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CAN LEARNERS BECOME TEACHERS? EVALUATING THE MERITS OF STUDENT GENERATED CONTENT AND PEER ASSESSMENT

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ABSTRACT

Aim/Purpose	The aim of this project was to explore student perceptions of the value of both the creation of video content and exposure to other students' work through peer assessment and inclusion of exemplars as unit material.
Background	The research was in a first year information technology flipped-learning unit, where the assessment involved students developing video presentations that were peer assessed and exemplars incorporated into the unit as teaching material.
Methodology	Data was gathered using a mixed methods approach using an online questionnaire followed by semi-structured interviews with a selection of questionnaire respondents. The interviews were designed to further explore issues identified from the analysis of the questionnaire data.
Contribution	Informs on student perceptions of peer review and the integration of student generated content into University teaching.
Findings	Most students enjoyed the video assessment (58%) with many preferring it to a written or programming task (55-58%). In the subsequent peer assessment, many liked seeing the work of others (67%) and found the approach engaging (63%) yet some other perceptions were mixed or neutral.
Recommendations for Practitioners	University IT students generally enjoyed and perceived peer assessment and found student generated content to be valuable.
Recommendation for Researchers	Further investigation of peer review and student generated content in contexts where the student cohort represents a variety of cultures and age categories
Impact on Society	Contributes to a body of knowledge regarding peer assessment and student generated educational materials.

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Future Research Future work is needed to better understand this domain, in particular the role of learners' individual differences in order to successfully integrate these approaches into modern learning environments.

Keywords student generated, peer review, flipped learning, peer assessment

INTRODUCTION

Students today have had broad exposure to multimedia learning resources such as those available from YouTube and the Khan Academy. We believe that students may be effective at producing such content and find the process engaging, and that it facilitates their learning. Highlighting exemplary student content and making it available to other students as a study resource can possibly add further value. Over a decade ago it would have been financially difficult for large numbers of students to have individual access to recording and video editing facilities, unless in a film or media course. Today the required technology is relatively ubiquitous and students can easily both create and assess short video presentations.

The use of student generated content and peer assessment is not new, and has been previously discussed in the literature (e.g., Basheti, Ryan, Woulfe, & Bartimote-Aufflick, 2010; Dochy, Segers, & Sluijsman, 1999; Zhang, 2012). Many academics integrate peer assessed presentations into their teaching (e.g., Langan et al., 2008) and peer review of written work also occurs (e.g., Lundstrom & Baker, 2009). When used appropriately, peer review of assessment is seen to be sound pedagogical practice (e.g., Biggs, 2003; Van Zundert, Sluijsmans, & Van Merriënboer, 2009) and may even lead to higher performance (Ng, 2012). However, Biggs (2003) emphasized that students might be anxious about their peers assessing them for marks and stated that the volume of peer review work requires careful moderation.

The research described in this paper situates peer review in a contemporary context and investigates the perceptions of the digital natives who came of age liking and commenting critically on a range of amateur, user generated content. In the project, a peer assessed student generated video assignment was introduced into a first year information technology unit, and exemplary submissions were subsequently included as teaching material. The aim of the project was to explore student perceptions of the value of both the creation of video content and exposure to other students' work through peer assessment and inclusion of exemplars as unit material. The expectation was that students' familiarity with peer assessment in Web 2.0 technologies may reduce anxiety, which has previously been identified as a drawback of peer review (Topping, 2009).

RELATED WORK

STUDENT GENERATED CONTENT

Including the development of student generated content in teaching helps instructors to adopt a more supportive role and allows students to construct their own knowledge (Wheeler, Yeomans, & Wheeler, 2008). Requiring students to generate content to be used by other students in their learning is also believed to encourage students to have a deeper engagement with learning because awareness of an audience encourages more thoughtful authoring (Wheeler et al., 2008). Lee, McLoughlin, and Chan (2008) found this to be the case in their study where information technology students collaboratively developed podcasts for sharing. From a constructivist perspective, video may also be a starting point for deeper and more active learning (Fee & Fee, 2003).

Student development of video material has been promoted as a means for students to enhance both traditional learning outcomes and new media literacy outcomes (Kearney, 2011; Lee & McLoughlin, 2007). In a study undertaken in an undergraduate organic chemistry unit (Jordan et al., 2015), student generated video content was created and used to help other chemistry students, and the authors found that students who were provided with the peer-created video content required less assistance in the laboratory and performed better.

A student video assessment may also help to verify the author of the work. In an era where assignments may be very cheaply outsourced (e.g., Lines, 2016), video assignments may force students to take part in some of the assessment task. While it would be feasible to outsource the scripting of a video presentation, a student would still need to complete the presentation and production elements and thus be forced to engage with some of the learning objectives.

STUDENT PEER ASSESSMENT

There is evidence to suggest that peer assessment can be effective and provide students with additional constructive feedback (Basheti et al., 2010; Dochy et al., 1999; Topping, 1998). There are also studies that suggest students take peer assessment seriously (van den Berg, Admiraal, & Pilot, 2006). Topping (1998) found that peer assessment had positive formative effects on student achievement and attitudes that were as good as, or better than, the effects of teacher assessment. Furthermore, learning how to give, accept and reject criticism are useful transferable social skills facilitated by peer assessment (Topping, 2009).

Another benefit of peer assessment is continuous engagement. Typically, once students submit work, they disengage from the assessment process and become passive recipients (Thomas, Martin, & Pleasants, 2011). The subsequent assessment and judgment of peer work prolongs student engagement and has valuable pedagogical outcomes (Basheti et al., 2010; Thomas et al., 2011).

Peer assessment offers a wider range of commentary on student work (Hendry, Armstrong, & Bromberger, 2011). When combined with discussion and the availability of exemplars, it may be significantly more beneficial than the one-way feedback received in most assessments (Hendry et al., 2011; Spiller, 2014).

Research suggests that peer marks are a close approximation of staff marks (Liu, Lin & Yuan, 2002), but are sometimes slightly higher (Kulkarni et al., 2013), and that students may award lower grades than teachers to the best performing students (Sadler & Good, 2006).

Some of the drawbacks of peer assessment include anxiety about being peer assessed as well as about how to peer assess other students. It is thus valuable to consider the individual differences of students when selecting the appropriate assessment strategy (Vickerman, 2009). For the instructor, it means relinquishing some control of classroom content and assessment. Some instructors may also be anxious about peer assessments forming a component of summative assessment (Topping, 2009).

GENERATIONAL SYNERGIES

There are generational differences between many educators and their students. The Millennial generation or Gen Y is accustomed to multimedia content (Coyner & Razek, 2008; Twenge, 2009). In 2003, well before Gen Y entered the higher education environment, Biggs (2003) stated that students enjoy the peer-assessing process, but tend to be coy about it being a significant part of their academic results. The Millennial cohort that grew up with Web 2.0 and social media are more open than previous generations in terms of their online privacy (Rickes, 2009). Gen Y's social media experience, may have preconditioned them to be peer reviewers/assessors. The prevalence of "like" and "comment" activities in Web 2.0 platforms is an example of how Gen Y review and assess content every day. We believe that there are generational synergies that may reduce student apprehension about the generation of video content and peer assessment of it.

It has been suggested that the Millennial cohort craves group learning and interaction, and there is evidence that this approach is significantly more desirable to them than the traditional "sage on the stage" lecture (Coyner & Razek, 2008). We believe that these attributes of the Millennial generation may make student generated content and the peer assessment of it engaging and enjoyable

METHODS

To investigate student perceptions of peer assessment and student generated content, we employed a mixed methods approach using an explanatory sequential design (Creswell, 2014). The first phase of the investigation involved an online questionnaire that asked a series of both closed-ended and open-ended questions. This was followed by semi-structured interviews with a selection of the questionnaire respondents. The interviews were designed to explore issues identified from the quantitative data. This research received human research ethics approval.

DESCRIPTION OF THE UNIT AND ASSESSMENT

Introduction to Server Environments and Architectures (ISEA) is a first-year, first-semester university unit. At the time of the study there were 70 students enrolled in the unit, of whom 59 were enrolled in internal mode and 11 were enrolled in distance education mode. This unit was chosen for the study because it had a larger number of potential participants than units from later years. The unit introduces students to Linux and Windows servers and operating systems. The unit also covers virtualization with Amazon EC2 being used as a vehicle to teach Infrastructure as Service (IaaS) cloud computing. In the final project, students rent a Linux server in Amazon EC2, link it to Domain Name System (DNS) and install/customise a server application. The unit is conducted using a flipped learning approach (Murray, Koziniec, & McGill, 2015). There were no face-to-face lectures; instead, students were expected to watch the flipped videos before attending class. When attending class students were expected to come prepared for practical activities or labs that extended on the content that was delivered in the instructor's flipped learning videos.

This study was based on an assignment where students were required to develop a five to seven minute video talk on one of five topics relating to the unit; put simply, the assessment was an electronic equivalent of a traditional oral presentation. Students were encouraged to think outside the traditional chalk-and-talk or PowerPoint presentation and to use the range of multimedia options available. As the unit had been delivered using a wide-range of video content, it seemed appropriate to be asking students to also deliver video content.

The student cohort was informed that the assignment topics would be re-assessed in the final exam, and thus they would not simply be creating assignments that would be peer assessed but they also create their own learning materials to be used to study for the final exam. Exemplary student content, which was picked based on the highest student and staff marks, formed the unit content for the final topic of the semester. This final topic, where the student content judged to be the best is used as teaching materials, is where some students have become teachers.

DESCRIPTION OF THE ASSIGNMENT SUBMISSION AND FEEDBACK PROCESS

Students were asked to submit their assignment to a discussion board on the Moodle-based learning management system (LMS). A filter was enforced such that only students who had submitted their assessment would be able to see other student submissions. Once students had submitted their assessment, they could see all other submitted student assessments. Five days after submission, students received an email from the unit coordinator which randomly allocated three names for peer review. Thus this was a single-blind peer review, which preserved the anonymity of the reviewer. The peer reviews were submitted into an online assignment Dropbox in the LMS.

Teaching staff also graded each assignment and then integrated the student peer reviews into one document that was returned electronically to students. As staff manually compiled peer reviews, they could filter any unfair or inappropriate student reviews and ensure that the returned feedback file only contained staff metadata, thus preserving the student graders' anonymity. The teaching staff were apprehensive about interfering too much by filtering student reviews, as they believed that it defeated the purpose of having a student voice. There was, however, a single case where a peer grade was very much lower than the other peer grades for that case, so the low mark was excluded and the

peer mark based on an average of the remaining two grades. Exemplary student content was identified by staff, and with written student permission, highlighted as teaching material and made available to the other students.

DATA COLLECTION PROCESS

The first phase of the data collection involved an anonymous online questionnaire. The survey platform was a Google form embedded within the LMS and required less than 10 minutes to complete. The Google form was owned by staff not teaching in the unit to ensure that the teaching staff associated with the unit had no access to the data until after the final grades were confirmed by the university.

The questions in the questionnaire were designed specifically for the study and were divided into four main sections: demographics, experiences developing video for the assignment, peer review, and using content generated by other students as part of the unit study materials. Both closed and open-ended questions were used, and Tables 1 to 3 below include the closed-ended questionnaire items.

During the final teaching week, all students in the unit were emailed an invitation to complete the anonymous online survey and responses were collected until the end of the examination period. The response rate for the questionnaire was 39% (25 of the 62 who completed more than 50% of the assessment activities). As the online questionnaire was anonymous, participation was optional and it was also completed outside of the classroom. The response rate was therefore likely to be lower than it would have otherwise have been. It is important to be mindful that those who responded may be more engaged with the unit and represent stronger feelings both for and against the project and strategy.

At the end of the questionnaire, students were invited to enter an email address if they were prepared to take part in a face-to-face interview in order to more deeply explore issues identified from the analysis of the questionnaire data. Six students provided email addresses and were contacted. Three of the students then made themselves available for face-to-face interviews. These were held after the examination period at a time and place convenient for the student and the interviewer and each took approximately 15 minutes.

Whilst acknowledging the small sample size of the interviewees, it is important to note that the purpose of the interviews was to explore and assist us with understanding issues raised in the questionnaire rather than as a new source of data.

RESULTS AND DISCUSSION

The project had three aspects that we specifically wished to understand better through our data collection, namely, whether students were motivated by the task of creating a video, their perception of the peer review process, and their thoughts on student generated content.

The 25 survey respondents matched the demographics of the student cohort for the unit and were predominately male (84%). The students were also young, with 62.5% Gen Z (aged 18 to 22), 25% Gen Y (aged 23-35) and the remaining 12.5% were Gen X (aged 36-56). As suspected, the majority of the respondents were of an age that grew up with digital media, YouTube, and Facebook. Our expectation was that they would relish the opportunity to create a video as part of assessment in a unit.

STUDENT GENERATED CONTENT

Research suggests that student generated content is useful in helping students to construct their own knowledge (Jordan et al., 2015; Wheeler et al., 2008) and, therefore, this form of assessment was embraced as an innovation in the unit. When planning this evaluation, the teaching staff assumed that a video assessment would be a new learning experience for the majority of students. For some students, however, this may not have been the case. For example, when interviewed, a student suggested

that making videos was his “hobby” saying, “*I’ve done this before, this is simple, I just need to know what I’m talking about and then talk about it.*”

There were a range of views on the assessment, as shown in Table 1, but the results suggest that students generally enjoyed the video assessment, with 59% agreeing or strongly agreeing that they ‘really’ enjoyed the assignment and only 12% disagreeing or strongly disagreeing (this equates to a mean score of 3.6/5), and 80% also agreed or strongly agreed that they had learnt a lot from the assignment (mean = 3.9/5). The students who were interviewed related that they enjoyed the creative aspect of the assessment; for example, “*I have a strong creative streak and I got to insert my sense of humour.*”

There was, however, some negative feedback regarding the peer assessment process, some of which included concerns about being, “*...marked on our video making abilities*”, and the potential for well-produced videos with errors in the content receiving an “*awesome peer reviewed score*”. This is consistent with the observations of Dumova (2008) who suggests that technical matters may influence learning outcomes as students get heavily involved in the actual video making task. As was the case in Greene and Crespi (2012), although it was expected that all students would be familiar and comfortable with the technical task of creating a video, this may not have been as universal as anticipated. Thus students who were not comfortable with the video editing task may have not enjoyed the task as much.

Table 1. Levels of satisfaction, engagement and perceived learning associated with the student video assignment

QUESTION	SD	D	N	A	SA	MEAN
I really enjoyed the video assignment	4%	8%	29%	42%	17%	3.6
I learnt a lot from making the videos	0%	4%	17%	63%	17%	3.9
I would prefer to do a video assignment than a research essay	4%	21%	17%	33%	25%	3.5
I would prefer to do a video assignment than a programming assignment	0%	29%	17%	38%	17%	3.4

SD = Strongly Disagree; D = Disagree; N = Neutral; A = Agree; SA = Strongly Agree

Students were also asked whether they would prefer to complete a video assignment rather than a research essay and whether they would prefer to do a video assignment rather than a programming assignment. The results in Table 1 show that 58% of respondents preferred the video assignment to a research essay, and 55% preferred it to a programming task. However, many responses stated that the video assessment was “*considerably more time and resource consuming than a written essay*” but these responses typically also included that the “*new challenge was rewarding*”. Comments such as “*Was difficult as I do not like recording myself on camera*” and “*Was difficult as I cannot speak in public*” were in contrast to opposing views where students that stated that they “*Thoroughly enjoyed this assessment*”. With respect to the comparison between a video assignment and a programming assignment, a questionnaire respondent stated that they would prefer to “*do a practical assessment that made use of skills we learnt during the semester*”. Thus while creating video content is seen as an authentic task leading to useful skills, it needs to be recognised that it should not reduce the opportunities for students to do practical activities that directly employ skills that are central to the content being studied.

Another interesting response to the assessment was that students found it difficult to hit the record button and get started: “*While it was a bit awkward to get into a rhythm to record myself, it helped us make sure we knew what we were talking about before possibly recording ourselves talking about the wrong information*”. While the numbers are too low to provide any definitive answers about the role of age in perceptions of the value of student generated video content, age did not appear to be an important determinant. One mature student stated, “*I was very intimidated by the younger peeps - thinking that they would totally be across this style of presentation. So I was well pleased when I did ok :)*”. The sentiment of this comment was

noted by staff, but in fact many of the better presentations came from mature aged students, and in the 36 to 56 age group, there were no participants who having completed the assignment felt that they would have rather done a different kind of assignment. So whilst the initial notion may have been confronting, the value was recognised once they had engaged with the process.

The final topic in the unit used exemplary student generated content as teaching material, and participants were asked to score on a scale of 1 to 10 the quality of the student generated videos and staff generated videos. The results suggest that the students perceived the content created by staff to be slightly better (7.7/10) than the exemplary student content (7.1/10) that was posted as resource material for the final topic, but the difference was not statistically significant (paired t-test, $t(23) = 1.617$; $p=0.120$). This supports the initial expectation that students would have the skills to create quality content.

We also questioned whether the voyeurism that makes Facebook so compelling would also apply in video assignments in a university unit. Seeing the work of other students was perceived as being very useful. *"It was great to see how other students created their videos in comparison to my own"*. Students reported that the process of marking other students' work was helpful in developing their understanding of the topic, with one student saying that he "*...googles to check some of the claims made in the videos to make sure they were correct*".

The exemplar videos were seen by the students as being of use in their examination preparation. One student commented that because the student creators had just learnt the content themselves, "*...they know how they have to aim it to get someone else to learn it*." As the final exam included questions addressing content from the student generated videos, students used the exemplar videos to assist with their preparation: "*I watched them all a couple of times on the bus on the way here (campus) before the exam*". One interview participant stated that he found that "*other students' work was very useful revision*" and he "*learnt a lot by googling claims in student videos*". While content created by students should always be moderated and checked for accuracy by an instructor, the integration of student generated content still remains valid and useful.

STUDENT PEER ASSESSMENT

In addition to the direct benefits to student learning from involvement in generating their content, research suggests that sharing student generated content also has additional benefits (Jordan et al., 2015; Wheeler et al., 2008). This unit featured peer review, with each student assignment being assessed by three other students. A greater number of reviews will be closer to the average peer assessment of the entire class but the student peer review workload was also a consideration. The average age of the three student marks was worth 50% of the assessment, with the remaining 50% being made up of the staff mark.

The rubric used by students and staff was identical. The rubric consisted of 5 questions: is the presentation creative, is the speaker engaging, is the production quality high, is the explanation original, and is the material accurate. For each of these questions students and staff assessed on a Likert scale of Strongly Disagree (1) through to Strongly Agree (5). A one sentence justification was required for each of the 5 questions on the rubric.

The teaching staff anticipated that students would enjoy seeing how other students tackled a similar topic to the one that they had worked on, but were apprehensive about whether students would perceive the staff to be outsourcing the marking to students. The staff did not believe this to be the case, as they would still be grading each assignment, but were still interested in the students' perceptions. As seen in Table 2, students responded very positively to the opportunity to compare their work with one another. Table 2 shows that a relatively small percentage of the students (21%) felt that the teaching staff were outsourcing the marking; however, many students liked having a role in the marking process (46%). What participants particularly liked was being able to see the assignments

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of other students, “*It was great to see how other students created their videos in comparison to my own*”, and to compare them to their own (67% agreed or strongly agreed; mean = 3.7/5).

Table 2: Perceptions of the role of students in assessments that involve peer assessment of student generated content

QUESTION	SD	D	N	A	SA	MEAN
I felt that the teaching staff were outsourcing the marking to students	17%	33%	29%	13%	8%	2.6
I liked having a role in the assessment process	0%	8%	46%	42%	4%	3.4
I liked the fact that I could see and compare my assignment with my peers	0%	8%	25%	54%	13%	3.7

SD = Strongly Disagree; D = Disagree; N = Neutral; A = Agree; SA = Strongly Agree

Further questions were used to explore the overall perceptions of the value of peer assessment (see Table 3). The students largely felt that the marking by both instructor and peers had been fair, with 88% either agreeing or strongly agreeing that both the marks and comments from the instructor were fair (4.0/5) and with similar levels of agreement with respect to student marking (67% and 71%; means of 3.7/5 and 3.7/5). It was encouraging to note that 58% felt they had learnt something valuable about feedback but only 42% said that they would like to see peer assessment in other units, with half neutral on the issue.

Some students did, however, note that there could be inconsistency in marking; with comments such as “*one peer review was inconsistent with my or, and the other peer reviews*” and “*expectations of each person is different. i.e. some people want a super easy to understand video or some that wants something that is with their level*”.

Table 3: Student perceptions about the quality and process of marking

QUESTION	SD	D	N	A	SA	MEAN
The mark assigned by the instructor was fair	0%	8%	4%	63%	25%	4.0
The instructors comments on the video assignment were fair	0%	4%	8%	67%	21%	4.0
The overall mark assigned by my peers was fair	0%	4%	29%	63%	4%	3.7
My peers comments on the video assignment were fair	0%	8%	21%	63%	8%	3.7
I would like to see peer assessment in other units	0%	8%	50%	21%	21%	3.5
Peer review was a waste of time	8%	50%	33%	8%	0%	2.4
I learnt something valuable about feedback by being involved in the peer review process	0%	0%	42%	50%	8%	3.7
More units should involve peer assessment and comments	8%	4%	46%	33%	8%	3.3
I found the process of peer review engaging	0%	13%	25%	50%	13%	3.6

SD = Strongly Disagree; D = Disagree; N = Neutral; A = Agree; SA = Strongly Agree

Students noted that they found it “*very hard to know what the standard should be*” and noted “*it would be nice to have a benchmark example to mark against*” when performing a peer review. This was also mentioned by students in all of the interviews. We surmise that there was clearly some apprehension about grading other students’ work. This is similar to the observations of Nicol, Thomson, and Breslin (2014), who suggest that peer *review* in itself is very popular, but some anxiety may set in when students are asked to actually provide marks on the work of others. This suggests that students were taking the peer review process seriously as predicted by the literature (van den Berg et al., 2006).

One student appeared unsure about “*what's right or wrong at times*” and also “*fairness: i.e. a student makes an awesome video, but with some errors or false/personal bias information and gets an awesome peer reviewed score*”. One of the students stated, “*it was difficult because you had to think, is this good?*” and an interviewed student would have preferred that a “*couple of examples of different levels of achievement*” were provided. Students were also concerned about misinformation being perpetuated: “*The issue here is most other students would think this is correct, but might possibly confuse them later on when the materials they learn conflict with each other*”. Anxiety over the introduction of incorrect information, from student content, was a common concern in corridor conversation between staff but the evidence that first year first semester students are cognizant of the validity of information is reassuring.

The emotions that students reported feeling on hearing that they would be peer reviewed were surprised (50%), anxious (45%), happy (25%) and nervous (20%). Students were also asked how they felt after seeing the marks and comments from their peers. The negative emotions – disappointed (12.5%), anxious (8%), confused (4%) and nervous (4%) – were outweighed by the positive emotions – happy (45%), surprised (37%) and relieved (29%).

Peer marking is becoming more prevalent, particularly in Massive Open Online Courses (MOOCs), such as CourseEra, edK and Udacity. From our perspective, the difference between the instructor and peer marks was important to examine. Furthermore, some early work had suggested that there may be a risk of inconsistency between teacher and student graded work (Chen, 2010). In this study, the overall assignment mark average for the 63 students who completed the assignment, which was a combination of staff mark (50%) and the average of 3 student marks (50%) was 73.0% with a minimum mark of 44% and a maximum mark of 97%. The overall instructor average mark of 76.1% was significantly higher than the average student mark 69.8% (paired t-test, $t(62) = 5.060$; $p < 0.001$). This difference is in the opposite direction to the one found in Kulkarni et al.’s (2013) study on peer marking in MOOCs where the staff mark was 7% lower than the student mark, but there was a strong correlation between the staff and peer marks in our study ($r=0.753$, $p < 0.001$) and this correlation is consistent with the 0.73 correlation obtained in the Kulkarni et al. study, which adopted several techniques to reduce variance. Overall, given the open ended nature of the assessment and the lack of training provided to the students, the strong correlation should allay concerns that peer marking may not lead to an accurate assessment of the quality of work.

The approaches that Kulkarni et al (2013) recommend to improve consistency of marking include giving feedback to students about whether they scored their peers higher or lower than others, and identifying which components of the assessment have the highest differences and improving their clarity. Comments from the participants in our study about the need for more information about the required standard support these recommendations.

FUTURE WORK AND CONCLUSION

In the research described in this paper, students were assessed by their peers and instructors on a short video they created. The reviews identified eight exemplary videos that were published on the LMS site for the cohort to consume. In this study we have enabled learners to become content creators, assessors, and consumers and which has many similarities with the Web 2.0 phenomenon. By encouraging the publishing of one’s own work, and commenting on the work of others, Web 2.0 technologies have created a dramatic shift in the way people interact with and utilize the Internet, and creating, evaluating and sharing content is now accessible to all Internet users. Individual differences

in personality, communication preferences or learning style moderate how a user may perceive user generated content and interact with it (Shao, 2009), and this diversity is apparent in our findings, leading to a range of perceptions of the value of both the creation of video content and exposure to other students work through both peer assessment and inclusion of exemplars as unit material. However, on balance, the merits of student generated content and peer assessment were recognised. The results suggest that the approach used is a promising and viable one, which may yield engaging and positive learning experiences if implementation is well planned and based on research findings.

The findings relating to student generated content suggested that most students would genuinely enjoy the video making assessment task. Many IT students preferred this to other kinds of academic tasks they had completed such as report writing or programming. While these results are encouraging, around a quarter of the students would have preferred to do a different kind of assignment, suggesting that the approach does not hold universal appeal. While it was considered that older students may be less comfortable with both creation of video content and peer assessment the results did not bear this out, but further research is needed with a larger sample size to understand this better. Subsequent work may also include a more detailed instrument to measure attitudes, such as that used by Wen and Tsai (2006).

We suggest that users fit somewhere on a continuum, reflecting the balance of their activities with user generated content. Some users are *creators*, those who express their creativity by developing original items of content to share with the now global audience. On the other hand, many others are *commentators*; those who prefer to interact with content developed by others, but may express their opinions by commenting or sharing it. The latter meets the definition of user generated content, although the levels of engagement may vary dramatically. The continuum we describe is not necessarily a by-product of the Web 2.0 culture, but could be a product of individual differences in personality or learning style. What Web 2.0 has provided is the means for more individuals to develop and articulate these traits and to share them with a much wider audience.

When it comes to peer assessment, we found that student perceptions were mostly positive; however it was apparent that whilst students may be familiar with commenting on user generated content informally, when placed in a situation where there were consequences to their reviews, they were anxious to know about the required standard to ensure that they could mark it fairly. When asked about having a role in the assessment process, although just under half indicated that they liked this, a similar number were uncertain about whether they wished to be involved. Furthermore, less than half of students indicated that they would like to see peer assessment in other units. We suggest that individual personality plays a role in the depth and engagement that students exhibit when interacting with digital media, and this has implications for peer assessment.

When users adopt the role of *commentators*, the extent to which they engage with the content may indeed vary substantially. Millions of users readily skim through to like or share posts, but may stop short of fully engaging with the content to the extent required by a peer review. Although it is impossible to obtain baseline engagement data for the general Internet population, a relevant example of this behaviour can be seen in Wikipedia, the largest user generated content database in the world. Wikipedia is currently the 6th most accessed website with 7.5 billion page views per month on the English articles alone (Wikipedia, 2016a). However, only a tiny fraction of users (3000) meet the definition of being an active editor: someone who would engage with, and peer review, the content (Wikipedia, 2016b). One way to improve engagement in this area is to prepare students for future *commentator* roles by better communicating the procedures and standards for peer assessment using detailed notes or exemplars.

The results from this study are encouraging and shed light on some of the perceptions students may hold when student generated content and peer assessment are incorporated into a unit. The work has also generated new questions for further study into a domain that is certain to feature prominently in future learning environments. Future work should try to understand these differences by measuring

and analysing a broader range of learner characteristics. In particular, it would be interesting to see the effect of generational differences (Coyner & Razek, 2008), as well as cultural differences (Alexander, Thompson, & Murray, 2015). Other work could further explore the roles that students occupy as *creators* versus *commentators* as well as the relation between these two roles and the assessment process. It may also be possible to infer some or all of this data from established techniques in learner analytics to tailor the educational experience to be as effective as possible. Knowledge gained from this and subsequent studies will develop and inform the next generation of content creators and learning environments to keep pace with the evolution of communication in society.

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