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Student & Teacher perceptions and attitudes towards ICT in assessment

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Main Aim of Study

Student and teacher perceptions of, and attitudes towards, the use of ICT to support digital forms of summative performance assessment in the Applied Information Technology and Engineering Studies courses in Western Australia

Research Question

In what ways do the perceptions and attitudes of students and teachers towards the use of ICT in learning affect the feasibility of using digital based representations of student work output on authentic tasks to support summative performance assessment for the Engineering Studies and AIT W.A. courses?

Significance

Focuses on using ICT to support digital assessment – AIT and Engineering studies.

Draws a comparison of students' and teachers' perceptions of and attitudes towards the use of ICT in teaching, learning and assessment between AIT and Engineering studies

Why do the research

Assessment drives the curriculum.

➤ Need to assess what are the intended outcomes of the courses

➤ Practical outcomes in AIT & Engineering

➤ Need to assess practical work

➤ Difficult to do without ICT support

❖ But ICT support only works when student & teacher perception & attitudes are appropriate

Research design/methods

Combined quantitative and qualitative methods

Employed CBAM model

Employed participative action research strategies – working with participants.

Case Studies

Data analysis from

Observations of students doing assessments

Interviews of students & teachers after assessments

Survey of students

Questionnaire Scales

      Six scales for Engineering

      Seven scales for AIT

Engineering Studies

Five schools/six teachers/seven classes

Computer-based - Exam/Project

Data collected from 84 students

AIT Studies

Five schools/six teachers/seven classes

Computer-based - Exam/Portfolio

Data collected from 94 students

Case Studies

For each teacher/class – data was analysed separately

➢Assertions about attitudes & perceptions – eg teacher/class from survey and interview

CBAM Mapping for Case Study

Construct	Judgement	Evidence
IC Access ICT to support Assessment	(1) Teacher access has to ICT to support assessments at all times.	GE Teacher had access to Computer lab and the Internet. He was timetabled into a computer lab for all his Engineering course delivery.
Digital Forms of Assessment	(2) Teacher uses a variety of Digital forms of assessments with his courses.	GE Teacher indicated he used various online assessments (tests, quizzes and exam) in his classes.
ICT and Pedagogy	(3) Teacher uses ICT for some teaching and preparation of resources.	GE Teacher used ICT for teaching, presentation and for preparation of resources.
SoC	(5) Collaboration	GE Teacher organised a team of facilitators regarding the use of ICT for assessment. He worked with other staff members in using computers for assessment and shared resources on the school's Shared Drive.
LoU	(3) Mechanical	GE Teacher indicated he reinforced student learning with ICT, but had not focused on ICT for assessment.

CBAM Innovation Configuration			
Access to ICT to support assessment			
(1) Teacher has access to ICT for assessment at all times.	(2) Teacher has some access to ICT for assessments at home or school.	(3) Teacher may have access to ICT for assessments at home.	(4) Teacher does not have access to ICT to support assessment.
Digital Forms of Assessment			
(1) Teacher uses a variety of Digital forms of assessment with his/her courses.	(2) Teacher may use one form of Digital assessment.	(3) Teacher uses no alternative ICT assessments with their courses, but may use ICT to collate marks and recording.	(4) Teacher does not use digital forms of assessment.
ICT and Pedagogy			
(1) Teacher uses ICT for most learning activities	(2) Teacher uses ICT for some learning activities.	(3) Teacher uses ICT for teaching, presentation and for preparation of resources.	(4) Teacher does not use ICT for teaching and learning.

CBAM Stages of Concern	
Stage	Description
0 Awareness	Little concern about, or involvement with, using ICT for assessment.
1 Informational	A general awareness of using ICT for assessment and interest in learning more detail about ICT for assessment. The person seems to be unworried about herself/himself in relation to the use of ICT for assessment. She/he is interested in substantive aspects of Digital Assessment in a selfless manner such as general characteristics, effects and requirements for use.
2 Personal	Individual is uncertain about the demands of the use of ICT for assessment, her/his inadequacy to meet those demands, and her/his role with ICT assessment. This includes analysis of her/his role in relation to the reward structure of the organisation, decision-making, and consideration of potential conflicts with existing structures or personal commitment. Financial or status implications of the program for self and colleagues may also be reflected.
3 Management	Attention is focused on the processes and tasks of using ICT for assessment and the best use of ICT and resources. Issues related to efficiency, organising, managing, scheduling and time demands are utmost.
4 Consequence	Attention forces on the impact of ICT assessment on her/his immediate sphere of influence. The focus is on relevance of the use of ICT for assessment with the students, evaluation of student outcomes, including performance and competencies, and changes needed to increase student outcomes.
5 Collaboration	The focus is on coordination and cooperation with others regarding use of the ICT for assessment.
6 Refocussing	The focus is on exploration of more universal benefits from the use of ICT assessment, including the possibility of major changes or replacement with a more powerful alternative. Individual has definite ideas about alternatives to the proposed or existing form of the use of ICT in schools.

CBAM Levels of Use	
0 Non-Use	State in which the user has little or no knowledge or involvement of the use of ICT for assessment and is doing nothing toward becoming involved using ICT for assessment.
1 Orientation	State in which the user has acquired or is acquiring information about the using ICT for assessment and /or has explored or is exploring its values orientation and its demands upon user and user system.
2 Preparation	State in which the user is preparing for the first use of ICT for assessment.
3 Mechanical Use	State in which the user focuses most effort on the short-term, day to day use of ICT for assessment with little time for reflection. Changes in use are made more to meet user needs than client needs. The user is primarily engaged in a stepwise attempt to master the tasks required to use ICT for assessment, often resulting in disjointed and superficial use.
4 Routine	Use of ICT for assessment is stabilised. Few if any changes are being made in ongoing use. Little preparation or thought is being given to improving ICT use or its consequences.
5 Refinement	State in which the user varies the use of ICT to increase the impact on clients within immediate sphere of influence. Variations are based on knowledge of both short-term and long-term consequences for clients.
6 Integration	State in which the user is combining own efforts to use ICT assessment with related activities of colleagues to achieve a collective impact on clients within their common sphere of influence.
7 Renewal	State in which the user re-evaluates the quality of use of the ICT for assessment, seeks major modifications of or alternative to present ICT assessment to achieve increased impact on clients, examines new developments in the field, and explores new goals for self and the system.

Survey Scales Engineering

Scale	N	α	Min	Max	Mean	SD
eAessess	84	0.9	2.00	4.00	3.2	0.5
Apply	84	0.5	1.67	3.00	2.4	0.4
Attitude	84	0.5	1.40	3.00	2.6	0.3
Confidence	84	0.6	1.67	3.00	3.0	0.3
Skills	83	0.8	2.09	4.00	3.3	0.5
SCUse	84	-	0	240	58	50

Survey Scales
AIT

Scale	N	α	Min	Max	Mean	SD
eAssess	94	0.9	1.36	4.00	3.03	0.5
eAssessP	94	0.9	1.82	4.00	3.20	0.6
Apply	85	0.4	1.00	3.00	2.40	0.4
Attitude	82	0.4	1.80	3.00	2.70	0.3
Confidence	82	0.5	1.83	3.00	2.80	0.3
Skills	75	0.9	1.09	4.00	3.33	0.5
SCUse	94	-	0	360	79	67

Early findings

From the Engineering data it appears that

➤ Most students indicated they preferred a computer-based exam – (quicker with typing than writing)

➤ They perceived that developing and designing ideas with a computer need further experience and support

➤ Most students were positive about the Eng exam

➤ Most students were strongly positive about their ICT skills

➤ Most believed doing the exam on a computer helped them in expressing what they were planning their design project

➤ Most students averaged around 58 minutes a day using computers at school in a week

Early findings

From the the AIT data it appears that

➢ The vast majority of students perceived that they lacked experience with computer-based exams (need more time to get used to doing so) however, most were positive about the AIT exam helped in completing the exam

➢ Most students indicated positive attitudes and perceptions towards doing portfolios

➢ Most students used a computer for most applications & were positive towards the use of ICT for assessment & perceived that they were generally skilled with the applications for the exam, with the exception of Databases and Video editing software.

➢ Most students averaged around 75 minutes a day using computers at school in a week