

# Implementing Video on Demand within Higher Education: A literature review

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## ABSTRACT

The technology within education is a rapidly evolving phenomenon. Flipping the classroom and blended learning is now a central theme throughout educational institutions. Video on demand (Vod) is one of the new strategies being brought into the classroom in the hope of freeing up classroom time and inspiring greater student engagement.

This paper provides the research that was gathered in the preparation of applying VoD into the Computer Hardware Architecture courses at NMIT. It was developed with the goal of creating streaming resources that demonstrate procedures and to reinforce the courses' lectures.

This paper reviews driving factors and challenges involved in implementing VoD into a course within higher education and reports on some preliminary results.

## 1. INTRODUCTION

With the introduction of multimedia devices, apps and the accessibility of extremely fast bandwidth, the Internet has amplified the utilisation of online video within education in particular those designed for teaching complicated processes and methods. Within this research we have reshaped a large portion of the foundation of technology expertise paper into an online course using VoD technologies custom-made to the achieve course objectives and meet student needs. In the department of Digital Technology, the fundamentals of a Computer Systems Architecture paper is available to undergraduate students in their first year. The Certificate, Diploma and Bachelor students are three different streams that take this course.

The usual approaches of facilitating the paper are based on a lecturer using demonstration of technical techniques using hardware for a group of learners in a lab environment. The main limitations of this approach is the difficulty of the learners to understand the methods as a whole due to the steps being disjointed. This is caused in part by interruptions during the demonstrations. Limited time in the crowded lab impedes practicing procedures by the individual student which in turn makes learning problematic. Students regularly requesting more time within the lab to develop their practical experience. The one lab facility is very seldom free outside of normal class time. This is due to its use by the other classes. With the capability of the students being able to watch demonstration prior to class gives them more practical time within the lab. This still allows the students to ask questions and have interaction with the lecturer. The lecturer can still do a demonstration during the lab sessions. However, this way the students have the option to have learn the procedure prior the session and can spend more time applying that knowledge, if they want to.

When a student misses a lab event there is little in terms of resources which can replace the experience of a demonstration. Though supportive documentation is accessible at our Institute,

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our learners tend to under-utilise them. This is usually due to their demanding timetables, the differences between the hardware we have available and the manuals are not always in exact alignment.

Because of these educational and learning restrictions, it has become necessary to enhance and support the traditional demonstrations in the lab with more online-accessible resources. The resources are designed to be used by the students as support for their assessments and projects. The videos are available inside and outside of the classroom. They are also available 24 hours a day. The videos contain demonstrations and small lectures to support the learners.

According to Rouse (2015), the term 'streaming video' or 'streaming media technology' refers to video files that are digitally streamed online or in some other way. Streaming video is audio and video content sent in a compressed form over the internet. This video is displayed to the viewer in real time. According to Boster, Meyer, Roberto, Inge & Strom (2006), "Video streaming refers to the process of viewing video over the Internet." There is confusion over the meaning of real time. According to Woodford (2013), real time is the playing of a video at the same rate that is downloaded. According to Buhangiar and Potter (2010), the students have more options using streaming video. It allows the students to take classes at any given time. This is again is another example of the conception that streaming video is video available online. While other sources describe streaming video as something that is being streamed as it is occurring. The term streaming video can be used in two ways. Sometimes people are referring to Video on demand (VoD) while others are referring to live streaming. Live streaming video is ideal for conducting a meeting or collaborating on a project. VoD is ideal for making the video available to be viewed at any given time. This type of video streaming is ideal for making videos available for students (Sherry, 2014). To avoid confusion, we are referring to this kind of streaming of video, within this literature review as VoD. Though some references will still be stated as streaming video, if this was how it was stated in the resource that is being referenced.

When presenting videos to the classroom the video is most cases does not need to be streamed. The lecturer could have the video available on his/her laptop or other device. This however,

would limit the students' access to the media outside of the classroom. By making the videos available online the students have unlimited access to the video resource. This empowers the learner by supporting their learning from any location at any given time.

VoD has been used as an additional resource to visually display the best practices of a certain techniques. This gives the lecturer the opportunity to personalise the video to match the hardware and equipment that is being used on their campus or any other equipment for that matter.

The following literature review was conducted in the preparation of applying educational VoD to NMIT's Computer Systems Architecture course. This paper draws on multiple, comprehensive studies of research, experiences and selected papers that are applicable to the usage of audio-visual resources within education. This is a detailed description of the influences of VoD technology and how it can create high quality educational outcomes within the 21<sup>st</sup> century.

## 2. LITERATURE REVIEW

The base of creating technology enriched learning is the technological pedagogical content knowledge (Angeli & Valanides, 2008). It defines the ways familiarity about tools, pedagogy, students and the framework are amalgamated, Information facilitated by instructors can be modified to educate more efficiently with technology in ways that indicate the added value of technology (Angeli & Valanides, 2008).

In the development of implementing the VoD into the classroom three main factors were analysed within this literature review.

- What are the driving factors behind implementing education video online into the course?
- What are the barriers that could possibly arise prior, during and after the implementation?
- What are the factors of success of the implementation?

### 2.1 Drivers

Pedagogical, technical, and social drivers are help support video technologies in education.

#### 2.1.1 Low cost to produce

VoD is a cost effective way of reaching the learners. Since 2010, the Tertiary Education Minister and the government have made severe funding cuts to polytechnics (Bailey, 2014). However, lecturers are still asked to produce the same quality education despite the stretched funding. A study by Clark & Stewart (2007), suggested that streaming "videos are created easily and at low cost." The cost of textbooks, transportation, increasing lecturers' accessibility and facilitating an instructor's effectiveness can be reduced by using streaming video. (Barbier, Cevenini, & Crawford, 2012).

#### 2.1.2 Advantages of streaming video.

Streaming video is a major part of flipping the classroom. Kathleen Fulton (2012), listed thirteen advantages to flipping a classroom. The first is that the students can move at their own pace. The second is doing the homework in class gives the lecturers a better understanding of the student learning styles. Third, the students have access to the resource at all times. Fourth, if video lectures are watched prior to when the class meets then the class time can be used more effectively. The fifth advantage is lecturers using this method have seen improved levels of learner achievement. The sixth is that the learning theory reinforces the new approaches. The seventh suggests that the use of technology is flexible and appropriate

for 21st century learning. The learner has more control over the facts, figures and concepts being received through use of streaming video. There is the opportunity to achieve in depth learning through being able to stop, fast forward ahead, rewind and to replay the video as many times as the student requires. The eighth is that there is more time to spend with the students on authentic research. The ninth is the students spent more time working with the equipment in the classroom. Tenth, the students who had to miss class will get a chance to see exactly what was covered. The eleventh advantage states that the method promotes thinking both in and out of the classroom. The twelfth, the students are more actively involved in the learning process. The thirteenth is just simply that they enjoy it.

With the opportunity of being able to replay content as many times which the learner deems necessary, the students have much more control compared to a standard attended lecture (Fernandez, Simo, Castillo, & Sallan, 2014). Giving the students the ability to observe streaming video based on a schedule that suits them, controlling how often as well as how much of the video they wish to view empowers the student to control their own learning (Fernandez, Simo, Castillo, & Sallan, 2014).

#### 2.1.3 Main impacting factors

According to Greenberg and Zanetis (2012), there are three main factors in which the way that educational streaming videos impact learners. The first factor is engagement. The learner is fixated by the video's visual content, whether on demand or in real time. The second factor is called interactivity with content. The student can relate to the graphical information orally, rationally, by note taking or by applying theories. The third factor is called knowledge transfer and memory. In this way learners might possibly remember the methods better than other teaching approaches.

Video embeds numerous types of data elements such as pictures, sounds, movement along with text. It does this in an exciting style. It does this by supporting the individual learning speeds of the learners.

### 2.2 Barriers

A plethora of challenges exist for the broader approval of streaming video in the class. These roadblocks often are considered as technical, resource-based as well as behavioural.

#### 2.2.1 Access to the media

It should be insured that students have access to a device which to view the online video content at school and at home? There is also an expectation that people will have access to streaming bandwidth at school and at home. However in recent years it was discovered that this is not always the case. Even in this day and age, some people will not access to these resources.

#### 2.2.2 Reliable equipment

It turns out that making video tutorials don't require much hardware. You need access to a camera which can record audio and video, video editing software and a source by which the students could then access the videos. NMIT makes iPads available for staff which solved the issue of the video recording device. NMIT also has video editing software available but with a bit of research one can find plenty of free editing applications available online. Access of the video resource can be made available quite easily through sources such as Google Drive or YouTube and then linked to the learning platform you might be using at your institution.

Hardware device failures and dependability present substantial obstacles to pursuing video streaming or other types of technologies within the teaching space. A major factor for

lecturers choosing not to use streaming video is the glitches that can occur with some hardware as well as software (Barbier, J., Cevenini, P., & Crawford, A. 2012). Lecturers usually don't have the experience and know how to quickly troubleshoot technical issues when they arise. Constant technical glitches with hardware and software could hinder the transfer of information and the transfer of the lesson, building an atmosphere which is not conducive to learning, and potentially hindering the Lecturer's confidence. This is a common barrier for many Lecturers with little to no technical background.

### 2.2.3 Lecturer behavioural barriers

To teach to a video camera doesn't have the same feeling as teaching in front of a classroom of students to interact with. Instructors can be hesitant to teach to a camera and find it awkward in relation to teaching to their students regarding proficiency and quality of the video

### 2.2.4 Learner behavioural barriers

Students that haven't experienced this kind of teaching might initially resist this method (Herried, C., & Schiller, N. 2013). The idea of doing work at home instead of in the classroom might not appeal to all students (Herried, C., & Schiller, N. 2013). Some students may not watch the video on their own and could find themselves unprepared when in class. This problem can be mitigated by offering information that can only be obtained from the video.

The best way of overcoming some of the obstacles was to identify and then catalogue the issues that arise when creating education streaming videos. Then solutions are found through research, planning, and implementation.

### 2.2.5 Development barriers

The streaming video homework must be carefully developed in order to prepare the students for the class activities. According to the flipped classroom case studies it can sometimes be hard to find videos that meet the needs of the students within a given topic (Herried & Schiller, 2012). Some teachers choose to use videos that they find online and others choose to create their own. Although it can be quite difficult and time consuming to develop videos of good quality.

### 2.2.6 Audio pitfalls

A common problem that takes place when creating videos is the issue of audio. Your video could be of professional quality but if the audio is poor then the entire experience of the video suffers. It has been said that the sound quality is much more important than the video. Low quality audio usually has a distracting background noise making it hard to hear exactly what is being said within the lecture. What can be worse is if the audio volume is too low. You could have created an amazing lecture covering all the material necessary but it will be all for naught if students are unable to hear the content. This often happens when the video recording device also contains the mic and the person is standing too far away from the device to properly record the audio.

### 2.2.7 Quality of video pitfalls

Another problem that can occur is video with poor lighting and awkward camera angles. It is not practical to spend a tremendous amount of time recording your entire lecture just to find that your video only shows your face from the nose down. Though this might sound trivial these kinds of things are quite common. By being aware of this pitfall should help with its prevention.

### 2.2.8 Preparation Time

When lecturers choose to embrace technologies for the first time in their classes, they frequently are required to pledge additional time to research, session preparations, and

organisation. The lecturer will require extra time to adopt the technology and familiarise one's self with the equipment. The Lecturer will then need to choose a suitable location for the lesson(s) in the course along with planning for the recording of the lecture. He will need to research suitable content to use and develop supporting materials such as slides or further reading notes. Even with this in mind it is still hard to know exactly how much time will be required.

## 2.3 Success Factors

At what stage does the streaming video improve or enhance the facilitation of knowledge and what precisely are the key influences that indicate these enhancements? The influences which control the efficiency of media within teaching is the design and pedagogy. Often lecturers lack an understanding of what stage and what way to best apply video (Greenberg, & Zanetis, 2012). The awareness of good practices can assist facilitators in improving the integration of streaming video into the educational processes.

### 2.3.1 Dangers of cognitive overload

Researchers suggest that increased learning can transpire when media developers follow some simple principles. There is a vulnerability of cognitive overload which needs to be avoided. Mayer and Moreno have created several principles to assist educators dealing with how to best to make use of audio-visual aids while avoiding cognitive overload. This is done by creating a ranking order of the key methods of integrating audio-visual aid into an educational environment (Moreno & Mayer, 1999). The table below shows the order of ranking.

Mayer's Principles of Multimedia Design

Principle	Basis
1. <b>Multimedia</b>	Words and pictures work better together than either alone.
2. <b>Spatial contiguity</b>	Learners learn better when words and pictures appear close to one another.
3. <b>Temporal contiguity</b>	Students learn better when corresponding words and pictures are presented simultaneously rather than presented successively.
4. <b>Coherence</b>	Students learn better when extraneous words, pictures and sounds are excluded rather than included.
5. <b>Modality</b>	Explaining graphics with audio improves learning. Animation and narration are better than animation and on-screen text.
6. <b>Redundancy</b>	Explaining graphics with audio and redundant text can hurt learning. Avoid reading on-screen text. Students learn better from animation and narration, than from animation, narration and on-screen text.
7. <b>Individual differences</b>	Design effects (animations, etc.) are: A. Stronger for low-knowledge learners than for high-knowledge learners and for B. Stronger for high-spatial learners than for low-spatial learners
8. <b>Direct manipulation</b>	As frequency and complexity of material increases, impact on knowledge transfer increases.

Source: Moreno & Mayer (1999)

When such principles are used in instructional multimedia materials, the learners that use resources "usually, outdo learners who study via traditional methods with individual approaches." (Greenberg & Zanetis, 2012)

### 2.3.2 Technological barriers

The demand of streaming video can be an issue due to its availability, particularly when the transmission capability is lacking. If the technology at school or home is going to hinder the access of the streaming video then the disadvantages may outweigh the benefits.

### 2.3.4 Build a foundation for learners

Videos can be a powerful tool for learning when applied appropriately. However, this tool can also be misused. Streaming video is most useful when used as scaffolding for the learning. According to Greenberg and Zanetis (2012), student learning is significantly improved when the individual student's prior knowledge is made evident.

Building a foundation provides students with the abilities and expertise to understand the content of the streaming video. If the learners have not been taught how to sufficiently understand the multimedia then the impact would be insignificant (Ohler, 2009). To impart impartiality in support and the transfer of educational instructional technologies, lecturers need to lead the way in developing intellectual infrastructures Amy, L. E.

(1999). In the accordance to Considine (2002), “If they are to fully harness the power and potential of exciting new technologies and multimedia, our students must be offered the critical criteria and information skills necessary for them to become intelligent, competent consumers and creators of media messages”.

Providing students with the understanding and skills means that the facilitators need to also have the essential set of abilities. It does not mean that all of the lecturing staff must start learning how to develop videos. This means that educationalists ought to comprehend how streaming multimedia enhances value in the class, how it is used most effectively based on the pedagogy, content necessities and how to appropriately teach students with the applicable set of skills.

Proper preparation and planning is nothing new to lecturers. The same preparation is needed to create educational videos. Rogow (1997), inspires educators to design their class sessions in advance. It is imperative to recognise the objectives that educators are attempting to reach by applying streaming multimedia. It should be an educational instrument used to demonstrate, practice, enrich, support but perhaps most importantly, to inspire.

Rogow also describes a process requiring three steps for educators to use in the class which is displayed below.

Step 1 Prepare	Step 2 Participate	Step 3 Connect
<ul style="list-style-type: none"> <li>Preview the program to be sure it meshes with teaching approaches and the class' learning goals.</li> <li>Determine the setting and length of the video: home viewing, in class, whole segments or clips.</li> <li>Set clear expectations for the students: be direct about the intended outcomes of viewing a particular video and the follow-up activities that will take place.</li> <li>Practice with the equipment and cue up the relevant portions to be viewed.</li> </ul>	<ul style="list-style-type: none"> <li>Preface the viewing with a few key questions and/or learning objectives.</li> <li>Pause video to flag important concepts and to allow for questions.</li> <li>Use captioning features to reinforce narrated information.</li> <li>Consider a second viewing, especially for younger children.</li> <li>Break students into small groups for discussion, or have them write down their thoughts and then share the results with the larger group.</li> </ul>	<ul style="list-style-type: none"> <li>Choose follow-up activities that connect to hands-on experiences.</li> <li>Explain all connections made, especially for early-grade students.</li> </ul>

### 2.3.5 Too much or too little time

An influential issue to be aware of is the possible inability to concentrate on the media for long periods of time. An awareness of the attention span of the students is key. A recent examination of edX data shows that student engagement decreases considerably if a videos length is longer than 6 minutes Guo, P. J., Kim, J., and Rubin, R (2014). Though the rule of thumb is a 15-minute video. It is obvious to instructors that smaller streaming videos are the way to proceed when developing your video. If the video was to proceed more than 15 minutes, then some stimulating effects would most likely be required to retain the student’s attention.

### 2.3.6 The key to developing quality multimedia

Multimedia technology is effective at supporting educators, but the technology itself is not what makes the difference. It is there to support the facilitator. It is the value of the pedagogy and not the technology that is the differentiator in a good lesson Wainhouse Research, Amirian, quoted in Greenberg, A., 2009.

## 3. IMPLEMENTATION TRIAL

After gaining a better understanding of the different approaches and barriers that accompany the design and implementation of streaming video into higher education, it was time to deploy our

first semester of using it within the computer hardware course at NMIT.

This sample includes first year undergraduate information technology learners. The course was made available in the first semester of the 2015, of a sixteen week semester. There were 64 students involved within these courses CIT403, CIT402 and CSA501. One instructor taught these particular courses. The lecturer taught four groups consisting of sixteen students per group in a laboratory session six times a week, along with an additional lecture for the bachelor students. When choosing the right course to demonstrate streaming video, scalability was an important factor. And as such this course was chosen due to its repetitive nature and its large number of students.

Over the sixteen week period, each week a piece of computer hardware was covered in class. Students were taught using traditional methods such as the use of lectures and discussions but with a new blended learning approach. When the new hardware topic was unveiled, it was done so through a streaming video lecture by their own lecturer as described below. The video was made available for activities inside and outside of the classroom. On occasions other lectures would assist in the creation of the video and add their knowledge of the subject. We found the students responded enthusiastically when seeing another lecturer that they recognise appear in video.

The videos were often used as additional supportive resource, such as giving a demonstration of a method or procedure. The videos were also used as support to the lectures.

The following is how streaming video were implemented to support the students.

### 3.1 Streaming video outside of the classroom

In the following flipped classroom approach, the students were expected to apply hardware diagnostic techniques and to use diagnostic software within their project. A video tutorial was created and made available online. The video was then linked to the course’s moodle page. The course’s moodle page is where the students know to find the resources provided by the lecturer. This allowed the students to view the video at their leisure, in and outside of the classroom.

This particular tutorial was never presented in classroom. The lecturer instead gave a practical demonstration in front of the class. After the demonstration, the students were told about the video which was linked to the course’s moodle page. The student were told that it could be used as an additional resource. A day prior to the assessment the lecturer checked how many times the video had been viewed. The video had been viewed 54 times since it was made availed. How was this information obtained? This data was made available by the counter that is used within YouTube. The video was made private on YouTube and could only be accessed through the web link. The only link to the video that was created was linked to the course’s moodle page. Only the students in the course had access to the page. This was a good indication that the students were using the resource.

The lecturer in charge of this course had been running the course for the past five years. This is the feedback that was given from the experience of examining the students’ projects. During the assessment the lecturer found that the students’ comprehension of the diagnostic tool and its application, had drastically increased. Much more so than in previous experiences where students did not have access to the video and were expected to remember the demonstration from earlier in the semester.

There was another instance when the class was not able to meet at their normal scheduled time. During that time the students were given a list of questions to answer and present during the next class session. The answers to those questions were

available in a video tutorial. The students were instructed to watch the video to support them with answering the questions. The questions gave the students key points to look for during the video.

We found that the entire class had answered the questions and the video had been accessed more times than there were students within the class. It would be assumed that some students watched the video more than once to support their understanding of the new content being covered.

As the session progressed the students showed a great understanding of the material covered in the video. They could elaborate on the different aspects of the video and asked a multitude of quality questions.

### *3.2 Streaming video in the classroom*

The videos were also used in the classroom as mini lectures. The students learned about different componentry within the computer such as the hard drive, power supply, RAM, CPU and motherboards.

The videos were custom made to suit the learners of the course's needs. Once again it was their lecturer that they were watching in the video tutorials. It became quite evident to the lecturer that the students found the experiences engaging, humorous and educational.

## **4. RESULTS**

The following results were discovered from the implementation trial.

### *4.1 Driver Results*

The financial cost of developing the streaming videos where none existent. Most digital cameras can do the job. We chose to use an iPad 2. The iPads are made available to NMIT's staff at no cost. There was also no financial cost to load the video onto YouTube and moodle page assigned to the program.

Out of all of the advantages these three stood out above the rest. The students who couldn't attend a class session could access the VoD in their own time. We found that the students could now continue building on the new material within the next class session.

The students that didn't grasp a concept didn't have to sit through an entire lecture again. They could go to the video at any given time and fast forward to what they needed to view. They would also might watch it more than once. How do we know this?

The first class session after the assessment the entire class was given two questions to answer. Who reviewed the videos again prior to the assessment? Who watched the videos more than twice? The answers were tallied onto the board. 53 of the 64 students had watched the videos again prior to the assessment and 47 of the students said they watched the videos multiple times. Though it was clarified that students would fast forward to different portions of the video and did not watch the video from start to end after the second viewing.

The most obvious advantage discovered during this experience was the students heightened engagement. This was listed as a main impact factor as well as an advantage of streaming video. The videos created a light hearted, fun learning environment. Quite often, the highpoint of the session was the discussion of what was covered in the video. It was evident to the lecturer, that the students were obviously enjoying their learning.

### *4.2 Barrier Results*

Most of the barriers were avoided due to preparation and the awareness of the possible pitfalls.

There was a poll taken prior to implementing the video on demand. The poll discovered that 100% of the current students did have access to at least one device which could stream

videos. The majority of the students had access to a laptop or pc while others had tablets or smartphones. The poll also showed that everyone did have access to some form of internet.

There was the issue of the lecturer getting used to talking in front of a camera. It took some time getting used to the fact that you are talking to a camera in an empty room. It took a few takes to get a satisfactory result. By the third video, the lecturer had adapted to the concept of teaching to the students through an iPad.

There was also the issue of knowing where to stand. Without a cameraman to guide the camera, the lecturer needed to make sure that he or she staid visible to the camera. There was issues with the top of the lecturer's head disappearing and the lecturer stepping outside of the view of the camera. This would tend to happen when the lecturer was trying to explain something on the whiteboard. With a bit of spatial awareness, this issue was quickly resolved.

There was also concerns with the sound. When the lecturer was up close to the iPad, the audio was crisp and clear. However, when lecturer walked around the whiteboard, the audio would get very low. The sound would then have to be turned up on the speakers. This was resolved by connected to the lecturer's smart phone to headphones that were equipped with a mic. The lecturer would then use an app on the smartphone to record the audio. This audio then became loud and clear no matter where the lecturer was standing. The audio could then be attached to the video using Adobe After Effects. There were plenty of applications capable of doing this but this particular one was already available at the NMIT campus.

Preparation time turned out to be more of a barrier that that we originally thought. The recording time wasn't the issue. It was usually completed in one or two attempts. However, the editing did take longer than expected. There was the syncing of audio and the scene transition. There were special effects also incorporated to see if it enhanced the student engagement. This could turn a twenty minute lecture into a three or four hour preparation. The question then was, is this scalable? Without these additional effects, a twenty minute video was created within about an hour. The special effects weren't necessary but they did support in stimulating the students' engagement. Though, in the end you have a personalized resource that is available to the students 24 hours a day with no expiry date. As long as the resources stay relevant, you could continue to use them again and again.

### *4.3 Success Factor Results*

Awareness of the success factors was an import aspect throughout the implementation. The online videos were used as a supportive tool for the classroom and not a replacement for it. The students still attended classes and applied techniques inside the labs as they always had done so before.

### *4.4 Implementation Trial Results*

Overall, the learners were pleased with the web based content of the program. They used and enjoyed the lecture's demonstration videos. The students appreciated the significance of the dire points of the personalized VoD videos.

### *4.5 Formative assessment*

The students would come to the Lecturer before and after class to give their feedback of the VoD videos. Interestingly enough the lecturer was regularly praised and thanked for the educational videos. The students expressed the value that they found in the videos and the flexibility that the online access brought.

Being a lecturer at NMIT, we believe learning can be fun. So there was a bit of charismatic humour within each video to keep

the students engaged as they learned. There was also the odd special effect here and there which did keep the students engaged.

#### 4.6 Summative assessment

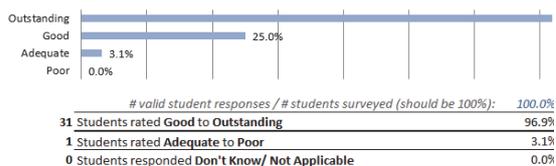
During the course the students were given Tutor/Course Evaluation.

Thirty two students chose to participate in the evaluation. Here is the following feedback that was received from the evaluation.

#### 4.7 Statistic overall result of the students' perspective

Here is the overall result that the students rated the lecturer of the blended course.

(4p) Overall, this tutor's teaching is:



#### 4.8 Student comments

What aspects of this tutor's teaching do you find helpful?

Here are just four examples of the students' comments to this question.

- I love the videos that Neil and Craig have put together for this class.
- Puts humour in teaching.
- Videos, and explaining in a better way and the group work he give us.
- Well basically everything but if I have choose only one I would say his videos as we learn about the topic and get some comedy at the same time while watching them.

## 5. LIMITATIONS

This was the first trial run and the extent of the results from it were limited. In the future we will look at implementing surveys for the students to display their experiences in more depth. Learning more about the statistics that emerge compared to prior years without the VoD facilitated approach will be key. The attendance, projects and assessments will be reviewed and analysed.

## 6. ACKNOWLEDGEMENTS

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## 7. CONCLUSION

Using online video within an educational environment is a valued approach. Awareness of drivers, barriers and success factors, is a way of supporting a successful implantation. This encourages the students' achievement inside and outside of the classroom. The trial implementation has produced positive responses from the students and facilitators. This paper assists with the identification of future research within the area of video on demand and the flipped classroom.

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