

Increasing Student Engagement and Performance in Introductory Accounting through Student-Generated Screencasts

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Abstract

The paper reports the findings of a trial of student generated screencasts in an introductory accounting subject. This paper examines the effect of this screencast project on student engagement and performance. The effect on student engagement is examined using data from a pre and post screencast project student survey and performance effects examined by analysing the performance of students completing and not completing the project. The results of the study suggest the screencast project facilitated higher student engagement and performance. These findings have important implications for integrating technologies such as screencasting to facilitate enhanced learning outcomes in introductory accounting subjects.

1. Introduction

The objective of this paper is to examine the effect of student generated screencasts on student engagement and performance in an introductory accounting subject. A screencast is a digital movie of a computer screen which is accompanied by audio narration describing the on-screen action (Udell 2005). Figure 1 below shows a student generated screencast made using powerpoint and recorded using the free software, Jing. Screencasts are frequently used in instructional software guides, however their adoption by higher education is in its infancy. In particular, the concept of students rather than teachers making screencasts is new.

Adopting new technology is no guarantee of pedagogic reform (Litchfield et al. 2009); Using new technologies needs to be constantly grounded by sound educational goals (Huff 1991). Allowing learners to use new technologies and generate their own content is one way of avoiding old didactic teaching models and increasing active engagement. In the parallel “podcast” and “vodcast” (video podcast) literature student-generated content has enabled more active learning by doing (Litchfield et al. 2010). It is appropriate this project extends this pedagogical research by examining student-generated screencasts.

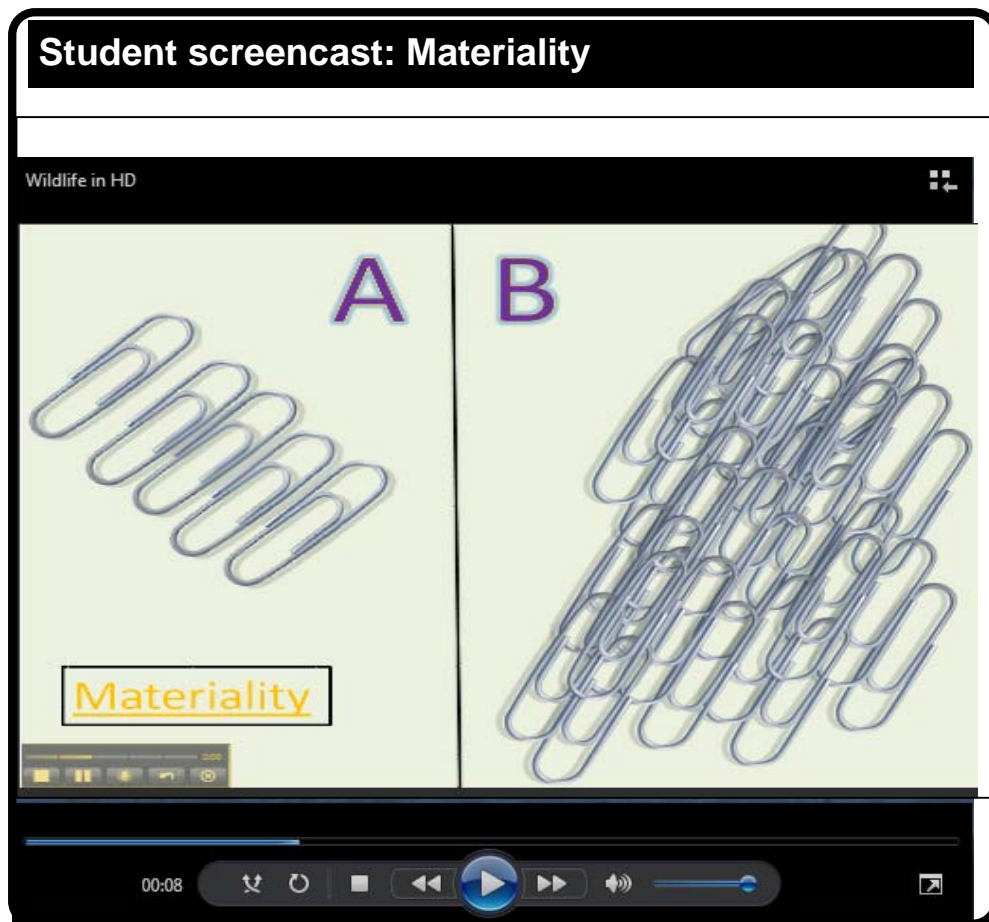
The motivation of this paper stems from the problematic gap existing between traditional learning and teaching practices the need to engage students in order to facilitate successful learning outcomes. According to Prensky (2001) today’s students are no longer the people our education system was designed to teach. In addition to a perceived disjunction between higher education and its students is the more specific disjunction between accounting education and the profession. The Accounting Education Change Commission (AECC) in 1990 stated:

“Students must be active participants in the learning process, not passive recipients of information. They

should identify and solve unstructured problems that require use of multiple information sources. Learning by doing should be emphasized. Working in groups should be encouraged. Creative use of technology is essential” (p 309).

Increasing engagement and performance in introductory accounting education is therefore desirable as it addresses: 1) the needs of the professional accounting bodies for a more active learning by doing and 2) the needs of first year students who being familiar with technology have a “diminishing tolerance for impassivity” (Murphy & Smark 2006, p. 186).

Figure 1: Student Generated Screencast



This paper contributes to theory and the practice accounting education by examining an innovation facilitating engagement and performance of students. The paper contributes by addressing whether student generated screencasts are a means of addressing this and similar calls from the profession. In this study students use the free downloadable software Jing to create their screencasts; as such this research may not only be of theoretical interest but of practical interest in terms of applications easily available to the teaching academic community.

2. Literature Review

In 1986 the American Accounting Association (AAA) Future Committee called for changes to accounting education (Bedford et al. 1986). Since the AAA's Future Committee report there has been a plethora of oft-cited reports from international accounting bodies calling for more learner-centred approaches to accounting education (Bedford et al, 1986; Arthur Andersen & Co et al. 1989; Accounting Education Change Commission 1990; International Federation of Accountants (IFAC) 1996; Institute of Chartered Accountants of New Zealand 1994; Albrecht & Sack 2000).

The impetus for much of this discussion comes largely from the professional accounting firms themselves who foresaw a gap between accounting education and the rapidly changing profession. The new accounting services were seen to be "more innovative-intensive than standard intensive" (Bedford et al. 1986, p. 74). The typically didactic accounting education was seen by the AAA Future Committee to be inadequate to meet these needs. From early on the literature was conscious of the need to move towards more a more active "learning by doing" approach (Bedford et al. 1986; AECC 1990). The need for skills development voiced in the 'Big

Eight' Whitepaper (Arthur Andersen & Co. et al. 1989) is also reflected at a more generic level by government and industry reports that call for graduates with work skills such as creative and critical thinking and communication skills (ACNielsen Research Services 2000; Department of Education, Science and Training 2004; Australian Chamber of Commerce and Industry & the Business Council of Australia 2002). The central insight of the AAA's Future Committee report is that accounting education must do more than teach the body of knowledge: it must foster skills such as critical thinking, communication and creativity and offer activities that motivate and engage students with active learning (Bedford et al. 1986).

In addition to addressing the needs of the profession we must also consider that students who having been exposed to technology require new instructional methods to engage them (Tapscott 1998). It is important to bear in mind that there has been a more general shift in outlook of today's typical university student. The increased growth, affordability and accessibility of technology have given rise to User Generated Content (USG). YouTube, Facebook, Twitter and Wikipedia all operate by users creating content, whether that be in a text, audio, still or moving image format. USG is part of the reality of our students' lives today.

Despite the need for change in accounting education being well articulated, the optimistic education revolution anticipated for the year 2000 by the AAA has not come to fruition. As Mathews (2001) notes the reports from 1986 to 2000 identify the same problem each time. This lack of change though is not due to a lack of academic support. Literature from academics, in general, is supportive of the position adopted by the accounting bodies (Patten and Williams 1990; Deppe et al. 1991; Nelson 1995; Mohamed & Lashine 2003). In addition to this surveys of educators reveal that overall there is support for change in accounting education however there is disagreement over how best to facilitate this change (May, Windal & Sylvestre 1995). Several

studies have also identified that in addition to a lack of consensus, that there are legitimate obstacles to implementing learner-centred approaches in accounting education (Adler et. al 2000). Economic and practical factors contribute to the large-lecture teaching format that, whilst criticised by the AECC and others, still continues to dominate the contemporary university. Large lectures, at least for the time being, are here to stay (Adler, Milne & Stringer 2000) and as a result low student engagement and poor performance are observable in most introductory accounting subjects. As solutions to these problems must, at least for the time being, operate within the *de facto* state of the university immediate answers to some of the issues raised by the professional accounting bodies must be achievable within the current and existing context of the university. Instead of a revolutionary approach to improvements in accounting education an evolutionary approach may not only be more feasible but more productive. Therefore immediate solutions to issues such as low student engagement and poor performance may have to be born out of the existing university environment and the restrictions that this presents.

Two points for change highlighted by the professional accounting bodies have been 1) “creative use of technology is essential” (AECC 1991, p. 309) and 2) “instructional methods and materials need to change as the environment changes” (AECC 1991, p. 310). Technology has already afforded some avenues to overcoming issues in learning and teaching of pre-qualification accounting, whilst also addressing some points made by the AECC but more needs to be done. Laurillard (2007) argues that digital technology has yet to transform Higher Education. In part the reason for this is that technological change often precedes changes in use. Web technologies emerged before pedagogies and practice could change to accommodate them (Alexander & Boud 2001). Typically universities integrate podcasts and vodcasts into their teaching to either 1) substitute or 2) supplement traditional lectures (McGarr 2009). Like e-learning the new space of

media-making technologies, typically podcasts and videos, have been teacher-created and reinforced didactic transmission models of learning.

While there is still very much a place for lecturer or expert generated content within the face-to-face university environment, students are becoming intolerant of impassivity (Freeman & Blayney 2005). Another way of using this technology is creatively “wherein students become more engaged in the learning through constructing knowledge rather than simply receiving it”, through producing USG (McGarr 2009). Recent research into the use of podcasts in higher education demonstrates that “podcasting becomes even more powerful when students are responsible for creating that content for their classmates” (Frydenberg 2006, p. 9). Trials with the use of student generated digital content have yielded very positive results. Hoban’s (2010) research into student-generated digital animation was found to promote engagement and encourage students to think about a concept in different ways. Similarly student generated digital videos in schools were found to enhance student engagement, self-expression and creativity (Reid, Burn & Parker 2002). Likewise other student-generated digital content has been heavily tied to an increase in student engagement (Wheeler, Yeomans & Wheeler 2008) whilst other studies found pride in the creation of digital video content (Frydenberg 2006) and a strong sense of student ownership (Schuck & Kearney 2006). Student generated content has also been tied to increasing student metacognition and reflection on learning (McLoughlin, Lee & Chan 2006) whilst also fostering idea generation and collective problem solving (Lee, McLoughlin & Chan 2008).

However whilst the literature surrounding student-generated digital content indicates desirable outcomes, improved learning performance is often assumed to be a by-product but has yet to be proven. Moreover, research into the use of screencasts in higher education has been

limited to teacher-generated content (Loch 2009) and the effects on the teaching and learning of accounting concepts are unknown. These therefore provide potentially fruitful areas to research.

3. Hypothesis Development

The literature suggests that student participation using innovative technologies facilitates higher engagement with material covered in the subject (Reid, Burn & Parker 2002; Frydenberg 2006; Schuck & Kearney 2006; Lee, McLoughlin & Chan 2008; Wheeler, Yeomans & Wheeler 2008; McGarr 2009; Hoban 2010; Hoban & Nielsen 2010; Litchfield et al. 2010). This is consistent with the contemporary student's disposition to the use of innovative user-generated content based technologies such as screencasts (Tapscott 1998; Prensky 2001). Accordingly it is expected that by participating in the project students engage to a greater extent with the subject materials compared to students that do not complete the project. Therefore it is proposed that:

***H1:** Student participation in the screencast project is positively associated with engagement in this subject*

The use of critical thinking skills enables students to think more deeply about concepts covered in the subject (McLoughlin et al. 2006). This, in conjunction with the greater engagement in the subject argued in hypothesis 1, means that students participating in the screencast project are expected to perform better in the final examination than students that do not participate. Therefore it is proposed that:

***H2:** Student participation in the screencast project is positively associated with performance in the final examination*

4. Context

The screencast project was trialled during 2010 in a first year introductory accounting subject at the University of Technology, Sydney. This introductory accounting subject covered basic accounting concepts including recording transactions, generating financial statements, cost volume project analysis and budgeting. As an introductory undergraduate subject it has historically had consistently high student numbers. In 2010 approximately 1800 students were enrolled in the subject. Lectures and tutorials were the dominant teaching and learning format for the subject. The majority of these undergraduates are enrolled in business degrees, but students enrolled in other degrees can also choose the subject as an elective. As an introductory accounting module the subject experiences two key, and related, problems. The first is student perception of the subject is that it is boring and low engagement resulted from this. In addition the subject suffers from a 30% failure rate.

5. Research Design and Results

To date research into new technologies has preoccupied itself with engagement and has in some cases assumed that performance will follow. This however is a contested point and research has demonstrated that the relationship between engagement and performance is sometimes complex and not applicable to all (Carini, Kuh & Klein 2006). We use a combination of measures, data sources and methods to develop a holistic understanding of the effect of student-generated screencasts have on student learning and engagement. The following data comprises our research:

- 1) Pre and post assignment surveys for *all participatory students*
- 2) In-depth student focus groups with *several participatory students*

3) Analysis of marks awarded to *all participatory and non-participatory* students

The first two data sources above are used to examine hypothesis 1, the effect of screencast participation on student engagement. The third source of data is used to examine hypothesis 2, the effect of screencast participation on student performance.

Analysis of Student Surveys: Engagement

To encourage students to respond honestly surveys were disseminated and collected by a research assistant outside the School to ensure student feedback remained separate from assignment submission and assessment. In addition to which the surveys requested no personal information and were instead tracked using a numerical system that tallied with the registration information. No survey results were shared with any academics in the School of Business until the term had finished and all final marks had been awarded.

There were a total of 134 registrations of interest, 10 students of which decided to drop-out of the assignment leaving 124 student participants. All 124 participants submitted either a group or individual accounting screencast. The response rate for pre-assignment surveys was 100% (n= 124) however the response rate for the post-assignment surveys was 95% (n=118). This 5% difference in response rate was not considered to be sufficiently significant to the identification of trends between the two surveys and in-depth student focus groups were used to further support any claims made. In total 58 group or individually produced student-generated screencasts were made and submitted.

Survey

The survey was divided into sections with statements and corresponding likert scales and open questions. The pre and post assignment surveys were designed to gauge the following:

- 1) Student multimedia experience: pre and post assignment
- 2) Student motivations for undertaking the screencast assignment
- 3) Student likes and dislikes
- 4) Multimedia skills

Whilst the primary focus for the screencast assignment was on the key accounting concepts, a secondary education in multimedia skills resulted as a by-product from the assignment. The pre-assignment survey indicates that a 40% majority of students said that they had some experience of multimedia production skills however 90% of all participants had never made a screencast before. Given that 90% of students had never made a screencast before the post-assignment survey results are very positive. In response to the statement “I enjoyed learning multimedia skills” students responded as follows: 33% (N= 39) responded with Strongly Agree, 47% (55) responded with Agree, 18% (N=21) responded with neutral, 3% (N= 3) responded with Disagree and 0% (N=0) responded with Strongly Disagree. Furthermore when asked how satisfied they were with the finished product 61% (N=72) responded with Satisfied whilst 15% (N=18) responded with Very Satisfied. These responses suggest that the participants found the new screencasting medium satisfying and engaging to work with.

1. Student motivations

In the pre-assignment survey open question “Why did you choose to do a screencast?” bonus marks provided the main stimulus. 70% (n=87) of student responses cited bonus marks as a motivating reason for doing the screencast. Despite this only 37% (47) of all total responses

(n=124) cited marks as the *only motivating* reason as many made reference to both marks *and* either knowledge or skills development. Of the 37% who were motivated solely by marks typical examples from this data set include “For the 10 possible bonus marks to my grade” and “The bonus marks I’ll know I need them”. However whilst the offer of bonus marks is one of the most frequently observed themes in the survey responses more often than not they formed part of a wider response. Students cited numerous reasons such as: “We like the idea of optional [assessment] so rather than being forced to complete the assignment we are enthusiastic to complete the assignment at our own will with an extra incentive of 10 bonus marks” and “I believe it is a good way to learn thoroughly a specific concept within this course, whilst also expressing my understanding in a fun, interactive and different medium”.

Whilst the overriding motivation to participate in the assignment was to obtain bonus marks the learning aims of the students varied. Some students had a very specific content focus (n=39) typical responses in this category ranging from the specific “I hope to learn the concept of GST clearing a lot better as I found it difficult to understand before” to the more general statements “I hope to learn more about the accounting concept we chose”. Other students intended learning outcomes were skills, rather than content, focused (n=32), typical responses in this category are “Teamwork, multimedia skills” and “Team Work, how we can be creative in explaining concepts on a dry subject”. Excluding four miscellaneous comments the remaining 49 students (40% majority) had mixed skills and content learning outcomes. Throughout the data there is reference to creative thinking, teamwork, multimedia and screencasting skills as well as learning how to communicate difficult content to others. The presence of these themes in the survey responses indicated that student participation in the screencast project improved their engagement with the subject.

Multimedia skills were a strong theme and directly expressed by 34 students. Typical responses were: “I hope to gain further understanding of not only the accounting concept that I have chose to screencast but also the multimedia skills required to complete the task”. One student response went even further indicated that he was interested in the assignment as “It’s like I’m a director to make a short movie in this subject”.

In summary the pre-assignment survey indicates that whilst bonus marks were a key motivating factor, only a few students saw the assignment as solely a mark increasing exercise. One student responded: “Bonus marks is a big incentive. Was interesting to do also (if it was an annoying assignment I wouldn’t have done it for bonus”. This response is representative of the majority of comments made: students cite marks as the initial incentive but in most cases go on to develop why this particular assignment attracted them. Motivations for participating varied across the data and with the exception of multimedia skills no single theme took significant dominance. Skills such as creative thinking, teamwork, communicating to different audiences, learning to use technology, and learning to learn were mentioned several times. The skills students want to develop align with those that employers, government (ACNielsen 2000; Australian Chamber of Commerce and Industry 2002) and Accounting bodies ((Bedford et al, 1986; Arthur Andersen & Co et al. 1989; Accounting Education Change Commission 1990; International Federation of Accountants (IFAC) 1996; Institute of Chartered Accountants of New Zealand 1994; Albrecht & Sack 2000) have targeted for development. The assignment was described by many as a “good challenge” and a 14 student responses (11%) indicated that they thought the assignment would be fun or interesting.

2. Likes and dislikes

Student feedback on the screencast assignment was very positive. Limited negative feedback was given, with 31 responses indicating that there was not anything that they disliked. Many of the themes in the “dislike” data are interrelated; a limitation or lack of clarity in either the assignment outline or the instructional resources both stemmed from the trial conditions that this project emerged from. As this was a trial academics were unsure as to the level of technical confidence of the students and how much instructional or support material was needed. It was decided in the design of the assignment to provide only limited support resources and examples to encourage the students to interpret the assignment more widely. Despite some student feedback saying that they found Jing difficult to use the majority of students found this unproblematic.

Table 1

Post-assignment survey responses to the questions “What did you like about this assignment?” and “What did you dislike about this assignment?”					
Response (n= 118)					
“Likes”			“Dislikes”		
Different way of learning	30	25%	“Nothing”	34	28%
Interesting/ fun	27	23%	Technical problems	31	26%
Creative/innovative practice	26	22%	Time restrictions	18	15%
Marks	26	22%	Insufficient instructional material	10	8%
Technology/multimedia skills	26	22%	Assignment guidelines or criteria	9	8%
Understanding accounting concept	23	19%	Production was difficult	6	5%
Teamwork	14	12%	Teamwork problems	5	4%
Peer teaching and learning	12	10%			
Choice of topic	11	9%			
Revision	9	8%			
Optional assignment	5	4%			

In addition to limited negative feedback the positive feedback aligns very heavily with the learning and teaching aims and sheds a preliminary light on the learning process that these students underwent:

- “We get to learn knowledge in a more fun way, it is more understandable than just listening in the lecture. Since we experience the process to produce it we get a deeper understanding of the topics that we choose.”
- Learning about a new medium to portray a message/information. Having a idea brief which allowed for creativity and challenged us to really think as opposed to being told what/how to think and what conclusions to present.
- “That I had to know the topic well enough to break it down to others made me understand it so much more than what I got from class. My groupmate and I spend hours just going over it in the book again and again explaining it to each other in a very simple way which made us all the more knowledgeable about our topic.”

Results from the survey suggest that students participating in the screencast project were encouraged to think more critically and deeply concerning accounting concepts. The need to explain an accounting concept in detail through screencasting forced student to engagement with the concepts covered in this course than they would normally have done so through more surface learning approaches.

Focus group

To enable the researchers in this study to gain a greater understanding an in-depth focus group of participants (n=4) was held. This was run by eliciting qualitative statements from individuals about what were the best aspects of the screencasting assignment and then what were

the worst aspects. Each student was given 100 votes to distribute amongst the best and 100 votes to distribute amongst the worst aspect comments. Qualitative comment was quantified by the whole group so a collective weighting was given to each comment.

Best aspects of the screencasting assignment

1. Bonus marks were a good incentive- eg. Improve on mid-term exam results (27.5%)
2. A chance to revise on concepts I wasn't familiar with (12.5%)
3. Liked that it was non-compulsory- passionate because volunteer (12.5%)
4. Freedom of choice and expression (12.5%)
5. Different way of learning about accounting- not the usual textbook: read & do (11.3%)
6. Liked being creative: different from usual accounting (10%)
7. Teamwork skills (7.5%)
8. Learning Jing was useful, not only for accounting, but for other subjects (6.2%)

Worst aspects of the screencasting assignment

1. Marking criteria was not always helpful: too open ended (40%)
2. Jing software: very limited- when you start recording you cannot stop it and you can only take a shot of the one window that is up & you cannot switch to another window. It lags badly- especially if you have video content (26.9%)
3. No examples to guide you (20.6%)
4. Teamwork difficulties (12.5%)

There is a marginal difference in emphasis between the best and worst aspects expressed in the survey and those in the focus group. For example data from the post-assignment survey

suggests that “A different way of learning” was more dominant than “Marks”, whilst the focus group indicates that marks were still the dominant focus. However the themes expressed in broad across the survey do tally with those of the focus groups and without further data it is not clear why these differences in preferences emerged Moreover the focus groups were able to gauge that the best aspects of the assignment far outweighed the worst aspects. Overall the students responded very positively. Many indicated that they enjoyed the style of assignment and wished that more of their subjects had options such as these. One student even said that they had since used the software at work, whilst another said that they had used the software to generate screenshots for another university assignment.

Analysis of Student Results: Performance

A database comprising all student results and participation in assessment tasks is used for the purpose of the analysis in this study. Participation in the screencast project was optional and students had the opportunity to earn 10 bonus marks, contributing to their overall mark in the introductory accounting subject. Students also had the option of sitting the mid-semester examination, lowering the weight of the final exam in the final assessment. The final examination was the only compulsory assessment during the semester.

Hypothesis 2 proposes participation in the screencast project is positively associated with the performance in the final examination. This hypothesis is tested through using a linear ordinary least squares regression analysis. The following model is proposed to examine the effect of screencast participation on final examination performance:

$$FINAL_EXAM_i = \beta_0 + \beta_1 SCREENCAST_i + \beta_2 MID_i + \varepsilon_i$$

$FINAL_EXAM_i$ refers to the percentage mark student i received in the final examination. Dummy variables are used to indicate whether students participated in the screencast project and mid-semester exam examination. The dummy variable $SCREENCAST_i$ indicates participation in the screencast project, with a value of 1 for participation and 0 for non-participation. The dummy variable MID_i indicates whether student i sat the mid-semester examination, with a value of 1 for students sitting the exam and 0 for those student not sitting the exam. According to hypothesis 1 $SCREENCAST_i$ is expected to be positively associated with $FINAL_EXAM_i$.

Descriptive Statistics

Table 2 below shows the descriptive statistics of the variables analysed in this study. The descriptive statistics show the mean percentage score for the final examination is 43.38% and the median score slightly higher at 46%. The statistics indicate there is a large variation in final exam performance, ranging from 0 to 87%. In total only 23% of students in the subject participated in the screencast project, despite the bonus marks on offer. The number of students participating appears sufficiently high to examine the regression model, however it is surprising to note the relatively low participation rate given the printed project briefings distributed, lecture reminders and online announcements concerning the project. In contrast 80% of students sat the mid-semester examination in which no bonus marks were on offer. These differing participation rates may well reflect the first time exposure students had to screencasts in contrast to more traditional assessment styles of other subjects.

Table 2

Descriptive statistics for the variables

Test Sample (N = 527)

	Mean	SD	Minimum	Median	Maximum
<i>FINAL_EXAM</i>	43.38	18.86	0.00	46.00	87.00
<i>SCREENCAST</i>	0.23	0.42	0	0	1
<i>MID</i>	0.80	0.40	0	1	1

Correlations

Table 3 below provides Pearson's bivariate correlations of the dependent and independent variables. The independent variables *SCREENCAST* ($r = 0.167$, $p = 0.000$) and *MID* ($r = 0.433$, $p = 0.000$) are significantly positively correlated to the dependent variable *FINAL_EXAM*. *SCREENCAST* ($r = 0.191$, $p = 0.000$) is significantly positively correlated with *MID*.

Table 3

Pearson's bivariate correlation matrix

	<i>FINAL_EXAM</i>	<i>SCREENCAST</i>
<i>SCREENCAST</i>	0.167** (0.000)	
<i>MID</i>	0.433** (0.000)	0.191** (0.000)

**Denotes that correlation is significant at the 0.01 level (2-tailed). N = 527

Regression Analysis

The results of the ordinary least squares regression of the model are reported in Table 4 below. The results indicate the variable *SCREENCAST* is positively (coefficient = 0.088) and statistically significantly (t -statistic = 2.192; p -value = 0.029) related to final performance. This indicates students participating in the screencast project achieved significantly higher results in the final examination. Therefore this result support hypothesis 2, there is a positive association between screencast participation and final exam performance. The results also indicate the

variable *MID* is positively associated (coefficient = 0.417) and statistically significantly (*t*-statistic = 10.432; *p*-value = 0.000) associated with final examination performance. The adjusted R^2 of the model is 19.2% and the *F*-statistic is 63.552 (*p* = 0.000). These results suggest student engagement through generating screencasts positively and significantly increases final examination performance beyond that expected by only sitting the mid-semester examination.

Table 4

Ordinary least-squares regression of model:

$$FINAL_EXAM_i = \beta_0 + \beta_1 SCREENCAS\!T_i + \beta_2 MID_i + \varepsilon_i$$

	Expected sign	Standardised coefficient (<i>t</i> -statistic; <i>p</i> -value)
Intercept	?	- (16.507; 0.000)
<i>SCREENCAS\!T</i>	+	0.088 (2.192; 0.029)
<i>MID</i>	+	0.417 (10.436; 0.000)
<i>F</i> -statistic (<i>p</i> -value)	63.552 (0.000)	
Adjusted R^2 (%)	19.2	
Durbin-Watson statistic	1.970	

6. Outcomes

There were in total 58 student-generated accounting screencasts generated. It was intended that these screencasts would contribute to a repository of learning resources for future students in the course. Out of the 58 screencasts only 7 (12%) were thought to be suitable for use in an online repository. The remaining 51 screencasts were not discounted for inclusion due to poor quality. The majority demonstrated an able grasp of the accounting concept and creative multimedia skills, however minor technical accounting errors meant that inclusion in an

repository may lead to other students being misled by the material. However, the 7 selected screencasts are expected to grow as the learning activity is offered again in future semesters. In retrospect initial plans to generate a high volume of multimedia online learning resources were overly optimistic. Student error is normal in all assignments, not just those that are digital or multimedia. If this assignment had been an essay or a report it is likely that only a small number would be selected as models for future cohorts of students.

The pre-survey data indicates that students want to develop broader skills as well as their accounting knowledge. Many of the skills that students cited in their intended learning aims, such as creative thinking, communication and teamwork align with the needs of the accounting bodies (Bedford et al. 1986; AECC 1990; Albrecht & Sack 2000). Despite 90% of students having never made a screencast before, 76% reported to be either satisfied or very satisfied with the final outcome. The students valued a different way of learning and the majority enjoyed liberal aspects of the assignment such as the fact that the assignment was optional, that they could chose the accounting concept they wished to focus on and that they could practice creatively. The findings of the survey suggest there is support for hypothesis 1, there is a positive association between student participation in the screencast project and student engagement with the subject material.

Of the worst aspects students cited technical problems or that the assignment guidelines were too vague. A guidebook and two example screencasts were provided as support material. In addition a screencast expert from the school of software was available to give technical assistance. Student feedback indicates that 1) they were not aware or could not find the support materials 2) that the support materials may have been unclear 3) having received an email from the screencast expert did not want helpdesk style assistance but would have preferred an initial demonstration or class with the software. Using this feedback support materials would be re-

written for use in future semesters, taking into account feedback that suggests that some of the students were anxious about their own IT skills and not the 'digital natives' Prensky's term leads us to imagine them to be.

Quantitative analysis of the final exam marks revealed that screencast participation had a positive effect on performance, according to final exam performance. This is shown by the positive and significant T statistic regarding the effect of screencast participation on final exam performance. Therefore this provides support for hypothesis 2, there is a positive association between screencast participation and performance in the final exam. This finding indicates that engagement in the material as suggested by survey results analysed for hypothesis 1 leads to deeper and more effective student learning and accordingly higher performance in the final examination.

The limitation of this research to date is that only participants were surveyed and that the indications of engagement are the self-assessments of learning taken from students themselves. Whilst an overall analysis of marks may mitigate this limitation, further trials of screencasting would serve to address this point by extending the survey to non-participants whilst providing more longitudinal insights. In addition further analysis of other factors including student age and prior studies for the purpose of sensitivity testing may have been informative to further explain the results, however this data was not collected.

7. Conclusion

The purpose of this paper was to examine the effect of student generated screencasts on student engagement and performance. This responds to calls from the profession and literature for more engagement of contemporary students in introductory accounting studies to contribute

to enhanced performance outcomes. This paper examined the effect of student generated screencasts on engagement through conducting a pre and post survey of students participating in the project. The findings from this survey data suggest that the screencast project had a positive effect on engagement for those students participating. The analysis of student performance supports the proposition that performance of students participating in the project was positively affected when compared to student not participating. This performance specifically relates to the final exam results students. Accordingly this paper contributes theoretically and to teaching practice by demonstrating the use of innovations such as screencast facilitates the engagement and performance of students. This is a particularly notable contribution given the limited literature linking teaching and technological innovations to performance found in the literature to date

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