# Student Engagement in Video Case Based Undergraduate Business Teaching

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**Abstract**

This paper describes a long term project using bespoke video case studies designed and produced as the basis (variously) for formative in-class and on-line forum activity and assessment of group coursework and via case based exam.

The research sought to observe student engagement behaviours when faced with innovative teaching methods using: observation, data collection on student interactions with the videos and seminar groups.

On the key question of learning development the findings are unimpressive. Although different features were used in the teaching and assessment over the period of the study, and it is difficult to separate the effects of each, it remains that the overall quality of student work remained significantly unchanged.

However, student satisfaction with the module remained high and qualitative comments and group discussions underpinned the behavioural and emotional engagement that the videos were designed to foster.

In a complex area, with numerous potential factors affecting student learning behaviour the findings are, at best, tentative. However, student ability to cope with and master new techniques was illustrated.

**Keywords:** Video, Case Method, Higher Education, Collaborative Learning, Student Behaviour

## 1. Introduction

The digital world of today is taken for granted by the so called ”Generation Y”, those who have never known a world without the internet, global connectivity or use of digital technologies to ”enhance” their education. On entering their first degree in 2012 most students (80.5% according to HESA, 2014) are under 24 with 69.3% under 21. At the same time, the age profile of academic staff shows 87.6% of full-time staff aged over 30 (”Generation X” and their progenitors from the post-war ”Baby Boomers” onwards). The data also show a significant rise in the over-60 age group, especially amongst part-time staff. Whilst the capacity and dexterity in using technology is not confined to the young it remains that today’s students’ expectations are closer to the Tablet Computer than the blackboard.

The advance of technology over the lives of “Generation Y” has been staggering. The barely portable “mobile phone” of the 1980’s has been replaced by a slim mini-tablet that acts as camera, entertainment system, mini-computer, internet access device and, oh yes, a phone. For even longer, “Generation X” educators have sought to incorporate technology into learning and teaching starting with the Sinclair Scientific calculator in the 1970’s, through the early TV programming of the Open University to desktop Personal Computers, the web (and web 2.0) to Apps.

The educational literature abounds with both descriptive and analytical papers on using various forms of new technology. Projects and experiments are often “technology led” and speak of innovators, single period datasets and possibly spurious learning enhancements. The meta-analysis of 53 podcasting studies by Kay (2012) highlighted technical problems with that particular medium and called for more research into the pedagogy, viewing patterns and impact on learning. Whilst innovation is empowering and often expensive, educators in Higher Education cannot afford to make any mistakes with the learning and achievement of students. Projects in this area should, therefore, be based clearly on good pedagogic logic, problem-free technologies and with a focus on the behaviours of students as well as on their achievements.

It was with this in mind that the current project was begun and into which environment that this paper plunges, reviewing theories of learning and technology-aided education and assessment.

## 2. Pertinent Literature

The design of the learning opportunities on which this paper focuses was an iterative process over a number of years. The tutor and author was trained as a lending banker and always sought to ensure that this experience and training impacted on teaching in this highly practical area. Key concepts in supporting and informing the design included the variety in learning style preferences (Honey & Mumford, 1986), Experiential learning (Kolb, 1984) and learning typography relating to Visual, Aural, Reading / Writing and Kinaesthetic learning styles (Fleming, 2014). The learning needs of Higher Education students are varied, complex but not often formalised or measured. In order to maximise opportunities for learning, however, pedagogic design must attempt to address these varied needs.

Addressing a wide spectrum of learning styles, experiences and preferences in a Higher Education setting, especially in business related programmes often requires "real world" interaction. Business Schools with a practitioner orientation have long sought to operationalise this requirement through, in part, the use of case studies (Heath, 1997; Leenders, Maufette-Leenders & Erskine, 2001). Case studies offer accessibility to students, pedagogic control to tutors and "fuzzy" or "real world" problems where key discipline based concepts can be rehearsed and independent learning and research undertaken. Case studies in Accounting, for example, have been shown to be effective (Cullen, Richardson & O'Brien, 2004) as they address practical issues in a problem based learning design. The development of case studies has research focused benefits for academics too (Cullen et al., 2004).

Case study based learning and teaching can also address student engagement, an often cited but little researched phenomenon in Higher Education. Skinner, Furrer, Marchand & Kindermann (2008) develop a model of engagement, illustrated at Table 1. The model separates behavioural and emotional characteristics of engagement and disaffection. Positive engagement needs to give opportunities for both effort (behaviour) and interest (emotion). Although the typology for engagement in Skinner et al (2008) was developed for young children it is clearly applicable as a framework when reviewing engagement at different stages of the educational journey. Well-designed case study problems can influence student behaviours by prompting action, requiring research and focusing discussion.

Table 1. Student engagement typology (Developed from Skinner et al., 2008)

| | ENGAGEMENT | DISAFFECTION |
|---|---|---|
| BEHAVIOUR | Action initiation<br>Effort, Exertion<br>Attempts, Persistence | Inattentive<br>Distracted<br>Unprepared |
| EMOTION | Enthusiasm<br>Interest<br>Enjoyment | Boredom<br>Disinterest<br>Frustration/anger |

Blended learning, using out of class activities and / or technology based activities create enhanced opportunities for student engagement (Vaughan, 2007). This paper recognises, along with Robinson & Hullinger (2008) that whilst student engagement is a responsibility of the student it can also be influenced positively by learning and assessment design and the effective deployment of resources (Mann & Robinson, 2009).

Little literature exists on the phenomenon of video cases but similarities can be drawn with the more widely discussed "podcast" technique (Kay, 2012; Bolliger, Supanakorn & Boggs, 2010; Heilesen, 2010). "Podcasts" named for the ubiquitous Apple iPod, are video inputs that can include Powerpoint slides, audio or video lecture capture or a documentary style input (such as Open University programming on the BBC). The podcasts are available from websites – including iTunes and iTunes University, Massive Online Open Courses (MOOCs) and Institutional Virtual Learning Environments (VLEs). In addition to the production of podcasts leading to the development of teaching and technical skills (Lazzari, 2009; Strickland, Gray & Hill, 2012) there is a lack of evidence that supports the notion that learning is enhanced (Vogt, Schaffner, Ribar & Chavez, 2010).

This paper also recognises the positive development of student learning, not through better results, but through "social presence" (Kay & Kletskin, 2012). There is, however, conflicting evidence on student satisfaction and achievement with positive benefits reported (Nickles & Struthers, 2011) and neutral ones too (O'Bannon, Lubke, Beard & Britt, 2011).

## 3. Methodology

### *3.1 Learning to Use Video*

This paper builds on an ”action research” project undertaken at a UK University in 2009/10 to write, produce, edit and publish two video case studies to support teaching in the subject area of SME credit appraisal. The videos were designed for use as formative classroom activity, on-line discussion activity and case-study based assessment. Having successfully produced two 15 – 17 minute videos with accompanying accounting information these were translated into on-line and DVD formats to maximise platform coverage.

The design of the videos, the underlying case studies and the method of teaching delivery was aimed at maximising the opportunities for deep learning. Following the parameters set out by Wilson-Smith and Colby (2007), the delivery method provided all of the features required for higher levels of abstraction and cognitive skills as observed learning outcomes.

A narrative paper by Liedtka (2001) rehearses many of the lessons learned and the processes observed in the creation of videos. This project shared Liedtka’s vision that the classroom should become a ”virtual world”, that verbal interaction on screen and in the classroom would enhance learning and for materials to be flexible, allowing for editing and re-editing, breaking into sections and to be of the highest visual and audio quality. This last point ensures that output still retains good quality even when streamed or viewed via mobile device.

The project had an excellent launch-pad through access to (modest) funding, accessible case studies written by the author and tested in class as written cases, access to actors and professional filmmakers together with co-operative local businesses used as shooting locations. The project, excluding academic time, cost approximately £10,000.

The subject matter of the video cases was credit appraisal of SMEs, a constituent part of an undergraduate Banking programme at the University. In the first part of each story the videos provided environmental information about each business using visual and audio cues, dialogue and the device of the main actor talking directly to camera as an “aside”. In the second part the video progresses to an interview setting with the client(s).

At all times the key characteristics of eLearning resources (Littlejohn, Falconer & McGill, 2008) were borne in mind in order to engage learners, ensure re-usability and re-purposing and maximise accessibility. The careful control of performance rights and copyright was also maintained to avoid legal restrictions in the future.

This two part design allows for cases to be viewed as a whole or for classroom use whereby the environmental information can be introduced first and then students asked to devise questions to ask the client before running the rest of the video (perhaps in a subsequent week) to hear questions asked and answered on screen. The design also allows delivery as a complete case, on-line, to support coursework based or exam assessment.

### *3.2 Putting the Videos to Work*

The initial expectation for the current project was to monitor and measure student use of the videos both in class via observation and survey and on-line via observation and the University’s Virtual Learning Environment (VLE). The project was designed as medium – term, ranging ultimately over five academic years, in which the videos would be used in Semester 2 teaching each year. It was felt that the videos would only have currency for about 4–5 years despite the careful writing of the screenplays to avoid specific dates. As the same video cases were used each year of operation care had to be exercised each year in order to avoid exposure of future students to detailed feedback on coursework from the previous year’s cohort otherwise new videos would be needed every year to avoid giving later classes an unfair advantage. During the period in question there were no signs apparent in submitted work that students had accessed detailed individual feedback from previous years (apart from generic feedback posted to the VLE in accordance with University policy that addressed the cognitive, research and communications skills of students rather than the detail of the case).

Frequent changes to modules can confuse students and apart from keeping materials up to date the style and format of the module and the associated assessment changed in 2010/11 from a case based exam assessment to a case based group coursework assessment. It remained as a coursework until 2013/14 when an exam was reinstated. The change in assessment format was to ensure a balance of different assessments across the second year of the relevant degree programme but, fortuitously it did allow for this experiment to be continued with similar parameters for 3 years.

For the exam based assessment, accepted good practice within the School favours a launch of the case study three working weeks before the examination. Clean copies of the case are available in the examination hall.

For the group coursework the coursework briefing and case study video is made available either before or after the Easter break, giving students an effective 6 – 10 weeks, depending on the position of Easter, to view, review and to

research the case. In weeks 9 – 11 of each Semester student groups were invited to small seminars with the tutor. The group meetings with the tutor were voluntary but each group managed to fit in one or two before their report was submitted. The tutor used the opportunity to clarify possible misconceptions and to enhance the enquiries being made and research being undertaken.

Where group work was used as assessment individual student marks reflecting individual effort were generated via a Peer Review mechanism (for a full treatment of this mechanism see Willmot & Pond, 2012). In any group work situation a number of different behaviours can be identified, largely categorised as positive or negative "Collaboration" or "Co-operation" (Dillenbourg, 1999 and; Johnson & Johnson, 1989). This paper does not seek to investigate groups themselves but their behaviours when faced with the video medium.

Preparation for the case study based assessment also came through classroom teaching according to the schedule detailed in Table 2:

Table 2. Case study schedule

| Teaching week(s) | Exam (2009/10) | Group coursework (2010/11 to 2012/13) | Exam (2013/14) |
|---|---|---|---|
| 1-6 or 7* | Input lectures with use of one case study as class example | As for exam | Input lectures with use of one case study as class example |
| 7 or 8* | Input lecture | Coursework case study launched on VLE | Input lecture |
| EASTER BREAK | | | |
| 9 - 10 | Input lectures | Input lectures plus group seminars with tutor | Input lectures plus exam case study (video) launched on VLE |
| 11 | Input lecture plus exam case study (paper) launched on VLE | Group seminars with tutor | Input lecture |
| 12 | Revision lecture | Submission of group coursework | Revision lecture |
| 13-15 | Exam | n/a | Exam |

*dependent on the timing of the Easter break

*3.3 The Research Instruments*

Data for the research were collected via a number of instruments over the five years of the project. A balance was maintained throughout between existing tools (VLE records, Module feedback) and specific instruments seeking to identify views and behaviours (group interaction and survey). It was felt to be important with relatively small class sizes to minimise "Hawthorne" type issues (Adair, 1984). Although students were aware, at the time of using the case studies, that their interactions were being monitored this warning was issued only once.

Table 3. Research instruments

| Instrument | Deployment (academic years) |
|---|---|
| VLE records | 2010- 2014 |
| Seminar Groups | 2011, 2012 and 2013 |
| Module Feedback | 2010- 2014 |
| Student Assessments | 2010 - 2014 |

VLE records allowed date and time data to be collected on access to the video case by individual students. No data were available on the duration of time that the video was being used and so this would have to be collected via alternative means (if at all).

Seminar groups, also allowed the tutor to address issues of video clarity, accessibility and viewing behaviours in ad hoc and informal group style. Whilst these interactions were not formal focus groups they remained a pragmatic and consistent way to investigate the behaviours measured by the on-line statistics.

At the end of each semester not only are assessments marked and feedback provided (allowing for observations on learning achievements to be made by the tutor) but student feedback relating to their experience of the module is collected. This was not specific to the video cases but to the whole module experience. However, qualitative data were collected, through this method, to illustrate student views.

## 4. Findings

### *4.1 Video Viewing*

The summary of video viewing shown in Table 4 belies the complexity of the picture developing from the five years of the study. Over the three academic years 2010/11 – 2012/13 the student cohorts worked in groups to produce a final report based on the case. The gender based data for each of three years is interesting but only presents a truly independent outcome in 2012/13. Female students appear to view the video more times than their male counterparts.

Table 4. Video Views

| Academic year | Student numbers | Average Views | Average Views by male students | Average Views by female students |
|---|---|---|---|---|
| 2010/11 | 44 | 5.09* | 4.96 | 5.33 |
| 2011/12 | 42 | 5.50 | 5.17 | 6.23 |
| 2012/13 | 45 | 4.07 | 3.19 | 6.0 |

*Ch.sq.test: 2010/11: 0.201;2011/12: 0.0696; 2012/13: 0.000015*

*Not strictly comparable to 2012 and 2013 as written screenplay was also available.

The VLE is not able to report the duration of each visit to the video case on-line but it does pinpoint the date and time of the access together with the location ID of the PC used. Not surprisingly, during term-time, access was from the University campus. Figure 1 combines the distribution of video "hits" to the VLE across the three years where group coursework was the assessment medium. The moving "feast" of Easter always causes pedagogical problems for Universities that adhere to the two semester system. Easter breaks the 15 week Semester at about week 7 but this can be as early as week 5 and as late as week 8. The Easter break lasts for four weeks.

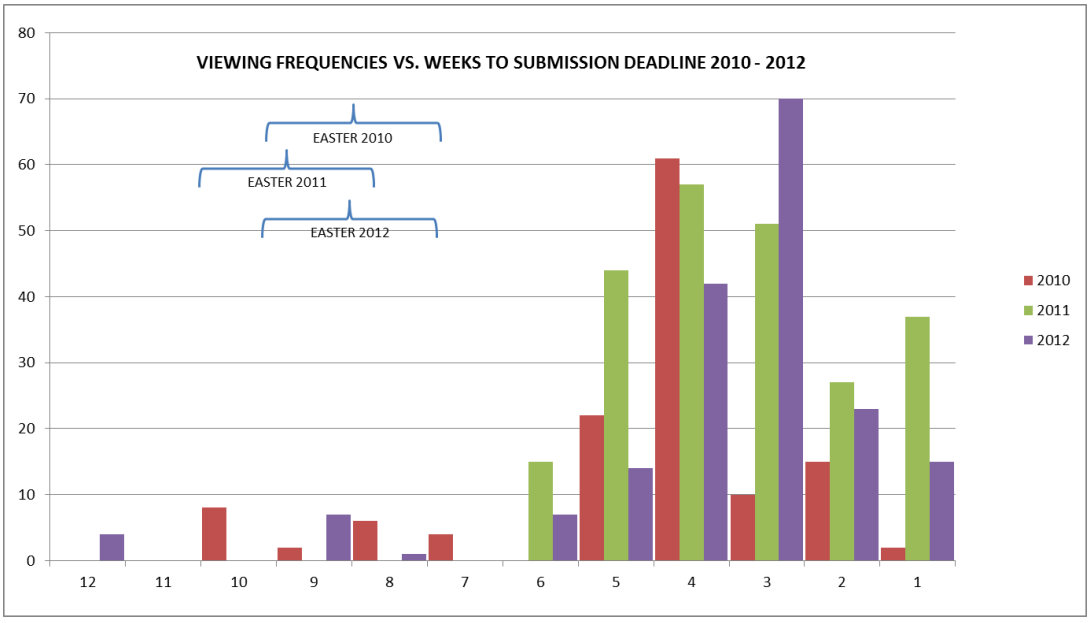


Figure 1. Scheduling of Video Views

In 2010/11 and 2012/13, with a later Easter break it was decided to launch the case study before Easter. 2011/12 had an early Easter, allowing for the launch to be delayed until after the break. This was also needed to synchronise with the teaching on the module that prepared students to use the case study.

Very few students actually accessed the case until after Easter. After Easter in each year a familiar pattern of increasing views as the submission deadline loomed is seen. Peak activity is seen three to four weeks before submission with a slight trend towards earlier viewing from 2011/12 to 2012/13.

The data show a fairly consistent viewing pattern in each week leading up to the submission deadline. Seminar group interactions indicate that in the weeks closer to the submission the video was reviewed to ascertain specific detail that required clarification and was not viewed as a whole. In a Canadian study of lecture capture Brooks, Erickson, Greer & Gutwin (2014) noted five distinct types of viewing behaviour:

- High activity learners – habitually watch through the term
- Just in time learners – prior to an examination
- Early learners – first half of course
- Deferred learners – second half of course
- Minimal activity learners – used very sparingly

Although Lecture Capture is deployed in a different context the characteristics of "Just in Time" learning is illustrated with the current data.

Using an exam assessment in 2013/14 meant that the case study was not launched until week 10, in order to give a clear 3 – 4 weeks before the exam date. A similar viewing pattern was seen in the weeks leading to the exam with increasing numbers of views as the exam neared.

As an interesting, rather than substantial, point emanating from the data the distribution of viewing times during the day was logged as summarised in Table 5. Distribution across the three years of the group-work phase of the study were consistent, with almost half of views during the 12 noon to 6pm part of the day with around 24% each during mornings and evenings. The period midnight to 6am saw between 4 and 9% of total views. In 2013/14, where the exam was deployed, viewing times were slightly changed with more daytime views (80%) and only 17% in the evenings and 3% before 6am.

Table 5. Timing of Video Views

| | 2010/11 | | 2011/12 | | 2012/13 | | 2013/14 | |
|---|---|---|---|---|---|---|---|---|
| time | Fcy. | % | Fcy. | % | Fcy. | % | Fcy. | % |
| before 6am | 5 | 3.85% | 13 | 5.63% | 16 | 8.74% | 3 | 2.97% |
| 6 - 12 noon | 36 | 27.69% | 54 | 23.38% | 41 | 22.40% | 36 | 35.64% |
| 12 - 6pm | 53 | 40.77% | 120 | 51.95% | 72 | 39.34% | 45 | 44.55% |
| 6pm - midnight | 36 | 27.69% | 44 | 19.05% | 54 | 29.51% | 17 | 16.83% |
| Total | 130 | | 231 | | 183 | | 101 | |

*4.2 Video Learning*

The data on the assessed work and the group interactions captured via the Peer review mechanism (Willmot & Pond, 2012) tested whether features of the video case and group interaction influenced assessment outcomes. The weak link in this evidential chain is the mark awarded to each group for its report. Marks are notoriously vague descriptors of student achievement (Rust, 2013). In this case the marking was undertaken by the same marker in each year, via the same marking criteria and with marking moderation by a senior colleague. Table 6 shows basic mark parameters.

Table 6. Assessment outcomes 2009/10 – 2013/14

| Academic year | Student numbers | Assessment (75% wt.) | Case mode | Average mark | St. Dev. of mark |
|---|---|---|---|---|---|
| 2009/10 | 46 | Exam (part) | Paper only | 52.55%***** | 0.108***** |
| 2010/11 | 44 | Group Coursework with Peer Review | video and paper | 61.05% | 0.083 |
| 2011/12 | 42 | Group Coursework with Peer Review | video | 62.33% | 0.076 |
| 2012/13 | 45 | Group Coursework with Peer Review | video | 63.67% | 0.074 |
| 2013/14 | 36 | Exam (part) | video and paper | 51.81%* | 0.132* |

* based on case study part of exam only

The data indicate an expected coursework vs. exam mark impact of higher averages and a tighter distribution (Bridges, Cooper, Evanson, Haines, Jenkins, Scurry, Woolf & Yorke, 2002). The "tail" of the lower marks is also eliminated through the shift to coursework from 2010. However, this is more a feature of the method of mark calculation and the design of the coursework than an accurate measure of student learning. Although the marks show, as far as they can, the achievement of the module learning outcomes they fail to support the assertion that the video case element of the assessment played a crucial role.

Combining assessed mark, video views and group dynamic data (from the Peer Review mechanism used) provides an opportunity to test whether these data are correlated. Tables 7 and 8 summarise the correlation matrices:

Table 7. Correlation matrix – average video views for 2011/12

| | views | mark | members | av. Views | stdev |
|---|---|---|---|---|---|
| views | 1 | | | | |
| mark | -0.0322 | 1 | | | |
| members | -0.29374 | 0.088312 | 1 | | |
| av. Views | 0.962069 | -0.09396 | -0.52394 | 1 | |
| stdev | 0.63986 | -0.30253 | -0.25599 | 0.66348 | 1 |

Correlations use the Pearson product-moment correlation co-efficient in Microsoft Excel 2010

Table 8. Correlation matrix – average video views for 2012/13

| | views | mark | members | av. Views | stdev |
|---|---|---|---|---|---|
| views | 1 | | | | |
| mark | -0.13455 | 1 | | | |
| members | 0.603019 | 0.101871 | 1 | | |
| av. Views | 0.980955 | -0.1741 | 0.453033 | 1 | |
| stdev | 0.928444 | -0.10266 | 0.492622 | 0.922459 | 1 |

Correlations use the Pearson product-moment correlation co-efficient in Microsoft Excel 2010

The data summarised in the correlation matrices in Tables 7 and 8 also show medium strength correlations between the number of group members and the average number of video views. The expected finding would be a higher average number of views for smaller groups (group sizes varied from 3 to 5 members). However, in 2012/13 this correlation was positive and in 2011/12 it was negative.

In both tables there is a reasonably high positive correlation between the average views within a group and the standard deviation within the group (a proxy for the variability of viewing frequency between group members). Clearly these are not consistent findings but do, in part, support the observation from seminar group interaction with students that videos are viewed as a working group as well as individually. The VLE actually records the student ID that logged onto it to access the video and not, of course, the number of viewers grouped around the screen. The separate "views" by individuals in a group were complemented by "group viewing". In this way 2012/13 data in

Table 4 could show that those accessing most frequently were female students, perhaps taking the role of group co-ordinator for this activity.

## 5. Discussion and Conclusions

Although the focus of this paper and the research is on video case studies and the technologies used to deliver them, these must be seen in the context of the whole design and the nature of learning outcomes. Data to support the Skinner et al. (2008) criteria of action initiation, effort and exertion tick the "engaged behaviour" box whilst "Interest" and "Enjoyment" are shown in student module feedback comments, thus supporting the Emotional engagement "box". This is not surprising as the case method in Management Education is supposed to achieve this objective. There is a lingering doubt, however, whether the video design or the nature of group work was responsible for the interaction and engagement. The same can be said for the encouragement of deep learning through the teaching design. These are expected outcomes but this research did not seek to measure these directly (if, indeed, they could be measured).

Real-world contextualisation, essential for the level of study and for the nature of the learning outcomes in the module and the degree programme as a whole, did appear to maintain interest during the group-work phase. The nature of the exams, however, appear to have negated much of this effect.

The research certainly collected information to support the contention that video case studies, whether used formatively in class or as part of a summative assessment have the ability to engage students.

There is less evidence, in fact tentative suggestions only, that the use of video cases enhances learning. Review of student work by the tutor does show that opportunities are given for deeper consideration of cases and practical applications of theory. However, it is not clear whether the nature of group work or the video cases were key factors in this.

Student behaviour followed expected lines, so far as the timing and frequency of use of resources on the VLE and seminar group themes supported the ideas that students coped well with a case study being presented in video format, were inclined to view together as a group but then individually to complement group work. Using video can be seen to have aided collaboration within groups.

There remains the distinct suspicion, however, that the video cases did a lot for engagement and satisfaction but there is little to suggest that they enhanced discipline based or deep learning.

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