香港浸會大學
HONG KONG BAPTIST UNIVERSITY

香港教育大學
The Education University of Hong Kong

Academic Study Institute Inaugural Seminar

Paradigm Shift for Assessment

Thinking differently about assessment with digital technology

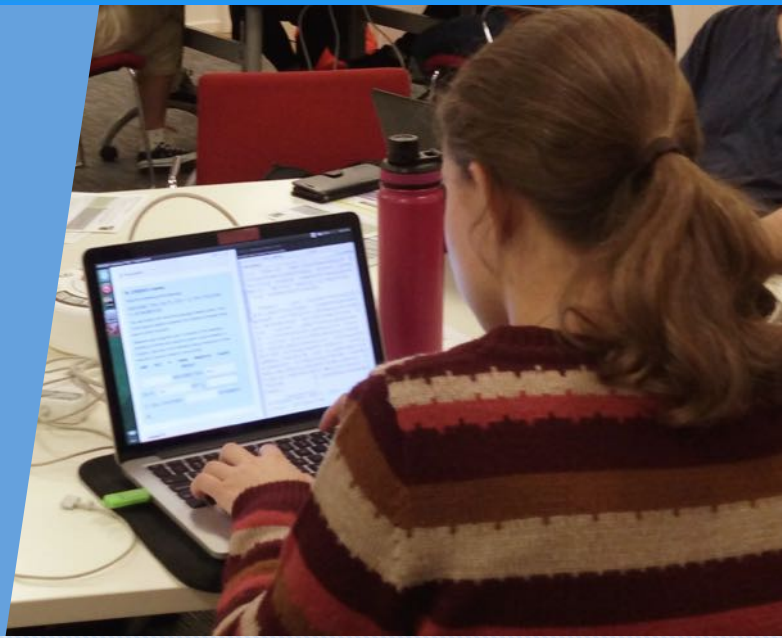
Mathew Hillier

e-Assessment Academic,

Macquarie University, Sydney, Australia

Monday 6 July 2020

MACQUARIE University



TRANSFORMINGASSESSMENT.COM

A key motivation - The gap

Real world of work

World Economic Forum – How will digital change your working world.
https://agenda.weforum.org/wp-content/uploads/rtr2m8vm1-628x330.jpg

Many assessments

Exams at Monash Caufield in 2015 (mathew.hilier[at]monash.edu)
70,000 student university.

We are faced with a growing disconnect between the way *assessment* is conducted using pen on paper tests and students' everyday experiences of study, work and life ~ let alone their future!

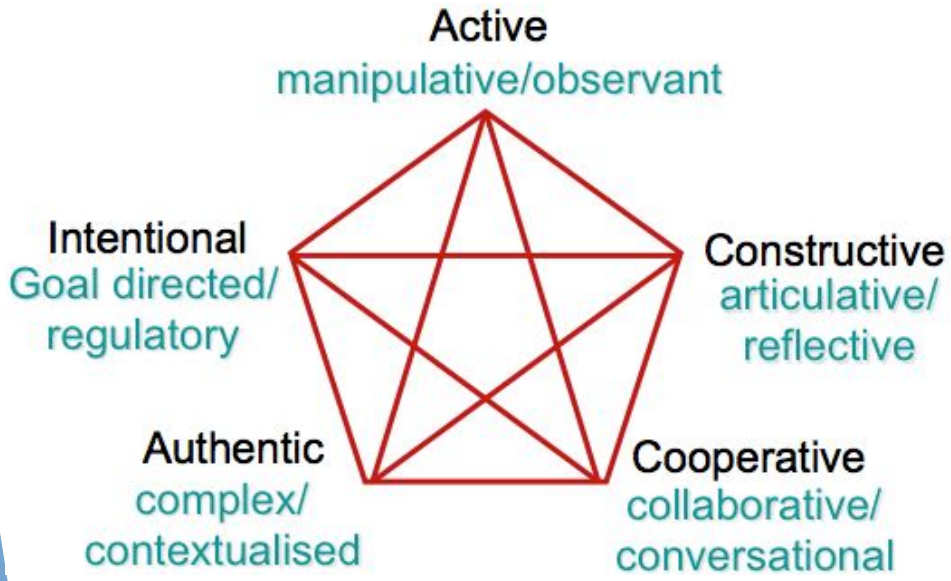
4IR

21C

Pedagogical aspirations

Meaningful

Meaningful learning is:



(Jonassen et al, 2008)

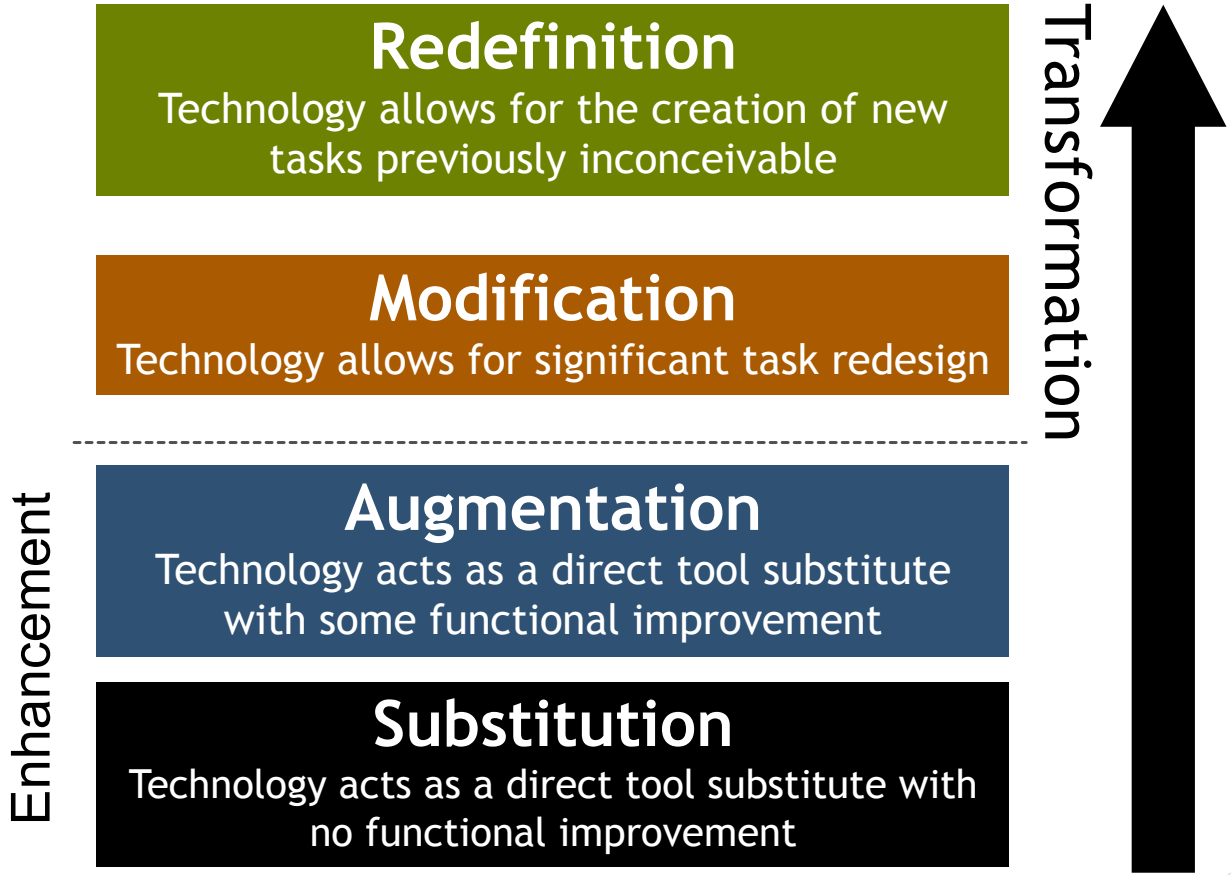
Authentic

Authentic learning involves:

1. Authentic context
2. Authentic activities
3. Expert performance
4. Multiple roles and perspectives
5. Reflection
6. Collaboration
7. Articulation
8. Coaching and scaffolding
9. Integrated authentic assessment
10. Professional learning

(Herrington & Kervin, 2007)

A key idea: technology as an enabler



The affordances (features and capabilities) of technologies is important. Technology must enable the transformation of assessment towards desired pedagogical aspirations – choose carefully!

SAMR Model

Substitution
Augmentation
Modification
Redefinition
(Puentedura, 2006)

Cart and Horse or Horse and Cart

Consider your discipline content (CK)

Ask how you want to achieve learning (PK)

Look for the tools to help (TK)

Teachers need TPACK (technological, pedagogical and content knowledge).

Koehler & Mishra (2005)

Sankey (2020). https://michaelsankey.com/2020/05/22/putting-the-pedagogic-horse-in-front-of-the-technology-cart/

Which tool for what?

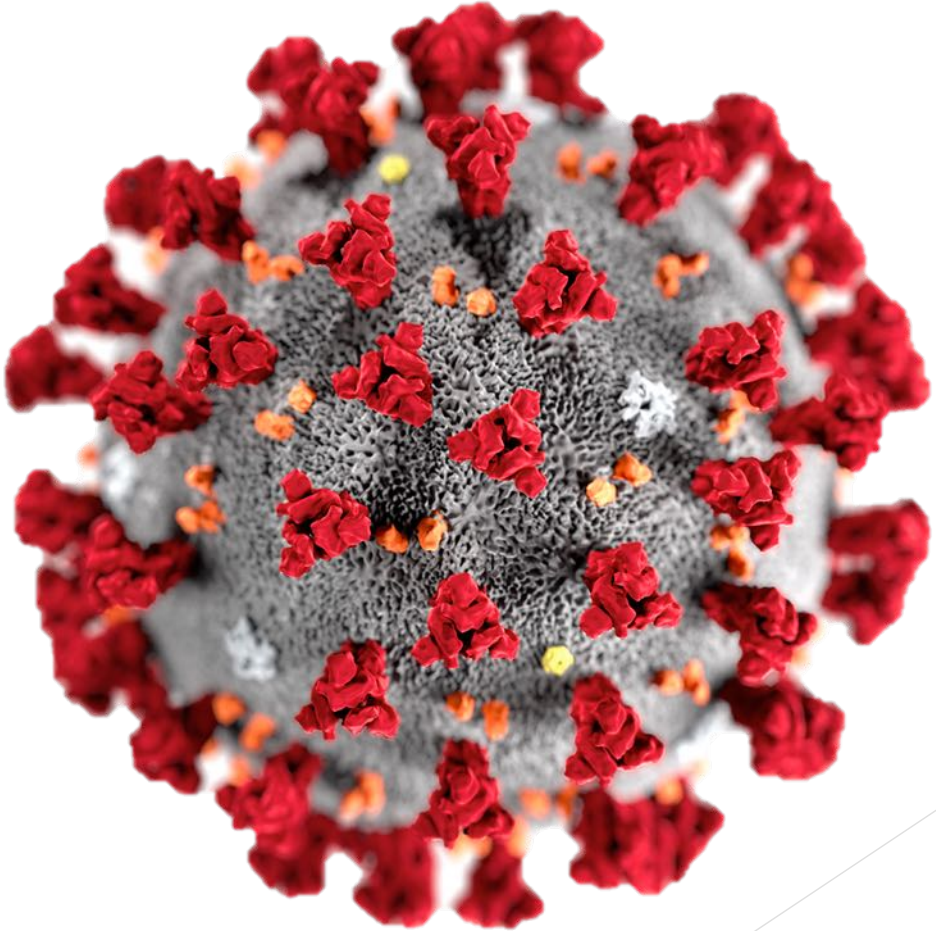
Be informed – tools and their affordances*.

Blog	Wiki	Forum	Portfolio
Individual work. Publishing of work. Reflective writing. Seeking external opinions and comments. Analytical writing and reflection. Discussion with experts and networking.	Collaborative work. Peer editing of a document e.g. report, essay, paper, textbook. Creating glossary of terms or collection of resources e.g. bibliography, reading list. Brainstorming for a project. Shared knowledge base on a topic.	Communicative work. Online asynchronous tutorials. Analytical writing and reflection. Exploration of views and opinions on a topic or idea. Student feedback. Help facility.	Individual work. Collation of learning evidence. Skills log. Showcase. Capstone.

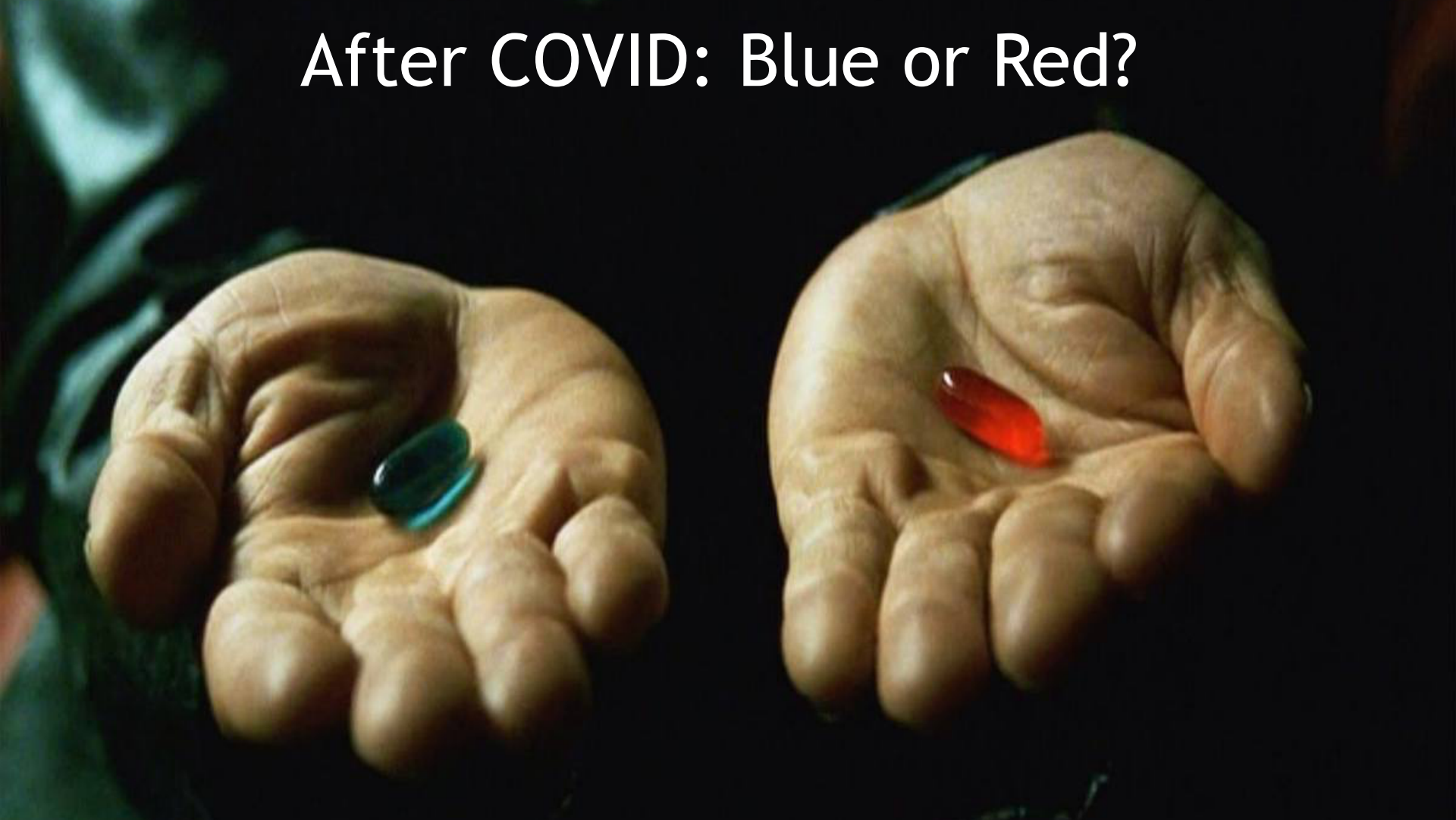
https://teaching.unsw.edu.au/assessment-blog-wiki-or-forum-which-should-you-use

* See Bower (2008).

A crisis … an opportunity.



After COVID: Blue or Red?



The choice – migrate or transform?

?

Blue - safe	**Red - brave**
Migration*	Transformation*
Efficiency-first assessment.	Authentic-first assessment.
MCQs and text in closed environments	Complex constructed responses in open environments
Consumptive and passive	Productive and interactive
Digital paper - 1.1	Post-paper – 2.0, 3.0
Assessment of learning(?)	Assessment for/as learning

(perspective meets technology choice)

***Allan (2020).** Migration and transformation…
+ TA Webinar http://transformingassessment.com/events_6_may_2020.php

Good assessment: Three dimensions

Authenticity:

Enabling a *broad pedagogical landscape* for the **assessment of 21st Century capabilities**. Go beyond a 'paper' paradigm. Use 'tools of the trade' (word processor, spread sheet, database, math, stats, graphics, multimedia, software dev, simulations, CAD, discipline tools). Flexible for blended and online contexts. Data open for analytics -> integration.

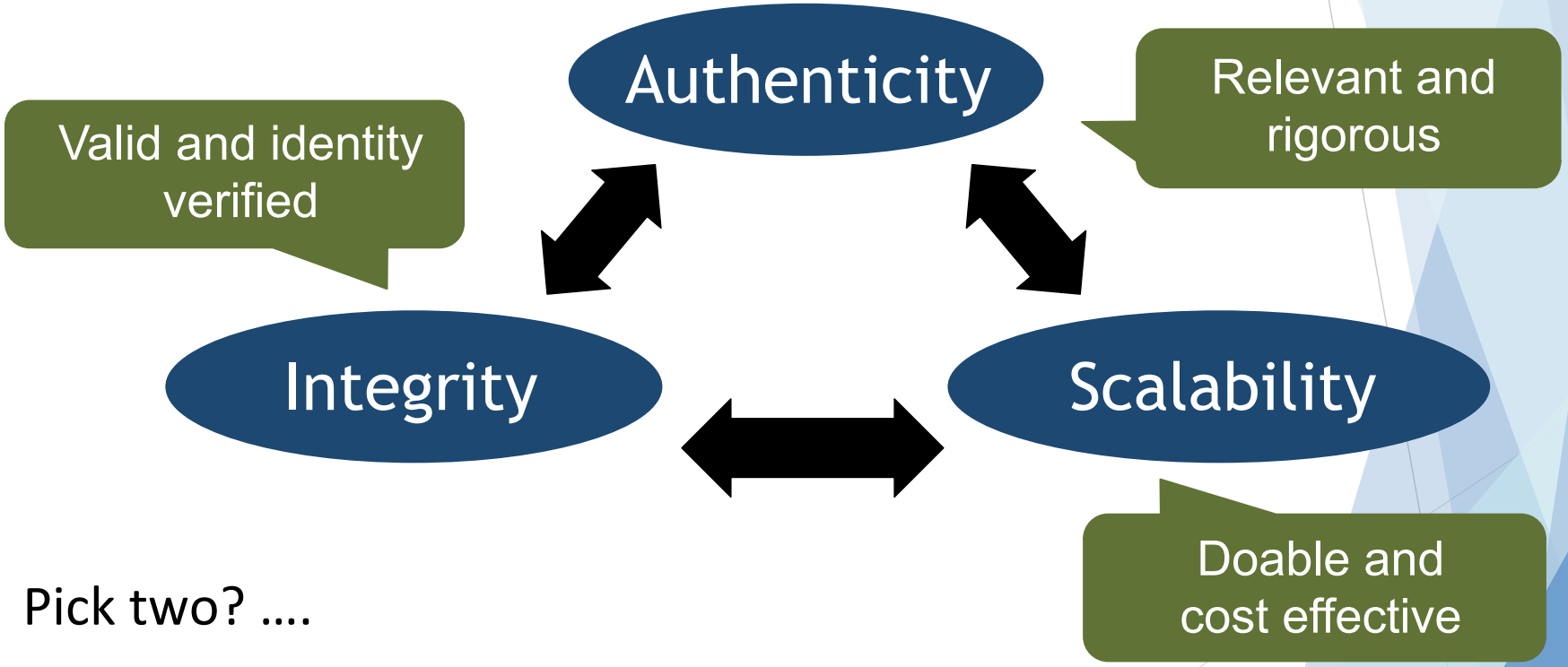
Scalability:

Practical, doable, cost effective. Mix constructed and process problems as well as some computer marked response types. Large scale equipment provision and access ≈ BYOD. Reliable ≠ networks!? = must be robust. Complexity = work! ~ Must use technologies appropriately and efficiently ~ design the logistics.

Integrity:

Valid assessments. Secured. Academic integrity: education, awareness, opportunity are factors. Identify verified, resource access known/expected. Design to the conditions. Activity and identity logging can help. Anti-cheating ≥ paper. Continuous improvement.

Good assessment: Three dimensions –Trade off?



Pick two? ….

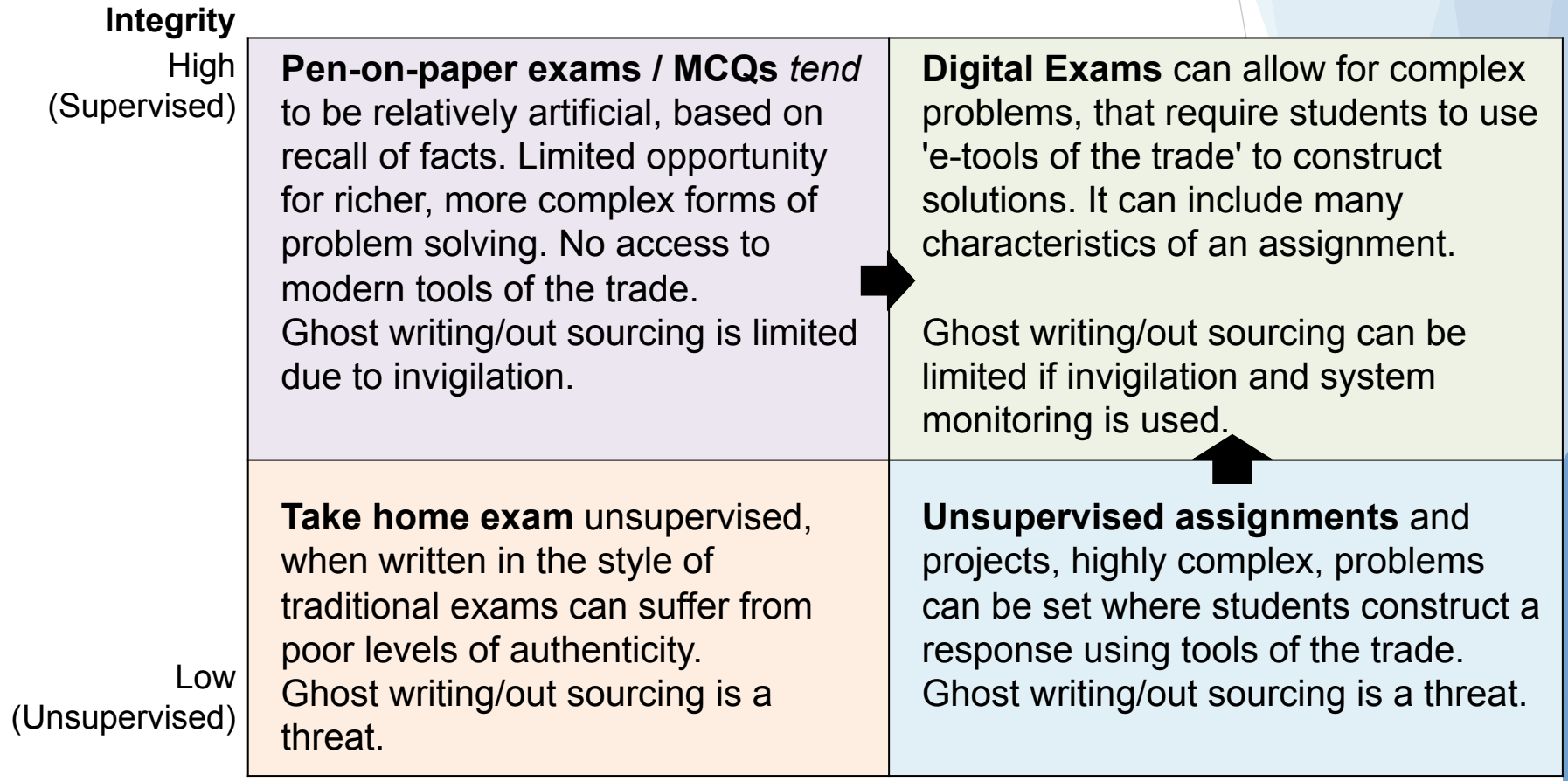
We need to strive for all three.

Digital assessment in different contexts

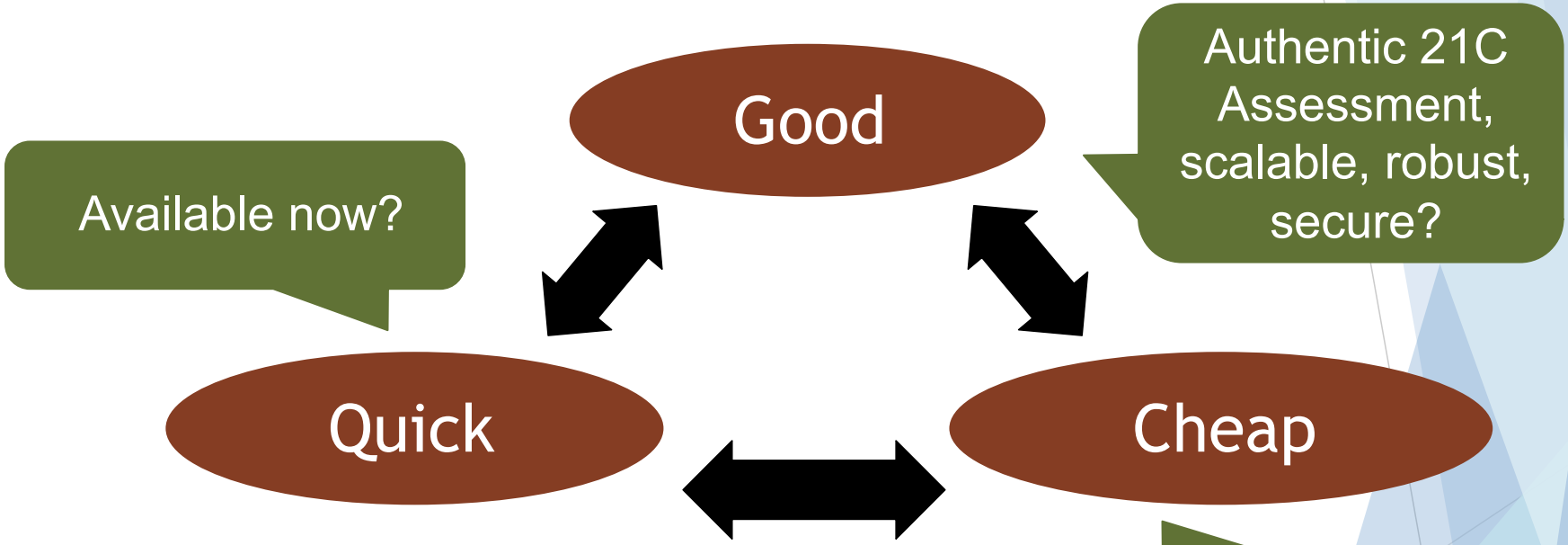
Online or offline, on campus or at home…

	On campus (controlled spaces)	Distance (at home)
Online (net)	• Space issues for institutions. • Improved control (systems and spaces). • Equipment: need computer labs to cater for 2000 at once or BYO laptops. • Most secure: live IT monitoring/control, spaces are supervised. • Needs reliable network (single point of failure).	• No space issue for institutions. • Less scope for control. • Equipment: Students supply equipment. • Less secure: IT monitoring, but wider spaces are unsupervised. • Needs reliable network (equity implication).
Offline	• Space issues for institutions. • Moderate improvements in control. • Equipment: need computer labs to cater for 2000 at once or BYO laptops. • More secure: IT control possible, spaces are supervised. • Network reliability not an issue.	• No space issue for institutions. • Least control. • Equipment: Students supply equipment. • Not secure: no useful monitoring/essentially unsupervised (on trust basis). • Network reliability not an issue.

Assessment Integrity v Authenticity: Exams



Implementing digital assessment



Pick two? ….

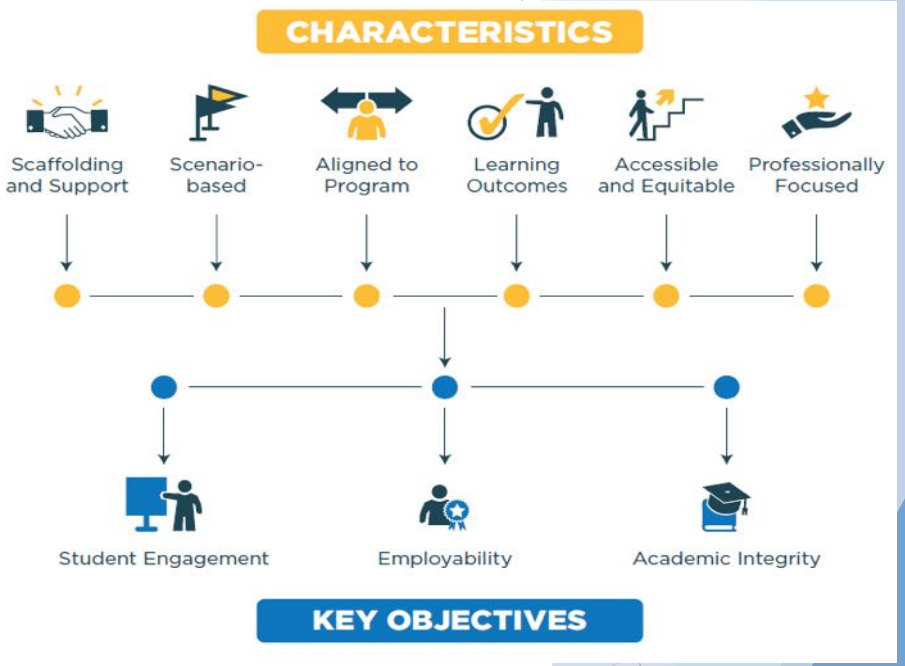
Authentic assessment is **not readily available off-the-shelf**. Investment, time and thought required.

Audience Question:

What would authentic assessment ideally look like in your discipline area?

You may want to type comments into the Q&A box ;-)

Interactive online oral assessment (Griffith uni)



- Scenarios: defence of work done, job interview, media interview, presentation to board, report to management, shareholders meeting, pitch to client, response to crisis, presentation of artefact, questions on content.
- Booking tool + online conferencing software (recorded for moderation/audit).
- Tutor teams used as interviewers/examiners.

Sotiriadou, Logan, Daly & Guest (2019).

TA Webinar 30 April 2020: http://transformingassessment.com/events_30_april_2020.php

Virtual work integrated learning (U Western Australia)

Example: Engineering education –

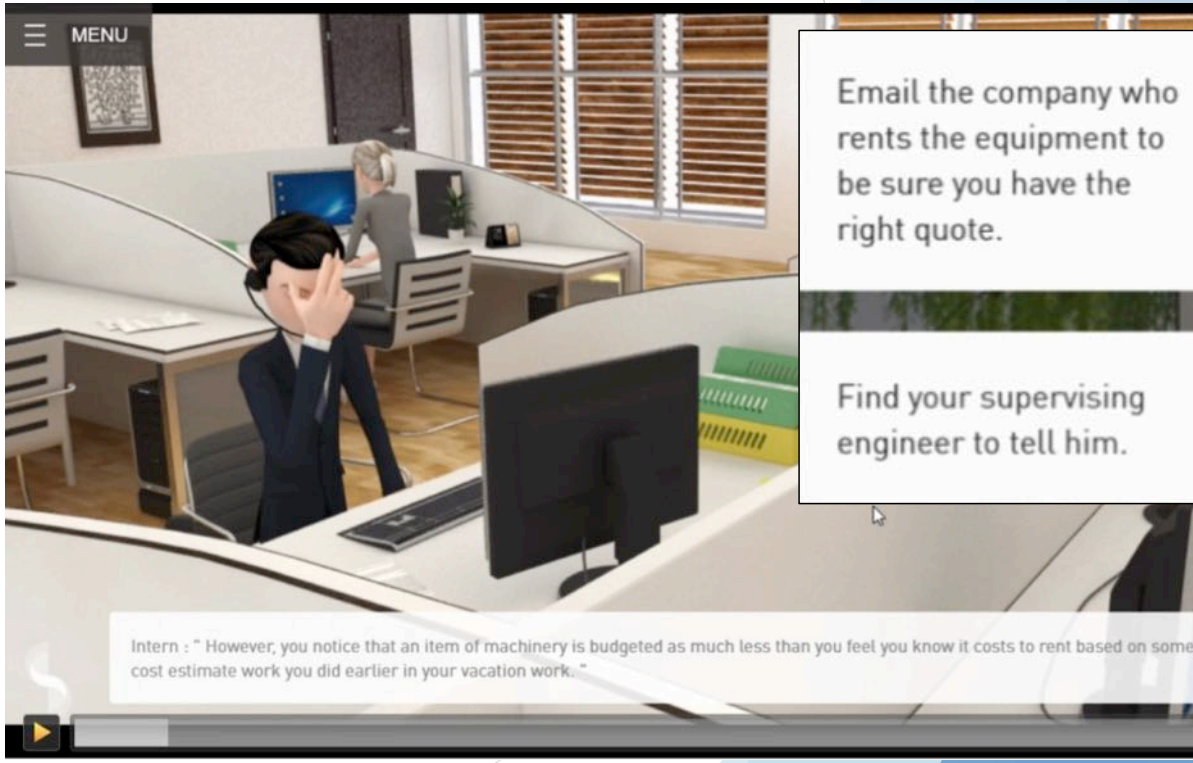
Simulated scenario on self-management in the workplace

Students complete authentic engineering projects:

- Using a virtual environment that simulates a work site,
- Receive feedback from industry-based engineers and
- Self and peer reflection.

Online access real or simulated sites or equipment, and/or practitioners.

TA webinar http://transformingassessment.com/events_5_september_2018.php



Assessing Discussion Forums (UNSW)

Teacher presence is key – re Salmon (2000) Five stages + Community of enquiry model (Garrison et al. 1999)

Example **assessment activities:**

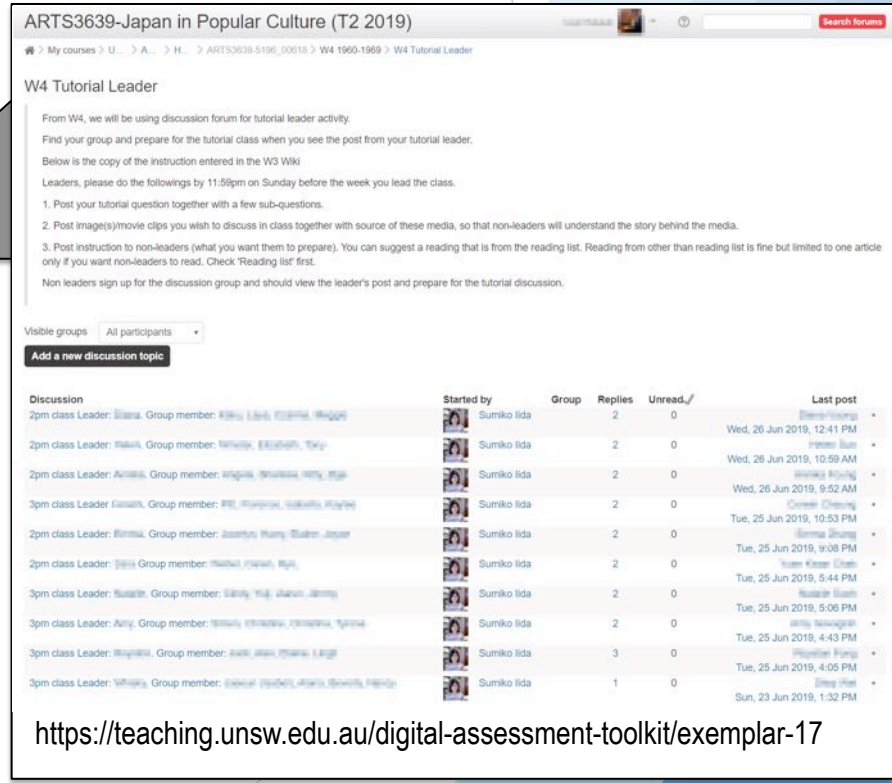
- Small group reports to the whole class
- Reflect on discussion
- Role play discussion
- **Student lead** or moderate (see side bar)
- Case studies and scenarios
- Current events
- Retrospective commentary on learning

Aim to build interaction.

Focus on quality rather than quantity of posts.

Rubrics available - examples
https://teaching.unsw.edu.au/assessing-discussion-board

UNSW Digital Assessment Toolkit (more examples)
https://teaching.unsw.edu.au/digital-assessment-toolkit

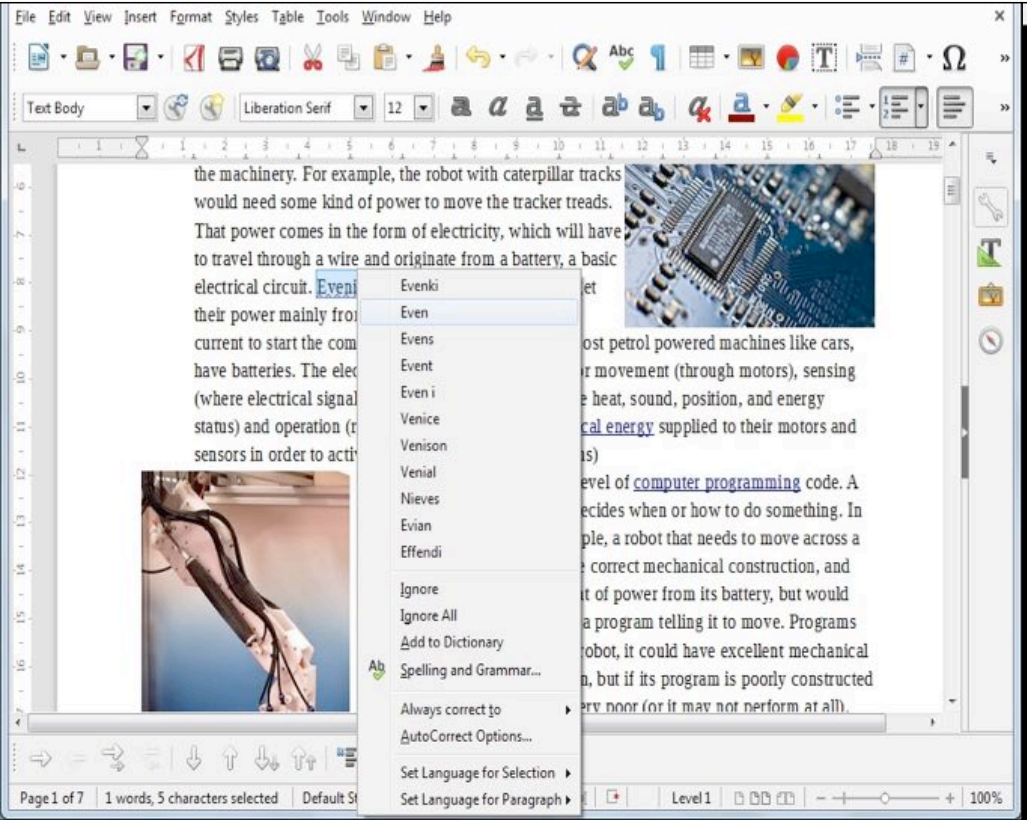


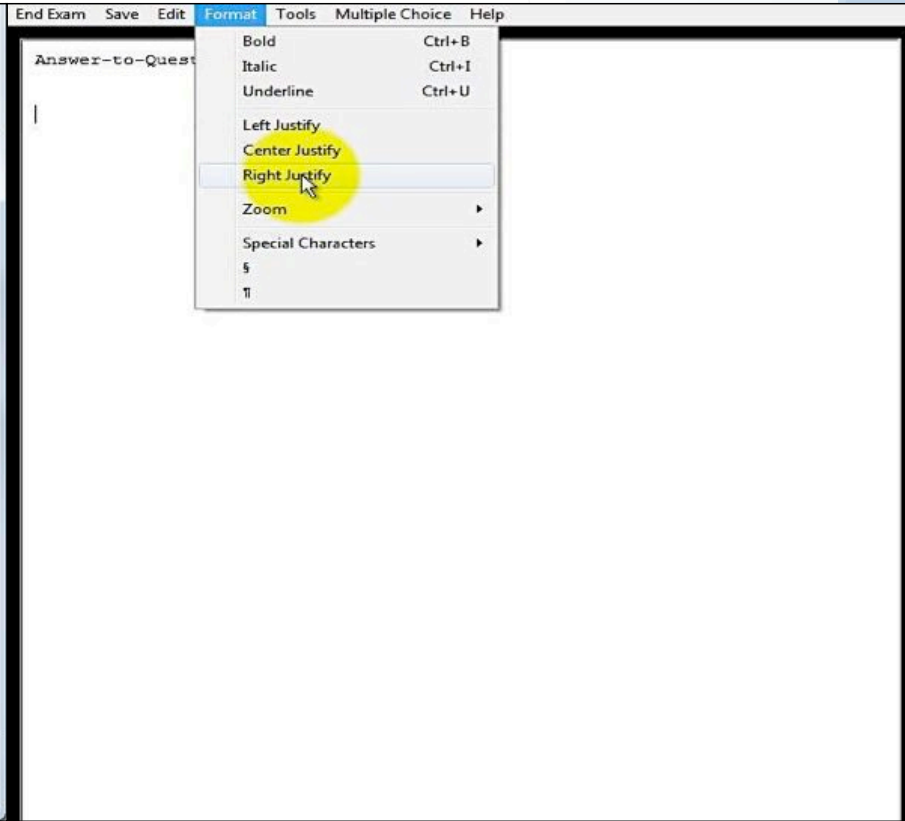
https://teaching.unsw.edu.au/digital-assessment-toolkit/exemplar-17

Tools of the trade - Writing Tools

Authentic

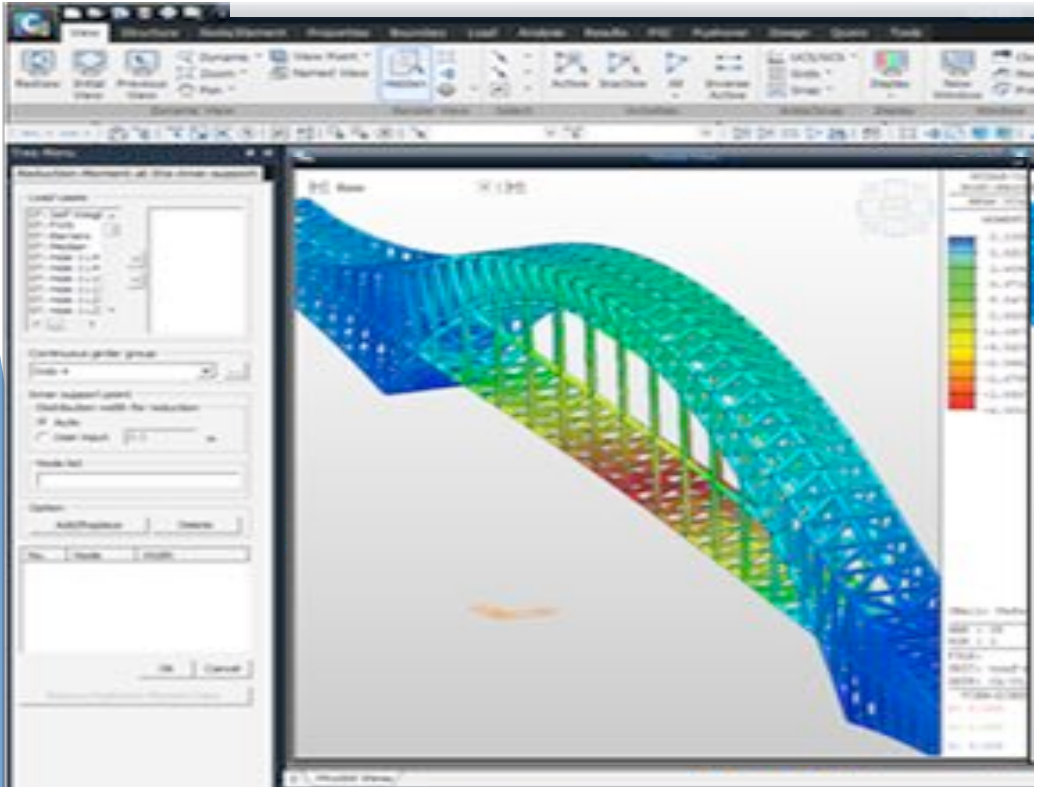
Not





Tools of the trade – Engineering Problem Solving

Authentic



Not

F.E (PART-II) MCQ Test, 2012

BASIC CIVIL ENGINEERING

Day and Date: Tuesday, 26/03/2012 **Time: 08.50 a.m. to 09.50 a.m.** **Total marks: 50**

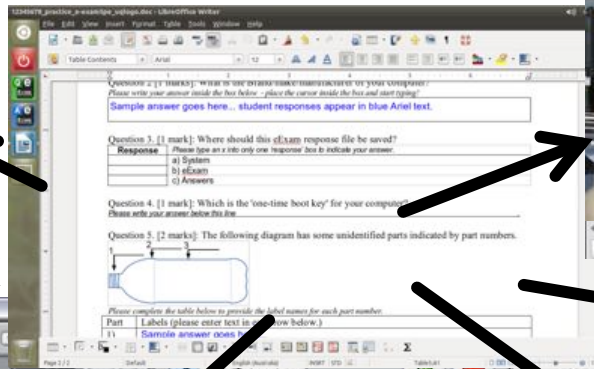
SECTION I

1. The curvature of earth is ignored in
   a) Geodetic surveying c) Plane surveying
   b) Hydrographic surveying d) Astronomical surveying
2. In an optical square; the mirror are fixed at an angle of
   a) 30° b)60° c) 45° d) 90°
3. The true meridian passes through
   a) Geographical poles c) Magnetic poles
   b) Arbitrary poles d) only N-pole
4. In WCB system; a line is said to be free from local attraction, if the difference between FB and BB is
   a) 0° b) 90° c) 180° d) 360°
5. When higher values are inside the loop; it indicates a
   a) Hill c)pond
   b) sloping ground d) Overhanging cliff
6. The line of collimation and axis of the telescope should
   a) coincide c) by parallel
   b) be perpendicular d) intersecting
7. The canal taken directly from reservoir is called as
   a) Main canal c) branch canal
   b) Distributary d) Field canal
8. For national highway the road way width is
   a) 9 m b) 12 m c) 7.5 m d) 25 m
9. Cumulative error is proportional to
   a) L b) 2L c) √L d)L
10. The compass box is made of
    a) Iron b) Aluminum c) Brass d) Wood

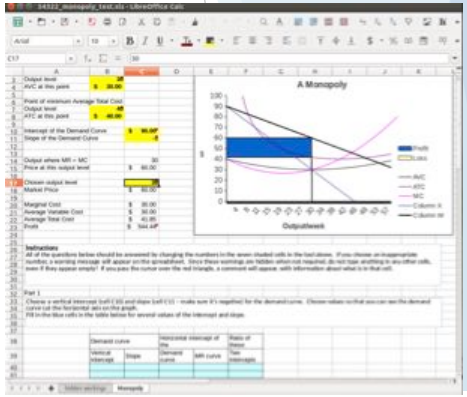
From paper-equivalent to post-paper

Start simple and build up!

Start! A document

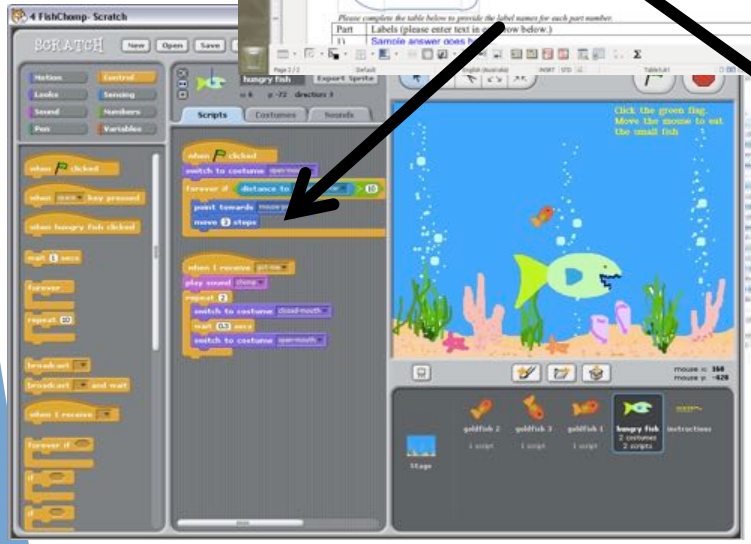


Video

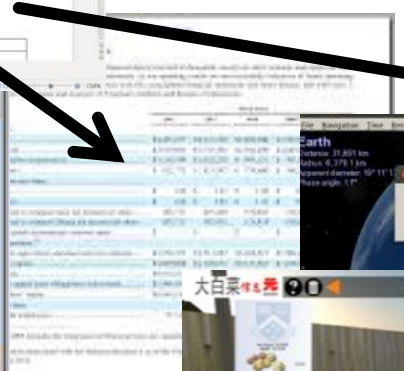


Spreadsheets for calculation and analysis.

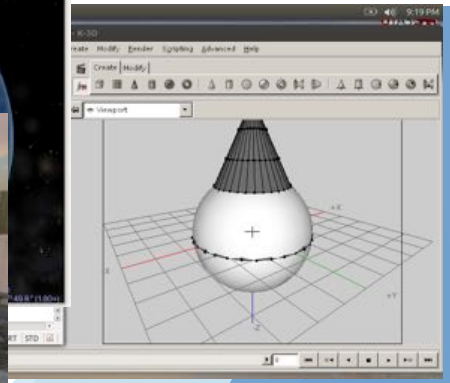
Scratch SDK



PDF



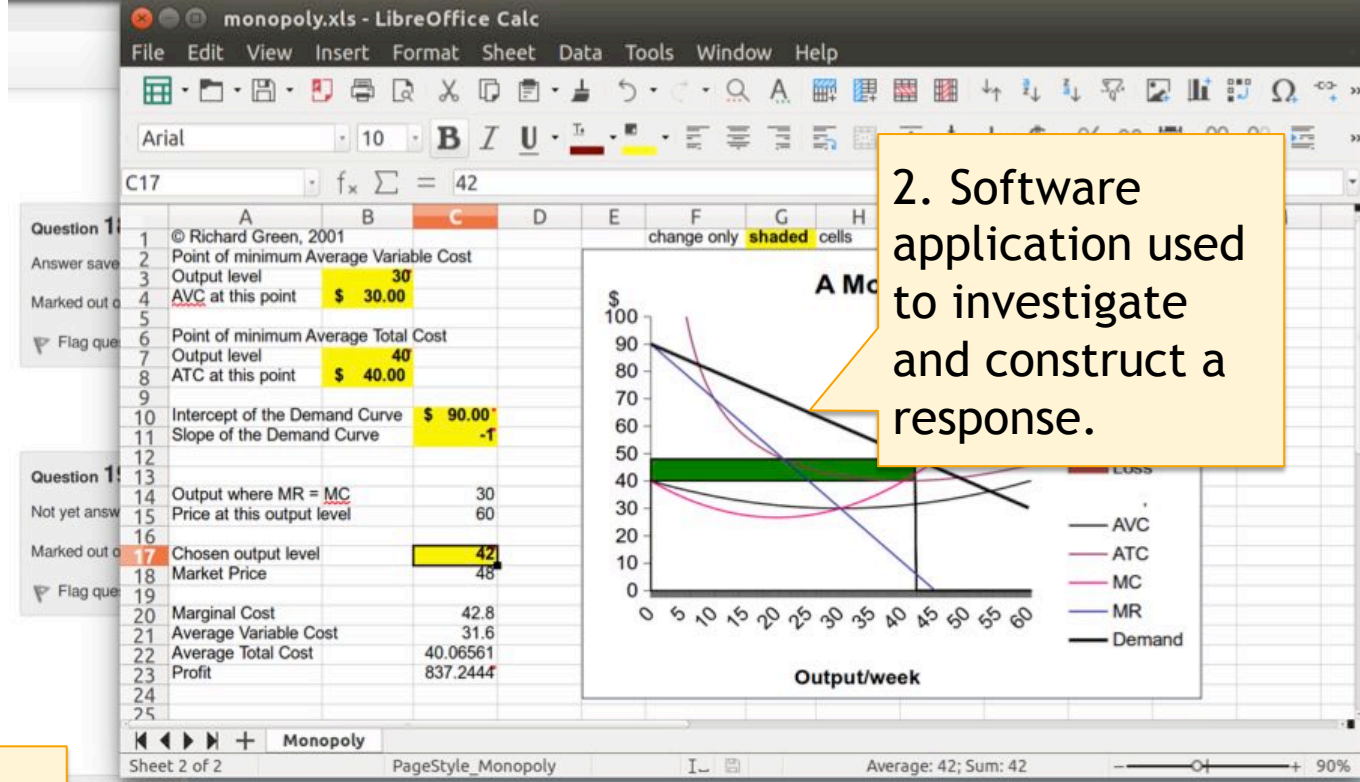
Specialist applications



Sims

Leverage e-tools of the trade in assessment

Constructed enquiry



1. Download file

2. Software application used to investigate and construct a response.

Use the [attached spreadsheet] to determine the output level where profit is maximised.

Enter a whole number as your answer for the output level.

Answer:

3. Respond via form

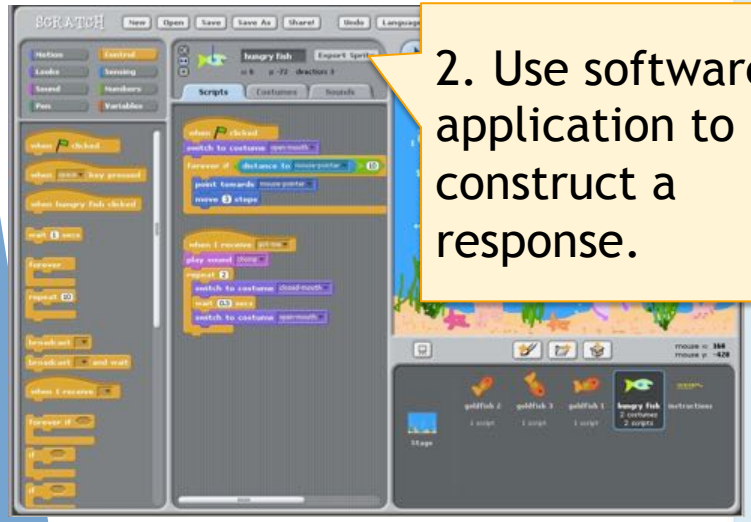
Question 21

Use the Australasian Legal Information Institute (AustLII) online database portal to find the title of last Australian appeal case

Leverage e-tools of the trade in assessment

Constructed response

(file upload)



2. Use software application to construct a response.

Question 26

Answer saved

Marked out of 1.00

Flag question

1. Question prompt and direction to use software

Scratch will be required for this question.

To open this application, click on the circular icon on the top left of the screen, and then type 'scratch' into the search box that appears.

Using the default Scratch program, make the Cat sprite run in circles and 'meow' when it touches the sides.

When done, save the file to the answers drive using your name as the file name.

1. Provide a one or two sentence summary of the commands you used in your response in the text box below.
2. Then attach your scratch program file to this question.

Scratch program is a cat game where we make cute and fluffy characters run in circles, bump into each other and make meow noises. We can keep typing a very long text based response into here. The system may spxll check your work.

Maximum size for new files: Unlimited

Files

example.sb2

3. Respond by file upload

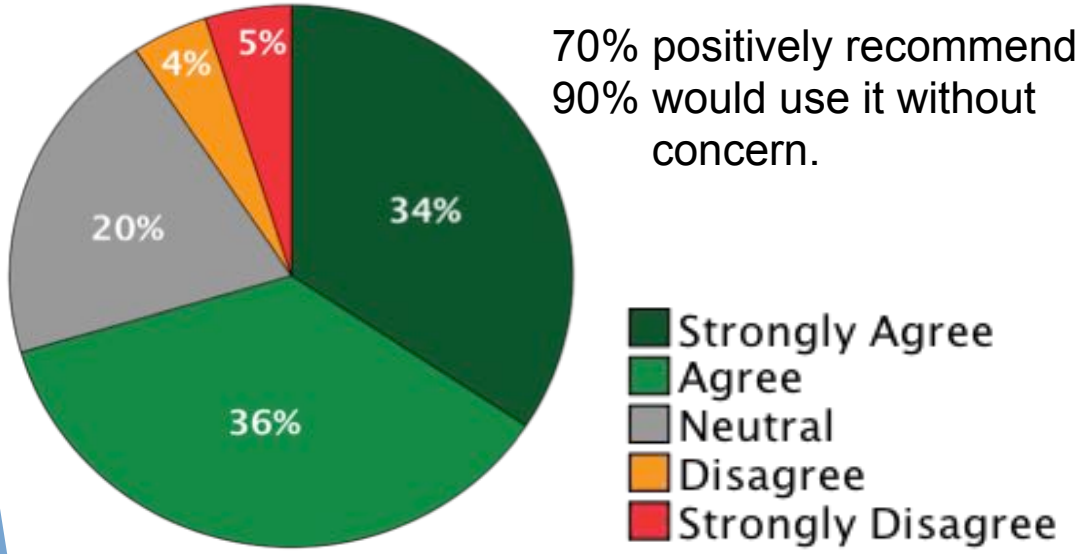
Student voice: BYOD e-Exam research overview

Exams	Typists	Pen	Weight	Minutes
Sum	1750	1309	~	4145
Mean	40	37	32%	106
Smallest	1	~	5%	15
Largest	166	~	50%	180

Institution	Trial year			Total
	2016	2017	2018	
CQU		2	1	3
ECU		2		2
Monash	3	9	6	14
MQU		1		1
UniSA		1	1	2
UNSW-ADFA		1		1
UQ		2	2	4
UTAS	2	1	1	4
Total	4	16	11	**31**

The big picture (typists):

"I would recommend the e-Exam system to others"



70% positively recommend.
90% would use it without concern.

The comments were received from **3000** participant pre and post exam surveys.

References

Allan, S. (2020). Migration and transformation: A sociomaterial analysis of practitioners' experiences with online exams. Research in Learning Technology, 28. DOI:10.25304/rlt.v28.2279 (and TA Webinar http://transformingassessment.com/events_6_may_2020.php).

Bower, M. (2008). Affordance analysis – matching learning tasks with learning technologies. Educational Media International, 45(1), 3–15. https://doi.org/10.1080/09523980701847115

Herrington, J., & Kervin, L. (2007). Authentic learning supported by technology: Ten suggestions and cases of integration in classrooms. Educational Media International; v44 n3 p219-236 Sep 2007 44(3), 219-236.

Jonassen, D. H., Howland, J., Marra, R., & Crismond, D. (2008). Meaningful learning with technology: Pearson/Merrill Prentice Hall Upper Saddle River, NJ.

Koehler, M. J., & Mishra, P. (2005). What happens when teachers design educational technology? The development of technological pedagogical content knowledge. Journal of Educational Computing Research, 32(2), 131–152.

Rogers, E. (1995). Diffusion of Innovations. New York, NY: The Free Press of Simon and Schuster.

Puentedura, R. R. (2006). Transformation, Technology, and Education. Hippasus. http://hippasus.com/resources/tte/

Sankey, M. (2020). Putting the pedagogic horse in front of the technology cart. Journal of Distance Education in China. 5, pp .46-53. DOI:10.13541/j.cnki.chinade.2020.05.006 https://michaelsankey.com/2020/05/22/putting-the-pedagogic-horse-in-front-of-the-technology-cart/

Sotiriadou, P., Logan, D., Daly, A., & Guest, R. (2019). The role of authentic assessment to preserve academic integrity and promote skill development and employability. Studies in Higher Education, 1-17 https://doi.org/10.1080/03075079.2019.1582015 (and TA Webinar 30 April 2020: http://transformingassessment.com/events_30_april_2020.php)

Salmon, G. (2000). E-moderating: The key to teaching and learning online. Kogan Page. (Five stages https://www.gillysalmon.com/e-moderating.html)

Garrison, D. R., Anderson, T., & Archer, W. (1999). Critical Inquiry in a Text-Based Environment: Computer Conferencing in Higher Education. The Internet and Higher Education, 2, 87–105. https://doi.org/10.1016/S1096-7516(00)00016-6 (Community of inquiry model https://coi.athabascau.ca/)

UNSW Digital Assessment Toolkit (examples) https://teaching.unsw.edu.au/digital-assessment-toolkit

Questions please! Stay in touch

Dr Mathew Hillier

Now at Macquarie University, Sydney, Australia

Mathew.Hillier@gmail.com

MathewHillier.com

TransformingAssessment.com

TransformingExams.com

For special invitees ~
See you on Wednesday for the online workshop!

香港浸會大學
HONG KONG BAPTIST UNIVERSITY

香港教育大學
The Education University of Hong Kong

Academic Study Institute Inaugural Seminar

Paradigm Shift for Assessment

Online Workshop 8 July: Exploring Different Assessment using Digital Technology

Mathew Hillier

e-Assessment Academic,

Macquarie University, Sydney, Australia

MACQUARIE University