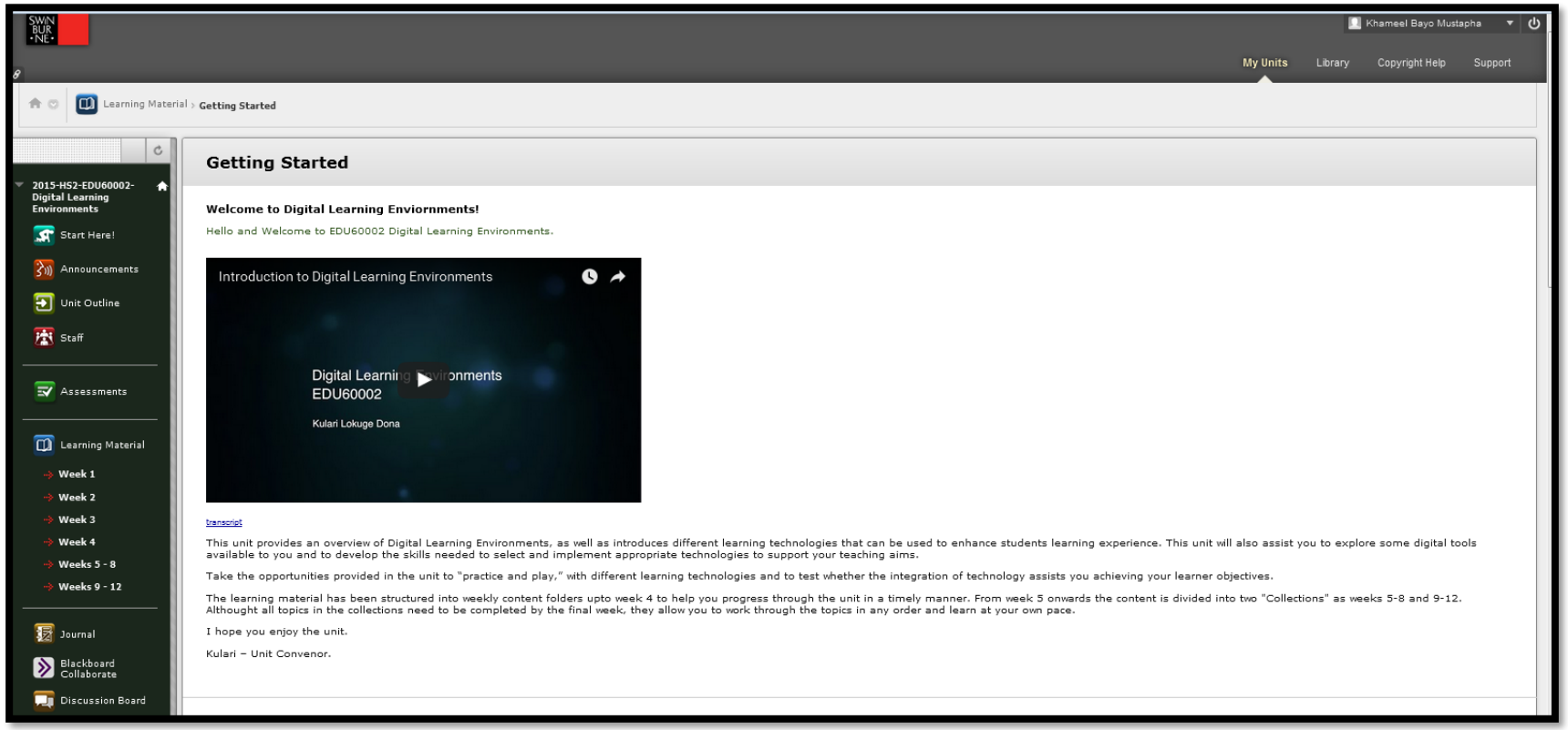
THE digital learning technologies (DLE) module:

- Utilization of technology for learning and teaching aims and outcomes
- Practical and hands on and allows interaction with digital learning technologies
- Exposes to a diverse range of technologies
- Encourages a highly collaborative learning environment

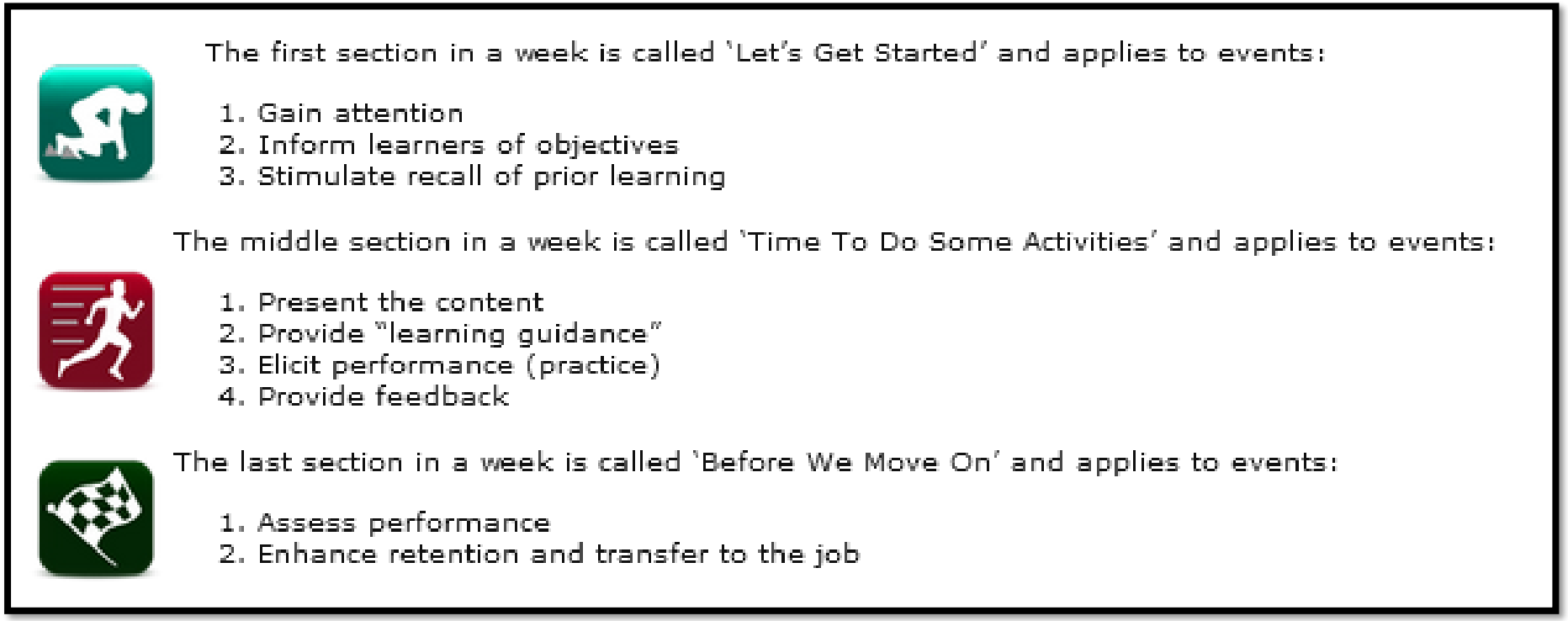
LEARNING OUTCOMES



MODULE BLACKBOARD PAGE



LEARNING CONTENT STRUCTURE



Gagne's 9 Events of Instruction: http://citt.ufl.edu/tools/gagnes-9-events-of-instruction/

WHAT IS COVERED IN WEEK 1 – WEEK 4?

Introduction and Connection	Overview of State-of-the-art	Enhance Learning with Digital Learning Technologies	Technology-enhanced Learning with Social Media
• Week 1	• Week 2	• Week 3	• Week 4

I. Halavais, A. 2013. Teaching and learning with social media. *The Social Media Handbook*, 93.
II. Jochems, W., Koper, R. and Van Merrienboer, J. 2004. *Integrated e-learning: Implications for pedagogy, technology and organization*, Routledge.
III. Kettunen, J., Kairisto-Mertanen, L. and Penttilä, T. 2013. Innovation pedagogy and desired learning outcomes in higher education. *On the horizon,* 21, 333-342.
IV. Thomas, D. and Brown, J. S. 2011. *A new culture of learning: Cultivating the imagination for a world of constant change*, CreateSpace Lexington, KY.

WHAT IS COVERED IN WEEK 5 – WEEK 8?

ASSESSMENT IN THE DLE	FEEDBACK IN THE DLE	PRESENTING IN THE DLE	GROUP WORK IN THE DLE
• Week 5	• Week 6	• Week 7	• Week 8

WHAT IS COVERED IN WEEK 9 – WEEK 12?

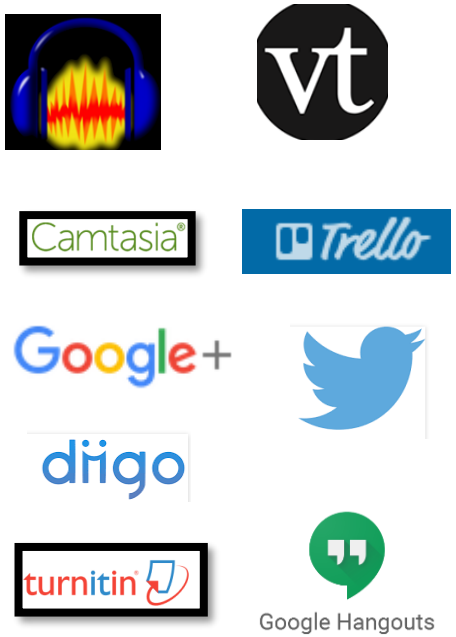
GAMES IN THE DLE	OER	ACCESSIBILITY IN THE DLE	FUTURE OF THE DLE
• Week 9	• Week 10	• Week 11	• Week 12

WEEK 1 – WEEK 4: RELATIONSHIP BETWEEN TEACHING AND TECHNOLOGY

- Become familiar with a social, collaborative, constructivist pedagogy appropriate to a digital learning environment.
- Provided a walk through the difference between cooperative learning, collaborative learning, computer-aided collaborative learning, networked learning and of course the classical individual learning
- Does the technology we have change the fundamental aspects of teaching? Do our teaching theories change the way we use technology? Is it teaching first and then technology, or technology first and then teaching?

WEEK 5 – WEEK 8: MANY TOOLS EXIST

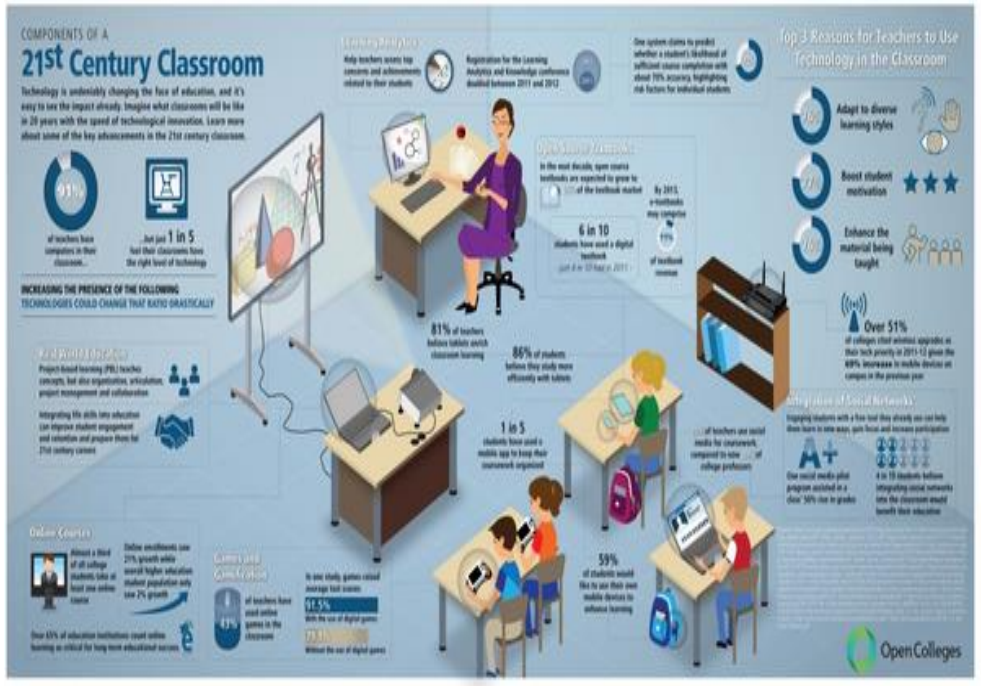
Pedagogical objectives	Tools
Assessment in the DLE	Blackboard (BB) Tests, quizzes, surveys, Turnitin, SafeAssign, portfolios, peer and self-assessment tasks and marked discussion boards
Feedback in the DLE	VoiceThread, Audacity, Camtasia
Group Work in the DLE	Wikis, Discussion board, Google Hangout, Google+, Trello, Popplet,
Mobile in the DLE	Twitter, Diigo



REFLECTIONS AND THOUGHTS: A NEW CULTURE OF LEARNING

A new culture of learning has emerged from the social age:

- a multi-platform on-demand model;
- pixels on the screen;
- multi-threaded discussion environments;
- personalized and differentiated learnings;
- a node in a networked environment



Ref: OpenColleges

REFLECTIONS AND THOUGHTS: CURRENT PRACTICE AND PEDAGOGICAL OUTCOMES OF INTERESTS

PROVISION OF ADDITIONAL SUPPORT

(a) facilitating interactive engagement (so the unit does not appear boring);

(b) providing support for diversity

(c) encouraging team work (engineers must learn to work in a team).

REFLECTIONS AND THOUGHTS: CURRENT PRACTICE AND PEDAGOGICAL OUTCOMES OF INTERESTS

Face-to-face

Teaching-focused

Traditional assessment tasks

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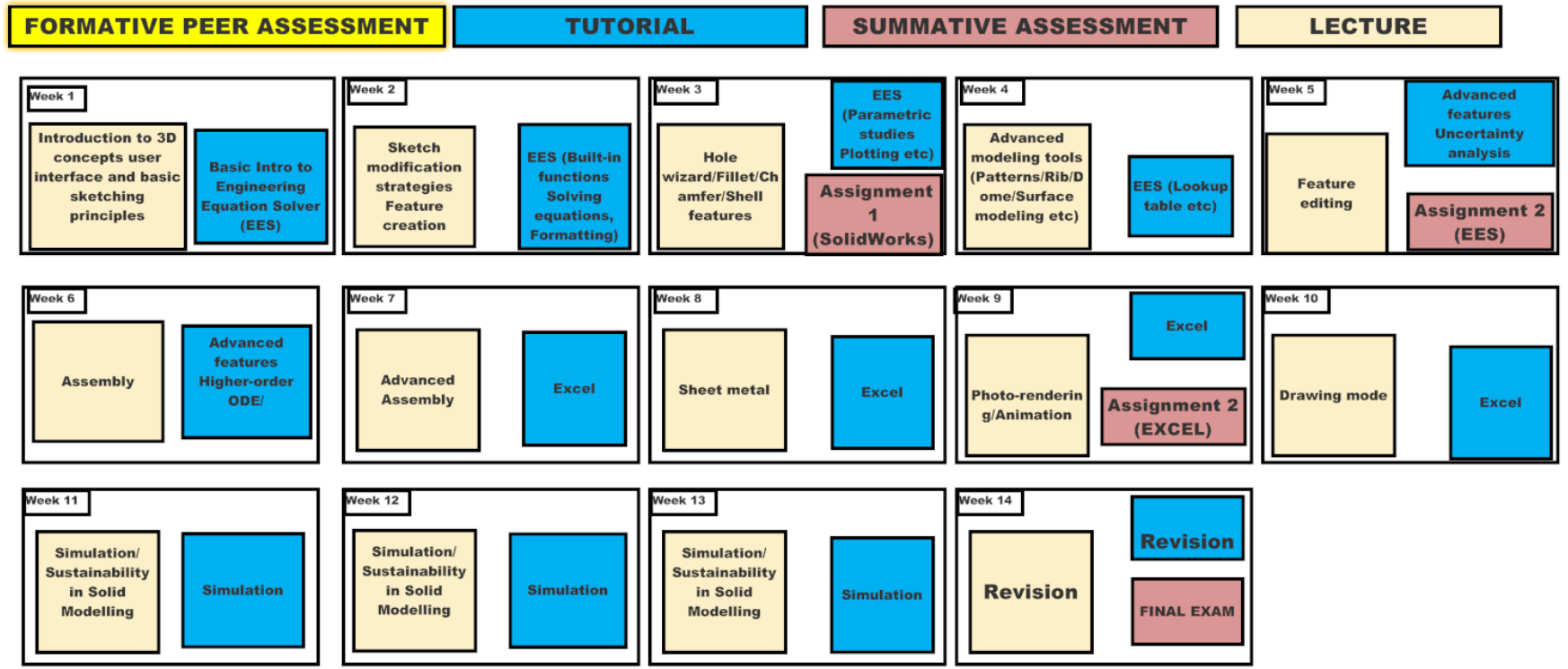

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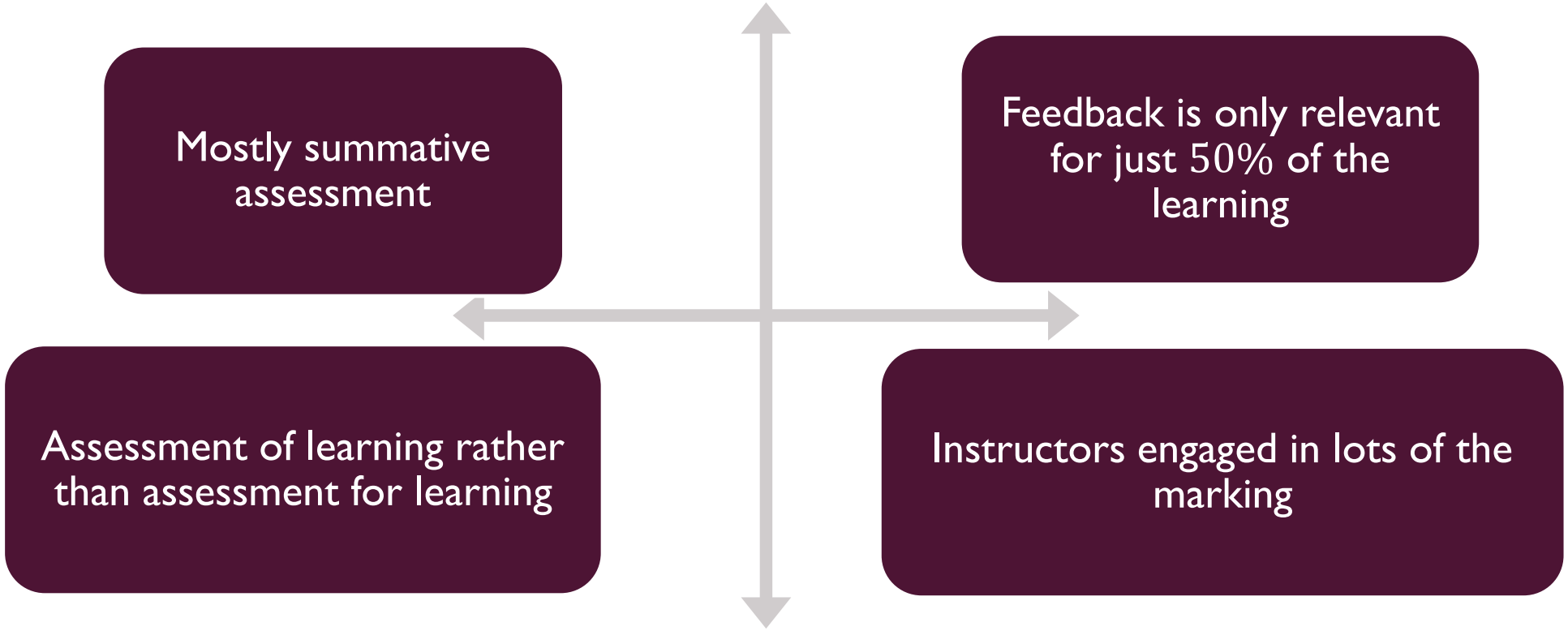
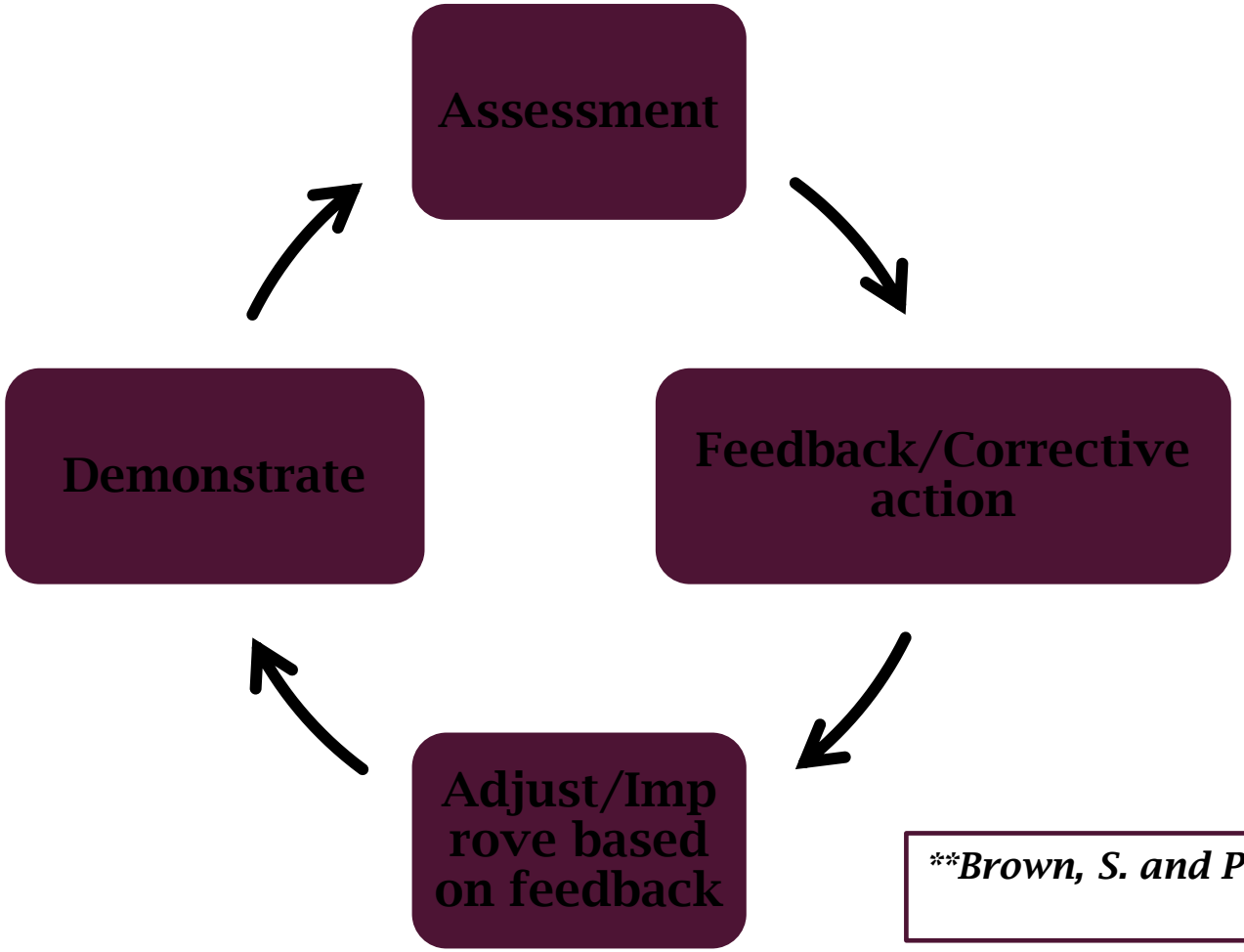


REFLECTIONS AND THOUGHTS: CURRENT PRACTICE AND TECH-ENHANCEMENT



***Brown, S. and P. Race** (2012)

REFLECTIONS AND THOUGHTS: CURRENT PRACTICE AND TECH-ENHANCEMENT

Observation

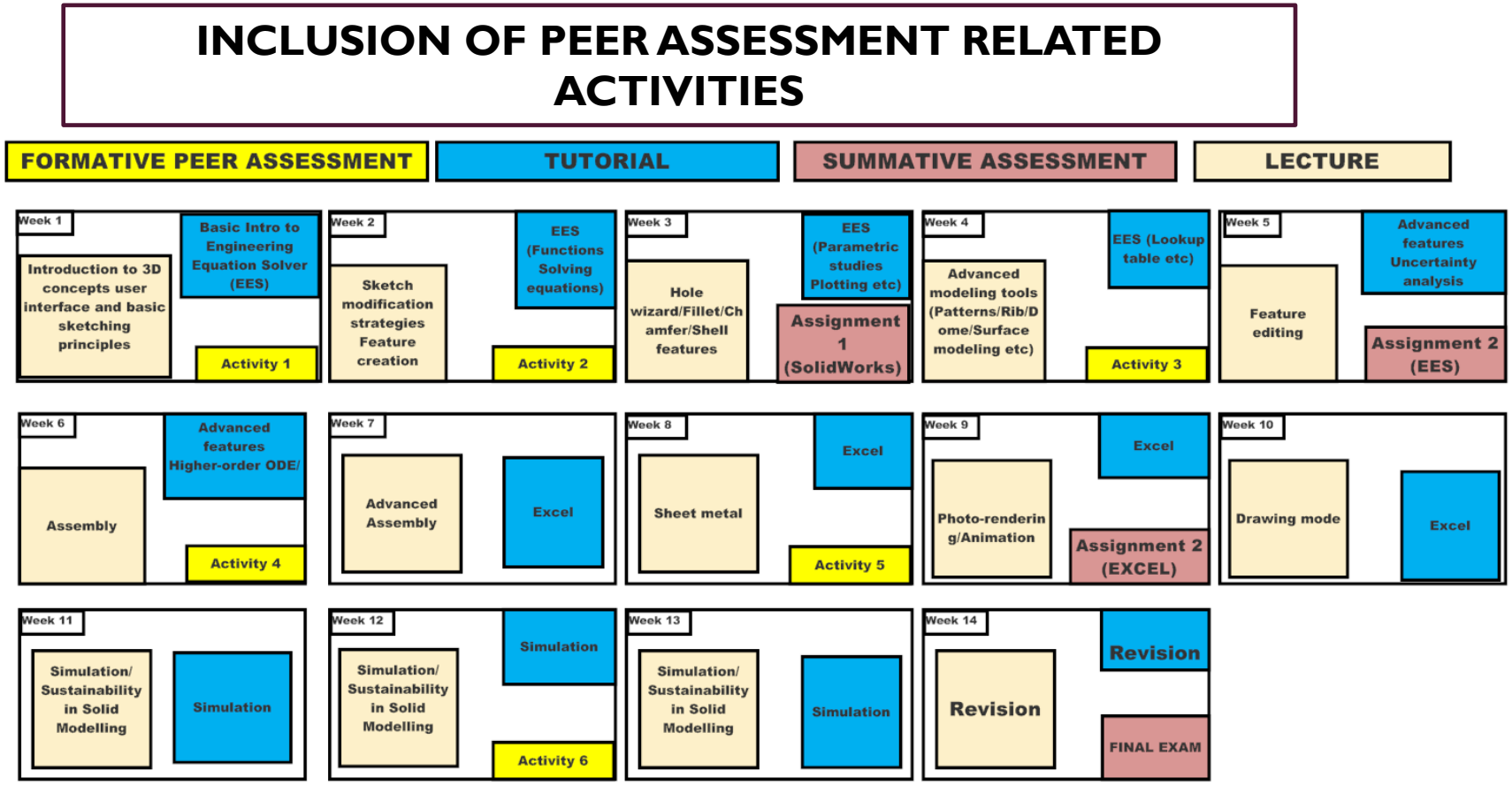
Gap

Readiness

Progress & Accomplishment

Tech-enhanced Assessment *for* learning

REFLECTIONS AND THOUGHTS: TECH-ENHANCEMENT



REFLECTIONS AND THOUGHTS: TECH-ENHANCEMENT AND TOOLS

- **Blackboard peer and self assessment tool**
- **Blogs (WordPress)**
- Google+
- SPARK
- PeerWise
- PeerMark

REFLECTIONS AND THOUGHTS: TECH-ENHANCEMENT AND TOOLS

Selection Criteria

- Provided and integrated with Blackboard (BB)
- Prior familiarity with the BB interface
- Worked seamlessly with the Turnitin assignment submission
- Offers control over distribution of work to be graded by each student

REFLECTIONS AND THOUGHTS: TECH-ENHANCEMENT AND TOOLS

- **Blogs**
  - **Immediate feedback**
  - **Documentation of personal reflections**
  - **Social presence**
  - **Level of progress**
- **Discussion Board**
  - **interactive engagement with the important concepts of the module as well as with other participants and the instructor in a networked learning**
  - **Paraphrasing/elaboration skill-builder**
  - **Active participation**
  - **Support diversity of opinion**

REFLECTIONS AND THOUGHTS: CHALLENGES WITH DISCUSSION BOARD

- Excessive use of discussion board can be a burden to introverted students;
- Participation rates can be a challenge if the activity of the discussion board is poorly designed and if the grade is not significant;
- Long posts can derail the flow of discussion;
- It requires the instructor to have a skill in weaving and summarizing to ensure the discussion flow in an intended direction;
- Late posters need to wade through the layer of discussion to find a couple of interesting points to comment upon.

CONCLUSION

A remarkable transformation in the global use of learning technologies

The DLE module examines this transformative role of the learning

The DLE module exposed the participants to tools exemplifying social media technology, social networking sites (Facebook, Google+), multimedia hosting sites (YouTube, SlideShare, etc.), and blogging/microblogging sites (WordPress, Twitter

DLE provides for the democratization of the creation and consumption of contents

CONCLUSION

Arrival of social age has re-defined the concept of learning from static to dynamic

The landscape of education has changed with newer technologies and educators have to go beyond content delivery

The use of technology can be divided into: (i) communication; (ii) information delivery; (iii) inverted learning; (iv) active learning; and (v) immediate feedback

THANK YOU