Breaking Barriers in Assessment: Peer-based Assessment in (Higher) Education

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Abstract

Assessment is arguably one of the key issues in any educational setting. Within the context of assessment, an area that has been the subject of various debates is that of peer-based forms of assessment. Information and Communication Technologies (ICT) together with social networks have provided teachers and learners with a myriad of opportunities to facilitate peer-based assessment initiatives.

This study looks at an ongoing research exercise being carried out at undergraduate level and explores the challenges that both academic educators and learners face when endeavouring in such an exercise. Various factors come into play. If engaging in an ICT-based setup, the ICT skills of both teachers and learners need to be looked into. However, the attitudes of both academic educators and learners need to be examined carefully. As the research participants pointed out, assessment is hard work and requires focus.

The question both academics and learners ask is: 'How trustworthy is peer-based assessment?'

Keywords: assessment, information and communication technologies (ICT), peer-based, higher education (HE).

Introduction - Assessment in Higher Education (HE)

The creation of meaningful assessment procedures in higher education is no easy task. Flint and Johnson (2011) look at assessment procedures taking place at universities and argue that while there is the notion of treating as 'clients' whose views on their university experience are important, little work has been done on having mechanisms whereby the students can determine whether they have been treated fairly or not. By means of comparing assessment practices in various 'Western' universities, Flint and Johnson identify several poor assessment practices.

1. Lack of authenticity and relevance to 'real-world' tasks
2. Make unreasonable demands on students
3. Are narrow in scope

4. Have little long-term benefits
5. Fail to reward genuine effort
6. Have unclear expectations and assessment criteria
7. Fail to provide adequate feedback to students
8. Rely heavily on factual recall rather than on higher-order thinking and problem solving skills
(Flint and Johnson, 2011)

"Assessment is the 'core business' of universities. Despite this, many assessment practices are ineffectual, limiting, irrelevant and blatantly unfair" (F&J, 2011, p.12) Biggs and Tang (2011) also look at the situation in higher education. They point out that the increasing number of students attending and the diversity of the students' background together with the progressive decrease in resources available (financial and otherwise), is placing great strain on the academic institutions. Middaugh (2010) makes similar arguments when examining the American higher education system.

The Potential of Information and Communication Technologies (ICT) in Assessment

Herrington *et al*. (2010) look towards having 'authentic' e-learning, as quite often e-learning/ICT-based technologies are being portrayed as a possible solution to some, if not all of the problems faced by HEI outlined previously. However, while ICT-based technologies may do facilitate higher education access to individuals and groups who may otherwise be unable to have them, evidence suggests that it is less successful in improving the quality and outcomes of higher education. As argued earlier by Flint and Johnson (2011), Herrington *et al*. (2010) argue that same mistakes that were done in face-to-face learning environments are being repeated in e-learning environments whereby assessment tasks given have little, if any resemblance to the tasks and activities people would face in their daily (working) lives.

In response, Redecker and Johhanessen (2013) look at the developments taking place and attempt to indicate the path that will be taken in assessment based upon these developments.

They argue that whilst many forms of e-assessment appear to be grounded in a 'traditional' assessment paradigm, the latest technological developments together constant change in skill requirements in today's socio-economic scenario, there is a drive to create new assessment methodologies that cater for 21st century skill assessment and evaluation. However, this would be possible only if a more formative type of assessment is included and a competence-based learning approach is given the due consideration. (Redecker & Johhanessen, 2013)
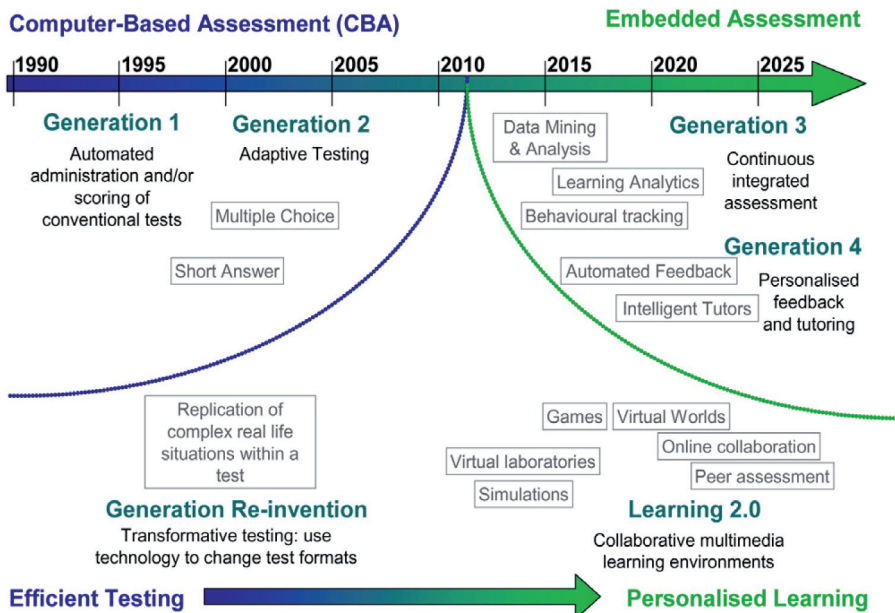
Figure 1: Current and Future Assessment Strategies (Redecker & Johhanessen, 2013, p.82)

The Research Study

The aim of this study was to investigate as to whether ICT's may be employed to facilitate the acquisition and assessment of a specific soft skill in HE, namely Intercultural Competence. The choice for selecting this skill came as a result of the current globalised socio-economic scenario whereby it has become common to interact with persons upholding diverse cultural backgrounds at the workplace. This may be seen as a result of one of the European Union's cardinal principles which is that of worker freedom of movement across the member states (EHEA, 2015).

Given the local economy's reliance on tourism, such a skill becomes even more significant.

Implementation

In order to be able to investigate in detail the aims of this study, a qualitative approach as adopted. A call for student research participants was made to the students attending the BA Tourism studies at the University of Malta (UoM). This resulted in a group of nine students who volunteered to take part.

A brief introductory meeting was set in order to explain the entity of the study and the duration in order for the participants to be aware of the commitment required in order to take part in a blended learning experience. That is, parts of the learning experience would be in a face-to-face mode whereas others will be done over an online environment.

After that, the first part of the research was carried where all the student participants were asked to participate to a rather intensive, preparatory face-to-face workshop. The workshop was subdivided in 5 sections:

1. Brief overview of the study and the aims behind it and its significance (in Maltese HE scenario)
2. Hands-on exercise – students determine in groups what they consider to be the key criteria that students' work should be assessed against (in Higher Education
3. Link with 'Disabled tourist' – a person with limited mobility offered to discuss with the participants what he thinks are the important issues to consider from a tourist with accessibility-related challenges found during travel/visiting heritage sites, etc.
4. Brief discussion of the main principles of Intercultural Competence
5. Tasks to be carried out by students during the learning intervention (via the proposed ICT platform)

The students' exercise led to the identification of the following 4 criteria were used upon which the students themselves would then assess the work of their peers. These were:

- Presentation
- Evidence of Research
- Clarity of Arguments/Flow
- Relevance/Critical Thinking

The Challenges Posed by Assessment

The key challenge was to take the criteria that were identified by the students and devise an assessment rubric that is easily understood by the students to be able to use it.

It must be noted that assessment at the UoM falls under the jurisdiction of the University of Malta Academic Programmes Quality and Resources Unit (APQRU) that answers to the university's Senate Programme Validation Committee (UoM, 2017a.) It has also issued a series of guidelines for the marking and grading of students' work. The guidelines are based upon a series of governmental legal notices which in fact give the guidelines a legal footing (UoM, 2017b) as summarised in Table 1.

Descriptor	Mark Range	Grade
Work of exceptional quality Exceptional performance showing comprehensive understanding and application of the subject matter. Evidence of extensive additional reading/research/work.	95%-100%	A+
Work of excellent quality Superior performance showing a comprehensive understanding of the subject matter. Evidence of considerable additional reading/research/work.	80% - 94%	A
Work of very good quality Performance is typified by a very good working knowledge of subject matter. Evidence of a fair amount of reading/research/work.	75% - 79%	B+
Work of good quality Above average performance, with a working knowledge of subject matter. Evidence of some reading/research/work.	70% - 74%	B
Work of average quality Considerable but incomplete understanding of the subject matter. Evidence of little reading/research/work.	65% - 69%	C+
Work of fair quality Basic understanding of the subject matter. No evidence of additional reading/research/work.	55% - 64%	C
Work of rather low quality Minimal understanding of the subject matter, with no evidence of additional reading/research/work.	50% - 54%	D+
Marginal Pass Marginal performance, barely sufficient preparation for subsequent courses in the same area.	45% - 49%	D
Pass - when assessment is based on a Pass/Fail basis only for study-units that are used for establishing eligibility to progress or for the award but are not taken in consideration for calculating the student's progress and for award classification purposes.	Not Applicable	P
Unsatisfactory, failing work in any study-unit.	0% - 44%	F
Unjustified absence for an assessment, or failure to hand in assigned work on time, or ineligibility to take assessment due to unapproved absence from lectures.	0%	F

Table 1: University of Malta's undergraduate assessment template (UoM 2017b, p.12)

When discussing the grading of assessment tasks Biggs and Tang (2011) propose a relatively simplified structure. This is based on what they refer to as a qualitative approach to grading and it is illustrated in the example provided in Table 2.

One of the advantages is its relative simplicity and clarity. This should make it somewhat easy for persons to award a particular grade for a specific assessment task. On the other hand, it may difficult to implement a similar mode of grading without awarding a mark within a formal higher education environment. Some critics may point out to a lack of transparency. Therefore, another assessment framework is being proposed in an attempt to find a workable model that encourages a peer assessment.

Criteria/Competence Level Achieved	Grade
Able to Reflect, self-evaluate realistically, able to formulate and apply theory to problematic situations. Clear mastery of course content	A
Can apply theory to practice, a holistic understanding of course and components. Barely failed A	B
Can explain the more important theories, can describe other topics acceptably, barely failed B	C
Can only explain some theories, barely failed C	D
Less than D, can explain little if any theories, plagiarism	F

Table 2: Biggs and Tang's (2011) proposed grading scheme (p.104)

The above frameworks are blended in a way that it is possible to award a mark yet retain the clarity and simplicity in Biggs and Tang's model that should make it relatively easier to convert the grade into a mark. This is illustrated in Table 3.

Criteria/Competence Level Achieved	Grade	Mark/100
Able to Reflect, self-evaluate realistically, able to formulate and apply theory to problematic (tourism-related) situations. Clear mastery of course content	A	80-100
Can apply theory to practice, a holistic understanding of course and components. Barely failed A	B	70-79
Can explain the more important theories, can describe other topics acceptably, barely failed B	C	55-69
Can only explain some theories, barely failed C	D	45-54
Less than D, can explain little if any theories, plagiarism	F	0-44

Table 3: Extended grading and marking scheme. Adapted from Biggs and Tang (2011)
& University of Malta harmonised regulations (2016)

However, for the 'inexperienced' student who having a go at assessing the work of peers, even a range from where to choose a particular mark can be a daunting prospect. An easier-to-use rubric was required. This was done by referring to other competence level frameworks such as the Skills Framework for Information Age (SFIA) in the UK (SFIA, 2013), and the European Union's E-skills competence framework (2013). The result was as shown in Table 4.

This was then adapted for each of the four criteria identified earlier in order to provide the student participants with clear guidelines to use when carrying out the assessment during the subsequent online phase.

Criteria/Competence Level Achieved	Grade	Mark
Able to Reflect, self-evaluate realistically, able to formulate and apply theory to problematic (tourism-related) situations. Clear mastery of course content	A	5
Can apply theory to practice, a holistic understanding of course and components. Barely failed A	B	4
Can explain the more important theories, can describe other topics acceptably, barely failed B	C	3
Can only explain some theories, barely failed C	D	2
Less than D, can explain little if any theories, plagiarism	F	1

Table 4: Grading scheme used in the learning intervention by research participants.

Working in the Online Phase

After the workshop was successfully completed, the study moved to the 'online phase'. The online learning was devised around the use of a particular set of applications found within Moodle e-learning platform, often referred to as the virtual learning environment (VLE). The main tool adopted was Workshop (Moodle, n.d.).

The main feature was that Workshop has the possibility to enable students to assess their own work but also that of other students. Peer-assessment may be done in diverse ways. Student participants may be assigned randomly other student (from the participant list). Alternatively, they may be assigned 'manually' by the administrator. In this particular scenario, the latter option was selected.

As outlined earlier, each of the criteria was graded on a scale from 1 to 5 with 1 being the lowest mark and 5 being the highest.

Moodle's Workshop has a variety of options available for the academic educator. One is that s/he may set the number of persons reviewing a particular work. Then an average is calculated for each criterion. Another aspect is that different criteria may be given different weightings. Thus, the administrator/academic in charge, can actually give different weighting to each of the criterion listed which will determine final mark for the entire exercise. Other settings may also permit the academic to flag out 'outlier' marks awarded based upon different criteria that the academic may set *a priori*.

For this particular exercise, each item to be assessed was reviewed by three persons, two students and 1 academic. Each were given equal weighting and the mark for each item assessed was an average based on the three marks given. Following the completion, a focus group exercise was carried out to gather the views of the student participants.

Analysis

The data collected was analysed using a thematic analysis approach. The main challenge was to determine any significant patterns across the entire conversation that would lead to the identification of any key themes (Braun & Clarke, 2013). Two main themes were identified. One related to the ICT setup and the 'balance' required between the face-to-face and online situations that make up the 'blend'. The other was about the peer-based assessment and its reliability – that is, how trustworthy is peer-based assessment?

Theme 1: ICT/blended learning environment in use (Getting the blend right)

It appeared that the main concern was always related to the 'blend' required between the face-to-face mode and the e-learning mode as re-affirmed by Hew and Chung (2014) earlier on. Further reflection suggested to subdivide this theme into two sub-themes. The ease of use of the system and related training, and one that looks more at the actual Moodle-based e-learning environment that has been adopted by the University of Malta.

Sub-theme1: Ease of use

The importance of preparatory workshop (face-to-face) was outlined by practically all the participants.

"Yes I did feel it was useful. We did tackle what were supposed to do in our second task for writing the short assignment." (SP1)

This seems to echo Herrington *et. al.'s* (2010*)* list of elements that learning designers should bear in mind in order to create what they define as an authentic learning experience (Herrington *et al*, 2010, p.18).

However, there were different views as to the entity of face-to-face contact. Some participants who hailed from a more vocational background thought that more face-to-face contact would have been more beneficial, especially if similar blended learning courses would be offered to persons who hail from the industry that may have been away from schooling for some time.

The lecture. I always agree it should be there because as I said, I like the interaction. (SP4)

Bath and Burke (2010) refer to the potential of blended learning as a means of improving student-teacher interaction. On the other hand, Hartfield (2013) refers to rather superficial pedagogical approach which is occasionally taken when setting the 'blend'. Indeed, Hew and Chung (2014) point out that one has to get the right 'blend' for each learning situation distinctly from other learning situations or programs.

This aspect of 'ease of use' was particular pointed out by student participants who had a more of a vocational background who lamented that their exposure to IT/e-learning systems was less than others who came from a more academic

background (e.g. junior college where Moodle is used) and therefore they found it more difficult to work with these systems. Even after 2-3 years at university as they were never really given any specific training by anyone (other than this exercise) on how to use Moodle in a more efficient way.

Since we were second years, we had some experience on assignments. … From what I experienced during first year surely when compared to the assignments we do now there is stuff missing. We did not know what was requested out of us. We had to learn by trial and error what was expected. (SP4)

Subtheme 2: The UoM IT/elearning setup (Moodle)

In general, the participants found the e-learning platform, at best, boring! Participants tedious, requiring too many clicks to get to somewhere, too many steps required. Summarily labelled old fashioned!

If I had to use it again I will use the manual. There are too much steps – click here, then here, then here. (SP4)

Although one did remark that use by academics does little to change that perception – unaware of the tools (workshop) that are available. The main use seems to be that of an online repository.

Download notes and maybe send an email every now and then (SP5) pg22
I don't know what it does (SP5) pg21

This may have put off participants in going over some of the material provided. Although the majority were happy to consult briefly and then look up their own material for the completion of the assignment. Again, because it is actually easier to search through a search engine. Participants find that using social networks (even for communication and for sharing of information) is more convenient – anytime, anywhere and through the use of portable devices that are always available at hand (REF).

The following seems to corroborate Barry *et al's* (2015) findings. Given the rate at which new ICT-based applications are being tried within the field of higher education, professional development for academic educators has become a necessity. With the right training, educators would be able to exploit the potential of technology and align it within higher education programmes (Rogerson-Revell, 2015). Porter *et al*. (2014) make the case for technical and pedagogical training for both academics and learners if blended learning initiatives are to be successful. Similarly, Biggs and Tang (2011), Herrington *et al*. (2010) and Flint and Johnson (2011) all make reference for the need to involve both the teaching staff and the learners in order to create an effective learning environment in general.

Theme 2: Assessment (A question of trust)

The use of Moodle was focused on the tools that were used to carry out the peer-based assessment exercise.

Subtheme 1: Inexperience in everything

Many of the participants (REF) lamented the lack of experience in using Moodle for other than downloading notes and occasionally uploading an assignment! None of them had ever done a peer-assessment exercise with Moodle prior to this exercise. As a result, quite a few referred to the researcher-made manual to get going. Though once they tried it, many did say that they would be able to use the system.

A more important issue was related to the lack of peer-based activities in general. The majority of the participants had never done any for form of peer-assessment activities. Some of the participants voiced concern that inexperience in assessing (other students') work may lead to students opting for the middle-of-the-road mark/grade with the hope of keeping everyone happy. Familiarity with peers may put participants on the defensive. This was also raised as the exercise was not anonymous in format and many lamented that this would put people in an uncomfortable position. Anonymity (for markers and marked) was put forward as one way of getting over the aspect of familiarity.

Subtheme2: Assessing is hard work!

Lack of experience was also indicated when a number of participants implied that assessing others' work was hard work! It required focus and concentration. And some did comment that too much assessment would alienate students rather than empower them – again leading to students not doing their job properly.

Assessing is a very time consuming thing. All of this… I don't think… any student is going to enjoy grading every other student (SP5)

This brought up the aspect of the degree of weighting that should be given to the students' assessment exercise and the academic's may well serve as a form of control.

Students needed to trust each other. The academic is more trusted in this respect as a 'super-partes' authority, objective whereas the same could not be same for students (by students).

And you have to be very trusting. If someone told me others (students) are going to grade mine. Because you don't know in what state of mind they are – they are in a hurry as they have to go to work…just do it quickly… you know what I mean? 4, 5, 3, 2, 5 and its done. The system will not detect any bad (marks) – they just do it at random (SP5)

That said, anonymity may help in establishing a degree of trust in the peer-assessment process. Hence, the blended learning environment must be able to provide participants with the appropriate safeguards (Foo, 2014).

Concluding Reflections

This work looked at establishing peer-based assessment at an undergraduate level. Moodle provides tools that enable it. The aspect of ensuring a fair and authentic form of assessment, for the learner in question should remain as the key aim. Other e-learning platforms would have similar tools without doubt. The research participant was keen to take part. But they also discovered that 'Assessment is hard work'! It requires preparation. It also requires a degree of trust in your peers. With these phrases in mind, we can attempt to reflect and respond to the following queries.

1. Is technology able to assist in assessment?
2. Are teachers being trained in the use of technology to facilitate assessment?
3. Can technology make assessment a more transparent process?
4. Are students ready and willing to take part in the assessment process?
5. Is peer-based assessment feasible with 'all' student groups?
6. Are academic educators ready to 'give up' some of their assessment 'power'?
7. Are there the right quality assurance mechanisms in place to ensure that assessment may be carried out in a robust yet transparent manner?

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