

EDU001 Towards creating a flipped classroom: A pilot study of students' perceptions of podcasts as a learning tool in large undergraduate taxation classes

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Abstract

Purpose: The purpose of this study is to determine the perceptions of higher education taxation students in South Africa (a developing country); on the use of podcasts as a revision tool in a blended learning environment towards creating a flipped classroom learning strategy.

Design/methodology/approach: The researchers made use of an action research methodology, collecting student feedback from 1084 second year taxation students by means of a structured online questionnaire.

Findings: 75% of respondents indicated that podcasts are a helpful learning tool when utilised as a revision tool. After being exposed to podcasts as a lecture replacement tool (and not a revision tool) to create a flipped classroom environment, 48% of respondents indicated that a flipped classroom would be the ideal learning environment. 37% of respondents did not agree with this statement. The researchers concluded from the pilot study that students perceive podcast to be valuable learning tools, and that they are ready for a flipped classroom environment.

Keywords: flipped classroom, higher education, podcasts, blended learning, ICT, e-learning, revision tools.

BACKGROUND

Over the past few years, emphasis has been placed on the shift from a traditional teaching and learning model to a culture of facilitative learning that parallels a post-millennial social world in which new combinations of creative skills and abilities are increasingly in demand (McWilliam, 2008; Clark & White, 2010:116). Traditional teaching and learning leaned towards preparing students for the 20th century work culture, which focused on accessing information and using it to solve relatively predictable problems or complete routine transactions. Research done by social commentators on workplace and social futures (Cunningham 2006; Pink 2005; Clark & White, 2010:116) conclude that university graduates entering the work force in the 21st century will be performing work that is much less focused on routine information seeking, transactions and problem solving. The work will focus on forging relationships, tackling novel challenges and synthesising „big-picture“ scenarios.

Higher Education Institutions encourage the use of alternative methods of facilitating learning with the aim of preparing graduates for the contemporary work culture, as can be seen from a commitment by the University of Pretoria to scholarly teaching, recognising that the act of teaching involves more than the transmission of facts or the transfer of knowledge (University of Pretoria, 2010). Likewise, accounting education in recent years has emphasised the need for developing generic competencies and, to this end, has advocated various teaching and learning methods other than the traditional lecture format (Boritz & Carnaghan, 2003; Eisner, 2004:61). However, the mainstream teaching and learning methods in undergraduate taxation and accounting are still very much focused on a 20th century work environment (McWilliam, 2008; Miller & Woods, 2000). It is therefore necessary to shift the boundaries of traditional teaching methods in order to parallel the changes taking place in the work culture.

Taxation educators have the particularly daunting task of juggling the diverse expectations of the different stakeholders; when it comes to equipping taxation graduates for the world of work in the

21st century. Taxation educators must adhere to the requirements of professional bodies such as the South African Institute of Tax Professionals (SAIT) and the South African Institute of Chartered Accountants (SAICA), who prescribe a vast body of technical content in order for higher education institutions to gain accreditation for their professional qualifications (SAICA, not dated; SAIT, not dated). Higher education institutions are constantly striving to either become accredited or to remain accredited, which leads to curriculum overload, and teaching with a technical focus. In comparison, future employers require graduates to have certain soft skills in addition to having mastered the vast technical knowledge prescribed by professional bodies (Barac, 2009; Doman & Nienaber, 2012), making educators responsible to accomplish the difficult task of meeting both groups of stakeholder requirements, with limited „in class/contact time“ to do so. In order for educators to meet the demands of both stakeholders, innovative ways to utilise „in class/contact time“ must be explored.

Research on teaching and learning suggests various ways in which educators can move to a culture of facilitation of learning. These include various references to the use of technology to create a blended learning environment focussed on a student centred teaching approach (Garrison & Kanuka, 2004). The principle of student centred teaching is explained eloquently by L. Dee Fink in his book on creating significant learning experiences. He urges teachers to shift from a content centred approach to a learning centred approach that asks “What kinds of learning will be significant for students, and how can I

create a course that will result in that kind of learning?" (Fink, 2003) .This study is a pilot study as part of a larger project to focus on the implementation of technology in a blended learning environment towards creating a flipped classroom. A flipped classroom approach entails that students use their own time to work through theoretical content and the „in class room/contact time“ is utilised by educators to synthesise information, make the theoretical work practical and create bigger picture scenarios (Bergmann & Sams, 2012). Creating a flipped classroom would assist educators to create time to facilitate the type of skills required by the 21st century working environment.

From the above, evidently the problem is that taxation educators are confronted with the challenge to utilise „in class/contact time“ in a more efficient and innovative manner in order to create a blended-, student centred learning environment that will address the needs of the all the different stakeholders, namely student body, professional bodies and future employers.

This study forms part of a larger research project that aims to create a flipped classroom in order to address the above challenge faced by lecturers. However, the specific aim of this pilot study is to investigate student“s perceptions of the integration of podcasts as a revision tool, in facilitating learning as part of a blended- student centred learning environment.

This study does therefore not create a flipped classroom, but rather gathers data on the integration of ICT (specifically podcasts as a revision tool) into the learning environment that will inform the researchers on student“s perceptions off such integration and ultimately their perceptions on a flipped classroom learning environment. The study is based on an actions research methodology and was performed with a group of students in an undergraduate taxation module, at a higher education institution in a developing country.

The study has the following general research objective:

- To determine students“ perceptions of the helpfulness of podcasts as a tool towards creating a flipped classroom in future, as part of a blended- student centred learning environment at a higher education institution in a developing country.

The study has the following specific research objective:

- To determine students“ perceptions of the helpfulness of podcasts as a revision tool in creating a blended, student centred learning environment at a higher education institution in a developing country.

The article starts with a literature review in order to substantiate the problem faced by lecturers to utilise „in class/contact time“ in a more efficient and innovative manner, followed by a description of the action research methodology and data analysis.

LITERATURE REVIEW

Bill Gates, the chairman of Microsoft, the world’s largest personal-computer software company, sketched out his vision of what schools in future would be like; that learners would watch lectures and video lessons on their own while using the classroom time for discussion and problem solving (Heilesen, 2010:1063).

Bill Gates’ vision might just be the answer to the universal call for innovation in education which has been the topic of many studies over the years (Garrison & Kanuka, 2004). This vision also takes cognisance of the fact that the mere transfer of information, does not mean that the recipient has constructed knowledge. This vision allows for classroom time to be used to develop skills required of 21st century students.

Today, the pedagogical value of podcasts as a mobile/blended/e- learning strategy is well established at higher education institutions in many first world countries such as the United States of America, the United Kingdom and Asia Pacific, but there exists little research on the effectiveness of podcast as one of the learning strategies in a blended learning environment in developing countries such as South Africa (Mungwanya, Marsden & Boteng, 2011:268).

The literature review discuss the stakeholder requirements relating to a call for change in taxation education, focussing on the requirements of future employers, professional bodies and students as identified in prior literature. The educator’s responsibility to react to these stakeholder requirements is discussed in the next section. This is followed by a description of a blended learning environment, specifically podcasts towards creating a flipped classroom approach to teaching and learning, as a tool for educators to respond to stakeholder requirements.

STAKEHOLDER REQUIREMENTS

In line with the universal call for innovation in education, South African taxation educators in particular are experiencing pressure to be innovative in their education strategies (De Wet and Van Niekerk, 2001). The increased pressure can be attributed to the fact that the different stakeholders require different sets of skills from taxation graduates; but educators have limited „in classroom / contact time“ to equip the graduates for these opposing demands (Doman & Nienaber, 2012). In order for educators to succeed in meeting these

opposing stakeholder demands, innovation in education is key. Future employers, professional bodies and students have been identified as the main stakeholders.

Future Employers

In order to face the unique challenges in the 21st century work environment, employers are looking for a new kind of „professional“ as a product of the university system. This „new“ graduate must not only display technical competencies but should also prove to be an asset to any business; owing to numerous pervasive (all-encompassing) competencies he or she may have acquired (Miller & Woods, 2000). Employers in the accounting and taxation profession are no exception (Barac, 2009; Coetzee & Oberholzer, 2009; De Wet and Van Niekerk, 2001, Gammie, Gammie & Cargill, 2002; Howieson, 2003; McCarthy & McCarthy, 2006:202).

Over the years, the taxation landscape has changed significantly. These changes can be attributed to the fact that the South African taxation system has become more and more complex (Bendel, 2005), combined with the fact that the business environment is ever changing (Barac, 2009:19). These constant changes create the need for today’s taxation professionals to be generalists with specialist knowledge. Employers on the one hand call for graduates to have generic skills that will allow them to adapt to the constant and rapid changes in the business environment. On the other hand employers require these same graduates to be technical specialists (Research Focus, 2009). According to research conducted by Doman and Nienaber (2012:952,960) South African employers are dissatisfied with the level of soft skills that taxation graduates have acquired upon leaving university.

These conflicting requirements from future employers leave taxation educators with the difficult task to utilise the limited „in classroom/contact time“ in such a way that graduates acquire the different sets of skills to meet the demands of these future employers.

Professional Bodies

Future employers are not the only group of stakeholders whose demands educators should consider. Professional bodies such as SAICA and SAIT and the accreditation requirements of these bodies greatly impact taxation curricula (De Villiers & Venter, 2010, De Wet and Van Niekerk, 2001).

Professional bodies and SAICA in particular contribute to South African higher education institutions in a positive manner, by means of providing resources. However, research conducted by De Villiers and Venter (2010) concludes that professional bodies also have a negative impact on taxation academy through exerting different mechanisms of influence. The two mechanisms affecting taxation education in particular are the effect of the accreditation process, and performance in the Initial Test of Competence.

The effect of these mechanisms leads to teaching with a technical focus without links to the social implications and one only has to consider the vast body of knowledge prescribed by professional bodies, to conclude that this group of stakeholders favour technical skills (De Villiers & Venter, 2010:21). Despite De Villiers and Venter (2010) establishing that meeting stakeholder demands are in some instances to the detriment of the educational discipline, in the South African situation accreditation with professional bodies is still considered to be of the utmost importance.

Taxation education in South Africa is therefore still very technically focused, not leaving enough „in class/contact time“ to focus on the skill set needed to meet the demands of future employers, or to consider the needs of students.

Students

The current students enrolled at higher education institutions form part of a generation referred to in many different terms. Some call them 21st Century Learners or Millennials; others refer to them as Digital Natives or the Net Generation. Although there are some opposing opinions as to the specific year, the majority claim that this generation includes individuals born after 1982 (Bullen, Morgan, & Quayyum, 2001; Sandeen, 2008:17). Higher education institutions should take cognisance of this generation and their learning preferences, as they constitute the majority of the students sitting in classes today.

There are two very distinct schools of thought on the characteristics of this generation, specifically in terms of their use of information and communication technologies (ICT) and education. The one school claims that the current students in higher education differ significantly from those whom the current education system was designed for. These studies claim that the reason for the differences between generations is the fact that these individuals have been immersed in technology their entire lives. They have been using the tools of the digital age, such as computers, videogames, digital music players, video cameras, cell phones, etc, for as long as they can remember, and not just for leisure, but also for educational purposes (Prensky, 2001:1). These individuals have different social characteristics, ways of using information and constructing knowledge, as well as different expectations about life and learning (Bullen et al., 2001). Prensky (2001) goes as far as to claim that because of the high use of ICT these individuals“ brain structure has physically changed. This generation’s individuals are likely to favour distance learning formats but might continue to be educated in the traditional format due to their previous experience. They may favour education by means of wireless devices and expect customisation and personalisation when it comes to learning opportunities. They also expect 24/7 access to instructions and student services (Sandeen, 2008:22).

However, there are some studies which contradict the notion that there are significant differences in the behavioural characteristics, including the way they use ICT, between this generation and other generations. These studies warn educators not to make educational strategy decisions based on the assumption that all learners from this specific generation have homogeneous characteristics that vary significantly from other generations (Bullen, Morgan, & Quayyum, 2001).

It is important for higher education institutions to establish what the roles of the educators are in order to meet the demands of the various stakeholders, including the students they educate.

Educators' Responsibility

Higher education institutions in South Africa have the obligation to deliver graduates with the necessary skills and knowledge to enter the job market (Research focus, 2009) and these institutions must proactively identify the demands and needs of employers and must proactively adapt or change curricula to produce the desired products to meet these demands (Geyser, 2004:142).

Sandeen (2008:22) states that educators would also do well to follow student trends and to change even more quickly than is currently the case, in order to keep up with student expectations. This is supported by Prensky (2001:6) stating that *"We need to invent Digital Native methodologies for all subjects, at all levels, using our students to guide us... if Digital Immigrant educators really want to reach Digital Natives – i.e. all their students – they will have to change. It's high time for them to stop their grouching and, as the Nike motto of the Digital Native generation says, "Just do it!"*

However, there have been some studies disagreeing with the fact that it is a case of "just doing it". These researchers warn educators not to assume that student's competence in using technology in their everyday lives necessarily imply that they can transfer those same skills to learning activities. The mere fact that these students belong to this generation will not be the deciding factor in their implementation of technology in learning. Pedagogy and teaching models will have a greater influence on the use of technology in learning, than merely being part of a specific generation (Gros, Garcia, & Escofet, 2012).

This notion is supported by Bullen et al., (2001), stating that there is insufficient empirical support to his claim that individuals born in this generation differ significantly from other generations in terms of characteristics. Bullen et al., (2001) does however add to the vast body of knowledge stating that the use of ICT by individuals from this generation is a certainty and a reality that educators must take into consideration. The

researchers do however caution against making institution wide ICT implementations decisions, but urges institutions to consider it per programme after gaining an understanding of the social and educational uses of ICTs in higher education.

In order for educators to equip graduates to meet employers' expectations in terms of soft skills as well as meeting professional bodies' requirements for technical ability, they will have to be innovative in the way they utilise „in classroom / contact time“. Although educators are aware of the demand for innovation in education, when looking at the taxation discipline in particular, educators do not have control over all components of the curriculum and can therefore only bring about changes to the components which are fully under their control. As indicated in the table below, educational curriculum can be divided into three different components: content, content delivery and institutional support structures (Research Focus, 2009).

Table 1: Elements of an Educational Curriculum

Content	That which needs to be mastered	This includes: underlying values, content choice, classifications, subdivisions and implicit skills and processes.
	Expected outcomes	A comprehensive understanding that takes into account the aims and the objectives of the learner.
Content	Assessment	Methods, criteria for assessment, adaptations, as well as extent of the measures and implicit potential social impact.
	Underlying philosophy	The approach to the facilitation of learning (teaching approaches) with implicit relationships between stakeholders within the learning environment.
Institutional	Servicing and provision	Organisation of learner activities, time, place and provision of the required media. (If assumed, also think about learner support.)
	Accountability	Accountability to persons, institutions and interest groups who are served. This includes accountability to the population, communities and the economy in terms of the mandate given.

Only one of the three components of Educational Curriculum resides under educators' control. Due to the accreditation requirements of professional bodies, taxation educators do not have control over „content“, as this component is prescribed by the professional bodies. The „institutional support structures“ component is the responsibility of the higher education institutions and therefore also not under educators' control.

The „content delivery“ component is however under educators' control and it has been advocated by numerous researchers that educators can create a student centred learning environment by delivering content through a blended learning approach (Aliotta, Bates,

Brunton, & Stevens, 2008; Cane and Cashmore, 2008; Chan and Lee, 2005; Draper and Maguire, 2007; Lazzari, 2009; Stewart and Doolan, 2008).

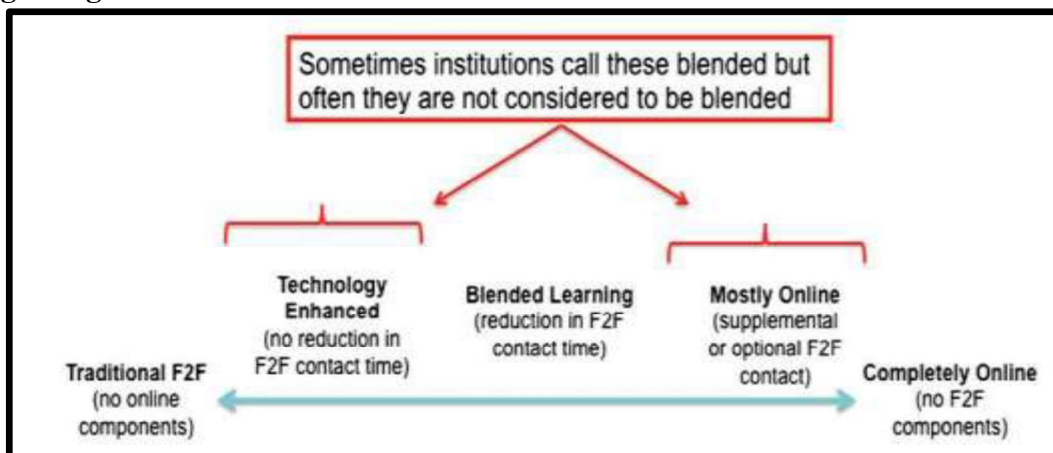
Blended Learning (ICT in Curriculum)

Introducing technology (ICT) into the curriculum can improve the quality of education (Talebian, Mohammadi and Rezvanfar, 2014:302). However, educators should not assume that all ICT integration will necessarily be an improvement merely because the current generation are digitally literate. The educational effectiveness of ICT depends on how these technologies are used, and for what purposes they are used (Talebian, et al, 2014:302, Weil, Da Silva, and Ward, 2014).

Garrison and Kanuka (2004) reviewed a number of studies dealing with ICT integration, and they concluded that student performance either improved or remained the same after being exposed to a blended learning environment. In its simplest form, blended learning is about integrating face-to-face learning experiences with online learning experiences. It is an education strategy that effectively integrates the strengths of both components (face-to-face as well as online) and it is not merely adding the one component to the already dominant other.

“Blended learning is both simple and complex.” (Garrison & Kanuka, 2004:96). It is complex in the sense that no two blended learning environments are identical. Each blended learning environment is fundamentally redesigned and reconceptualised in terms of the teaching and learning dynamic (e.g., discipline, developmental level and resources). It is not simply about finding the right mix of technologies and it is not just about delivering old content in a new way (Garrison & Kanuka, 2004). Graham, Woodfield and Harrison (2013), compiled the following framework (Figure 1) to explain the concept of blended learning.

Figure 1: A framework for institutional adoption and implementation of blended learning in higher education



There are many tools that an educator can choose from to incorporate technology into the curriculum in order to create a blended learning approach. Examples of these tools include the use of podcasts, vodcasts, videos, interactive gaming (Graham, et al., 2013). Podcasts was selected as a content delivery tool for purposes of this study.

The use of Podcasts to Create a Blended Learning Environment

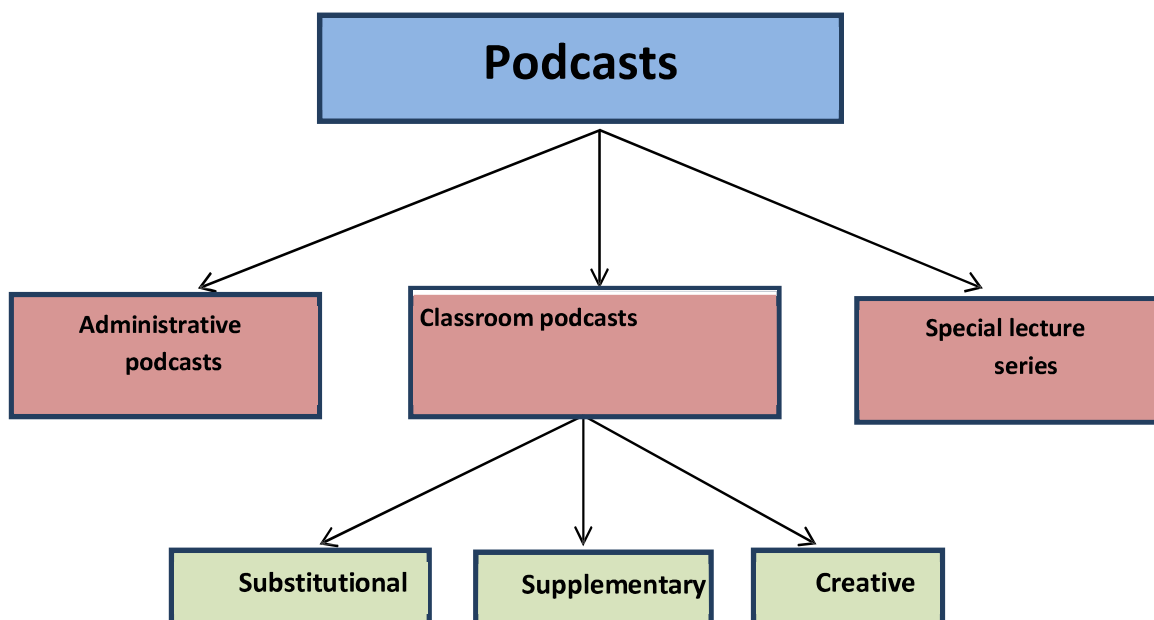
The term podcasting was coined in 2004 and resulted as a combination of the words “broadcasting” and “iPod” (Tynan & Colban, 2006). Vogeles and Gard (2007) distinguish between three categories of podcasts:

- Administrative podcasts (e.g. general information, guides)
- Special lecture series (guest lectures, commencement lectures, etc.)
- Classroom podcasts (anything involving curriculum)

As can be seen in figure 2 below, classroom podcasts can once again be divided into three sub- categories:

- Substitutional (e.g. documenting or substituting classroom teaching)
- Supplementary (e.g. providing summaries of classroom teaching)
- Creative (e.g. production by learners)

Figure 2: Podcasts: the Different Categories



Although there are numerous specific uses for podcasts such as autocasting, blogcasting, learncasting, mobilecasting, peercasting, podstreaming, and vodcasting (Tynan & Colbran, 2006:825), the focus of this study is on supplementary podcasts to be used as a revision tool, towards creating substitutional podcasts and a flipped classroom learning environment in the future.

Heilesen (2010:1063) reviewed an extensive body of literature on podcasts published from 2004- 2009 and these studies conclude that, when measuring only learner performance, indicators are weak that podcasts are efficient. He does however state that no studies have indicated that podcasts have a negative impact on learning. There are also a number of studies which concluded no effect or an inconclusive effect on learner performance; and a number of studies concluding a positive effect on learner performance.

Although many studies do not specifically conclude an increase in learner performance, learners often indicate that they feel better about a subject where podcasts are provided as it has a positive impact on their learning environment, even if it does not improve their performance.

These studies were all conducted at developed at higher education institutions in developed countries and research with regards to the implementation of podcasts in courses presented by higher education institutions in developing countries such as South Africa are lacking.

If educators focus on innovative ways to introduce a blended learning environment, by for example, using a tool like podcasts, they may be able to move towards a flipped classroom approach to create ways to facilitate a learner centred learning approach in order to meet the various stakeholder demands.

THE FLIPPED CLASSROOM

Jonathan Bergmann and Aaron Sams (not dated) are the founders of the “flipped classroom”. They state that it started off with a simple observation that learners needed their facilitators present not to deliver content, but rather when learners were answering difficult questions or got stuck on an assignment. From this observation, Bergmann and Sams started what they referred to as the flipped classroom.

They describe a flipped classroom as “an intentional shift of content which in turn helps move students back to the centre of learning rather than the products of schooling”. Their method entails actively transferring the responsibility and ownership of learning to the learner by flipping the instructional process. There is an intentional time shift of the

information delivery which happens outside the classroom with the intention to open up „in-class/contact time“ to be utilised more effectively (Bergmann & Sams, not dated).

CONCLUSION

The universal call for innovation in education combined with the specific circumstances created by the needs of the different stakeholders in the South African taxation education environment, have left South African taxation educators with the very difficult task of preparing students not only for the 21st century work environment, but also to meet the opposing demands of these stakeholders.

Educators should also be aware of the specific characteristics of the current generation of students, especially pertaining to their high use of ICT when planning the specific learning strategy. A blended learning strategy, making use of podcasts as a revision tool toward creating a flipped classroom is proposed as a way to create a student centred learning environment in an attempt to deliver graduates who meet stakeholder expectations.

RESEARCH METHODOLOGY

The research methodology applied to this empirical study was action research. Data was gathered by means of a descriptive survey, collecting qualitative data substantiated by quantitative data from a sample of undergraduate taxation students who were exposed to the use of podcasts as part of a blended learning environment towards creating a flipped classroom (Complete questionnaire included as Appendix 1).

Action research was considered to be the most appropriate research design as it is a process that promotes professional development and evaluation of innovative teaching strategies in order to solve problems encountered by educators (McNiff & Whitehead, 2006). Educational action research is one of the main streams of action research as a whole (O'Brien, 2001). It can be defined as any systematic inquiry conducted by researchers into the teaching and learning environment to gather information on how their particular environment operates, how they teach and how well their students learn. It is a reflective process that allows for inquiry and discussion to be components of the research. Information is gathered with the aim of gaining insights, developing reflective practice, effecting positive change in the educational environment and improving student learning (Ferrance, 2000). Action research is conducted in the natural setting in which the problem is encountered, and is an informal, qualitative, interpretive, reflective and experimental methodology that requires all the participants to be collaborative researchers (O'Brien, 2001). Since the research reported is about implementing an innovative idea, the approach is asset-based (Du Toit, 2009). An asset-based approach to action research shifts the focus from problems

experienced (a deficit approach) to an approach where innovative ideas could be implemented by academic staff in order to transform their practice.

Action research is an overarching design that incorporates a cyclical process (also referred to as a spiral) consisting of several iterations of action research cycles (McNiff & Whitehead, 2006). Two cycles were executed and reported on in this research. Figure 3 illustrates the action research process followed:

Figure 3: Action Research Diagram



The following section explains the action research cycles and provides a descriptive analysis of the data obtained from the student sample.

Action Research Cycle 1

The first cycle of the action research study consisted of an investigation of podcasts as a revision tool in an undergraduate taxation module at a higher education institution in a developing country with a focus on creating a learner-centred, blended learning environment.

The researchers specifically focused on the supplementary use of podcasts as a revision tool in order to introduce podcasts as part of a blended learning environment towards creating a flipped classroom in future. Podcasts were introduced into the learning environment as an innovative way to address the challenges faced by educators to use „in classroom / contact time“ more effectively, in order to meet the demands of the various stakeholders as discussed above.

Planning the initiative:

The planning phase commenced by clearly defining the use of podcasts as an innovative facilitation of learning strategy. It was very important to define a clear strategy as there are multiple educational uses of podcasts.

Taking into consideration the results of the study on lecture podcasts conducted at the University of Cape Town (Mugwanya et al, 2011), and the fact that this study was conducted at a contact university in South Africa, a developing country, the use of supportive podcasts specifically as a revision tool as opposed to the more commonly used substitutional podcasts, was selected as the most beneficial strategy for the first cycle of implementation.

The researchers considered the scope of the upcoming tests at that stage and based on experience as well as peer discussions with a university colleague at another institution, identified six concepts from the technical content that learners generally struggle with. The podcasts were created as a revision tool and not as a lecture replacement tool, and therefore only made available to the students after the topics were dealt with during the lectures.

Despite the researchers being aware that vodcasts (audio and visual file) would benefit learners more than podcasts (audio file), due to the 21st century learners' visual preference for learning (Prensky, 2003), the researchers had time and financial constraints and elected to implement podcasts. Creating podcasts had no financial implications and limited time implications, whereas creating vodcasts would require special equipment, or the booking of a studio for recording, impacting the researchers financially as well as in terms of time.

Implementing the plan:

Four initial podcasts were recorded, each between four and six minutes long on six technical concepts identified as important concepts with which students generally struggle. After peer feedback from the distance university colleague lecturing the same taxation course, a further three podcasts were developed.

Windows Sound Recorder, a Windows application on a personal laptop was used to record the podcasts at no additional cost. Windows Sound Recorder was selected after investigating numerous programmes, but these were either too complex to master in the given time, too time consuming in creating the podcasts or too expensive to set up with no available funding for the initiative.

Windows Sound Recorder produces podcasts in a Windows Media Audio (WMA) file format, limiting the number of devices that are compatible with this format. These WMA files were converted to Moving Picture Experts Group Layer – 3 Audio (MP3) format to allow compatibility with most devices. This conversion was aimed at increasing compatibility with as many as possible devices, increasing student access.

Observing, monitoring and evaluating the action:

In order to monitor the initiative the researchers subjected the podcasts to peer evaluation from a colleague at a distance university, facilitating the same taxation course in the same developing country. The podcasts were also subjected to learner feedback in the form of an online questionnaire with structured questions.

The questionnaire was developed by the researcher and was evaluated by the colleague who reviewed the podcasts as well as an expert in the education environment. The questionnaire was compiled with the main purpose of gathering information to determine if students were ready for a flipped classroom learning environment, and information that would inform the future study following on this pilot project. After implementing the changes to the questions based on their feedback, the online survey was created. Questions specifically relating to the use of podcasts were asked as part of the student module feedback survey uploaded on the University learning management system (BlackBoard). Completing the survey was voluntary and students were informed of the fact that their responses would be treated anonymously. Out of a group of 1084 students enrolled for the module, 201 Afrikaans students and 694 English students completed the questionnaire. This represents an 83% response rate.

The following tables are al representative of a combination of the English and Afrikaans students’ responses, with no material differences between the language groups’ responses. The data was analysed using descriptive analysis to determine students’ perceptions on the use of podcasts as part of a blended learning environment. Learner quotes which captured the general feedback provided by the students are also reported on in order to strengthen the descriptive statistics.

Table 2: Feedback on Question >> These podcasts are helpful study tools that assisted me in my learning:

Response	Strongly disagree	Disagree	Agree	Strongly agree	Not Applicable (did not listen to podcasts)
Percentage	5%	6%	25%	51%	12%

From the responses to the above mentioned question it is clear that undergraduate taxation students experienced revision podcasts as a valuable study tool that assisted them in their learning. In total 76% of students either agreed or strongly agreed with the statement.

Learner feedback quote: *“The podcasts were extremely helpful! It was like a mini revision for me to check whether I knew my work for the tests and I found out what I needed to concentrate on. I really hope that podcasts are made for other topics as well.”*

Table 3: Feedback on Question >> I listened to the podcasts:

Response	Not once	Once	Two – Three times	More than Three	Un-answered
Percentage	33%	30%	23%	14%	1%

The results indicated in this graph are the averages of the number of times that learners listened to the different podcasts created during the first action research cycle. Replay is one of the many learner expectations of use of podcasts (Tynan & Colban, 2006). It is evident from the 37% of learners that listened to the podcasts more than once, that this expectation was met to some extent. It is also evident that many of the students did not listen to the podcasts. When asked why these students did not listen to the podcast, technological difficulties or insufficient access to data or listening devices was identified as the main theme. This is in line with literature on the topic, cautioning educators to take technical difficulties into account (Bullen et al., 2001). For purposes of the second action research cycle, students were referred to the technology offered by the University to download and listen to the podcasts.

Learner feedback quote: *“The podcasts were great studying techniques assistances and helped me understand the work as if I were in a lecture and you get to repeat whatever you did not understand until you eventually understand it. I am even considering to buy (sic) a recorder so that I can record lectures and improve my understanding of tax.”*

Learner feedback quote: *“I experienced great difficulty downloading the podcasts. I really wanted to make use of them, AS I STRUGGLE WITH TAXATION, but I could not.”*

Table 4: Feedback on Question >> The ideal podcast is the following length:

Response	Shorter than three minutes	Three to six minutes	Six to ten minutes	Unanswered
Percentage	9%	54%	37%	1%

This response is in line with the expectation of the lecturer that the length should not be too long as it is merely a tool for revision.

Learner feedback quote: *“I really enjoyed the use of the podcasts and think they were a very valuable learning experience. I would prefer them to be a minute or two longer, just so that the lecturer isn't speeding through the work because she's talking so quickly, but that she's talking at an average speed and there's enough time to process everything that is being said.”*

Table 4: Feedback on Question >> In an ideal world, all my lectures will be presented on podcasts that I can listen to whenever it suits me, and class time will only be used to do examples and exam technique:

Response	Strongly disagree	Disagree	Agree	Strongly agree	Not Applicable (did not listen to podcasts)
Percentage	18%	17%	27%	29%	9%

This specific question was included in the questionnaire to determine if learners are ready for podcast to be implemented in creating a flipped classroom learning environment, or whether podcast should remain to be utilised merely as a revision tool. More than half of the respondents (56%) agreed (or strongly agreed) with the statement that they consider a flipped classroom environment to be an ideal world. From this, the researchers concluded that a majority of the students were ready for a flipped classroom learning environment.

Learner feedback quote: *“The podcasts are a very excellent learning tool. I feel that it would be great if we could also receive video tutorials with the examples cause (sic) I noticed that I fully understood the content of the podcast while I was following in my text book. If the video tutorials could contain practical examples that would benefit the students more.”*

Not all learners had only positive feedback, but for the most part, the feedback was either overwhelmingly positive, or constructive in nature. The following student feedback quote falls in the latter category, and was taken into consideration for the second action research cycle.

Learner feedback quote: *“Could the podcasts be slightly edited to improve the sound quality :-)?”*

Reflection and Conclusion

This study did not aim to measure the changes or effects of revision podcasts on student performance, but rather to determine their perception of the usefulness of podcasts as a revision tool for learning.

Although the majority of students indicated that they found the revision podcasts to be a helpful learning tool, there were a number of issues with downloading the podcasts. This is to be expected at developing higher education institutions and one of the barriers that needs to be considered and taken into account when deciding upon a learning strategy that incorporates technology.

From the first action research cycle it can be concluded that podcasts can be implemented as a facilitation of learning strategy to form part of a blended, learner centred learning environment, in developing higher education institutions, if used as a revision tool. This conclusion is based on the fact that 75% of respondents indicated that they found podcasts to be a helpful learning tool. Furthermore, it can also be concluded that the majority of respondents are of the opinion that a flipped classroom would be considered the ideal, indicating student readiness for such a learning environment.

Action Research Cycle 2

This cycle aims to investigate if students view the implementation of podcasts as a tool to create a flipped classroom in order to utilise „in-class / contact time“ more effectively, as an effective learning strategy. The aim in this cycle was to facilitate an integrated approach to learning by using the theoretical framework of a flipped classroom.

From the positive student feedback received about podcasts used as a revision tool (action research cycle 1), specifically the question relating to the use of podcasts to create a flipped classroom, it was concluded that students are of the opinion that podcasts can be utilised as a tool to create a flipped classroom.

Such a learning environment will assist in addressing time constraints with large classes as well as curriculum overload, as well as learners“ need for flexible learning. The learning environment will also allow „in-class / contact time“ to be utilised to facilitate soft skills to address employer expectations as well as to focus on the difficult technical concepts that will address the requirements of professional bodies.

Planning the initiative

The researchers considered the findings of the study conducted by Heilesen (2010:1065) which reported that learners had the perception that the workload in a flipped

classroom environment was higher than that in a conventional teaching environment. Therefore, the researchers reduced the number of „in class / contact time“ sessions by 25% and only facilitated the remaining 75% of the sessions after the lecture podcasts were distributed to the students.

During this cycle, podcasts were not used as a revision tool, but were utilised as substitutional podcasts, shifting content delivery to open up „in class / contact time“ for practical application and focus on the more difficult concepts of the technical content.

Implementing the plan

According to the second year taxation module work programme, a normal week consists of four contact sessions per week, and for this specific topic, four contact sessions were scheduled.

The first two contact sessions of the week were utilised to explain the broad concepts of the selected topic (as it was a newly introduced topic and it was introduced the week before an assessment opportunity). No contact session was scheduled for the third session, allowing students time to listen to the recorded podcasts (sound files). The fourth session of the week was utilised to attempt a practical question on the specific topic.

The podcasts were recorded by a professional during a four hour „in class / contact time“ session presented to another group, that took place over the weekend preceding the „in class / contact time“ sessions of the respondents. Unlike the revision podcasts which were only made available after the lectures on the specific topic had been presented, these substitutional podcasts were made available during the week that the reduced „in class / contact time“ sessions took place. Four one-hour long podcasts were made available to the learners. This was done in an attempt to create a version of a flipped classroom.

Observing, monitoring and evaluating the action

Once again the researchers developed an online student feedback questionnaire. This questionnaire consisted of some of the same questions asked on the revision podcasts, and the non-applicable questions were altered to specifically provide feedback on the flipped classroom podcasts.

In this questionnaire the researchers substituted the term “sound files” for podcasts, in order for the respondents to clearly distinguish between the revision podcasts and the podcasts (sound files) used to create a flipped classroom. This was done to increase the reliability of the responses.

The questionnaire was reviewed by an expert in the education environment where-after the suggested changes were implemented. The questionnaire was uploaded on the University

learning management system as part of the module feedback. Completing the survey was voluntary and respondents were informed of the fact that their responses would be treated anonymously. Out of a group of 1060 students enrolled for the module, 160 (compared to the 201 respondents for cycle 1) Afrikaans students and 575 (compared to the 694 respondents for cycle 1) English students completed the questionnaire. This represents a 68% (compared to the 83% for cycle 1) response rate. The response rate was accepted as sufficient for purposes of the research reported on in this article.

The following tables are all representative of the English and Afrikaans students' combined responses to the following questions. The data was analysed using descriptive analysis to determine students' perceptions on the use of podcasts towards creating a flipped classroom. Learner quotes which captured the general feedback provided by the students are also reported on in order to strengthen the descriptive statistics.

Table 5: Feedback on Question >> I listened to the sound files on estate duty:

Response	Not once	Once	Two – Three times	More than three times	Unanswered
Percentage	32%	45%	16%	7%	0%

The majority of learners (68%) listened to the lecture podcasts (sound files). The researchers considers this to be a high response rate, especially taking into account the qualitative feedback on the length of the lecture podcasts which learners were dissatisfied with, as well as the fact that this pilot study took place during the week immediately preceding their test week. The 68% positive response rate to this question can be interpreted as a strong indication that learners are ready for a complete flipped classroom model.

Learner response quote: *“As I only started studying the topic so late, the soundfiles were too long for me to listen to all of them. Will definitely listen to all of them a couple of times before the exam.”*

Learner response quote: *“I didn’t [listen to the sound files] did not have time but I will listen to them for the exam. The time that was allocated for it I used to catch up work.”*

Table 6: Feedback on Question >> In an ideal world, all my lectures will be presented on podcasts that I can listen to whenever it suits me, and class time will only be used to do examples and exam technique:

Response	Strongly disagree	Disagree	Agree	Strongly agree	Not Applicable (did not listen to podcasts)
Percentage	18%	19%	27%	21%	15%

Despite only 48% of respondent agreeing with the statement (in contrast to 56% agreeing with this statement during the cycle 1 survey), there are still more positive responses than negative responses as indicated by the 37% of respondents who did not agree to this statement. Possible reasons for the decline in positive responses to this question from cycle 1 to cycle 2 can be found in the qualitative feedback. Analysing the qualitative data, the researchers came to the conclusion that the length of the sound files had a significant negative impact on students' perceptions of a flipped classroom.

Table 7: Feedback on Question >> I prefer the concept of sound files where an entire lecture is recorded, above the concept of podcasts, where only a specific concept is recorded (short period of time):

Response	Strongly disagree	Disagree	Agree	Strongly agree	Not Applicable (did not listen to podcasts)
Percentage	23%	25%	23%	17%	13%

From the table above it is clear that 48% of respondents prefer the concept of revision podcasts or podcasts that cover only a specific concept over the substitutional podcasts (sound files). The main theme identified in the qualitative responses regarding the substitutional podcasts (sound files) were from students complaining about the length of these podcasts (sound files). The researchers therefore concluded that students are ready for a flipped classroom environment, but the substitutional podcast needs improvement.

Learner response quote: *"I needed to prepare for the test and the podcasts were too long and not focused enough. The previous podcast were great because they gave you a really great focused explanation of the topic. A full recording of the lecture made it more difficult to take everything in, for such a short preparation time."*

Reflection

The decrease in respondents stating that they agree with the statement that in an ideal world a flipped classroom learning environment would prevail; is an area of future research. Based on the qualitative feedback, the researchers are of the opinion that the positive response rate would have been higher during cycle two, if the substitutional podcasts were reduced to 10–20 minute podcasts, and labelled according to the specific concepts covered in that specific podcast. This assumption is a possible area of future research.

CONCLUSION

Based on the qualitative as well as quantitative feedback of the pilot project, it can be concluded that students in the second year taxation model perceive podcasts to be a helpful learning tool. This conclusion is based on 76% positive response rate to the statement in the questionnaire.

A further conclusion that can be drawn from the data gathered in the second cycle of the pilot study is that students are ready for a flipped classroom learning environment. Although only 40% of respondent preferred the substitutional podcasts (sound files) over the revision podcasts, 48% of respondents indicated that they found the substitution podcasts (sound files) to be a valuable learning experience.

37% of respondents indicated that they did not perceive the sound files to be a valuable learning experience with 15% of respondents not able to answer the question because they did not listen to the substitution podcasts (sound files).

There could be a number of reasons why the respondent reacted more favourably to the revision podcasts than the substitution podcasts (sound files). From the qualitative feedback, the researchers concluded that the length of the podcasts had the greatest negative impact on how the substitution podcasts were perceived.

It can therefore be concluded that students are ready for a flipped classroom environment, but that the researchers would have to bring about changes to the podcasts, specifically pertaining to the length of the podcasts in order to improve the students' experience and therefore perception of such a learning environment.

This study would be of benefit to undergraduate educators in the accounting sciences for development of an innovative classroom tool. The study also contributes to the discussion on moving towards a flipped classroom approach to teaching and learning embedded in a blended learning environment.

Limitations and the way forward

Because this study is the pilot study of a greater research project, it has a number of limitations. This study is limited to the use of podcasts specifically as a revision tool. It does not address the use of the other tools such as vodcasts (audio and visual) or voice over PowerPoint slides (VOP) which will form part of the greater project, nor does it focus on creating a flipped classroom as such, which is the objective of the greater research project.

This study is also limited to exploring the student perceptions of revision podcasts, and do not account for lecturer perceptions of such implementations.

Informed by the results of this pilot study, the researchers aim to develop and produce various e-learning tools to be used in a second year undergraduate taxation module, towards creating a flipped classroom approach in the module.

The developed e-learning tools will contain theoretical content to be used by students outside the classroom. This will address students' needs for flexibility and control over their own learning towards creating a student centred teaching approach. An additional important benefit will be that „in-class/contact time“ will be made available to be used for developing the skills required by employers and professional bodies, assisting lecturers to facilitate an integrated approach to learning (which includes both the facilitation of theoretical competencies as well as soft skills).

The researchers aim to develop three types of e-learning tools, namely podcasts (audio), vodcasts (audio and visual) as well as voice over powerpoint slides (VOP) containing theoretical content as well as examples. The data gathered through the pilot study as described in this article will be utilised in the creation of a blended learning environment towards creating a flipped classroom.

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APPENDIX 1: STUDENT QUESTIONNAIRE

The questions were administered by means of an electronic survey.

QUESTIONS REGARDING PODCASTS:

1. I listened to the podcast on section 8(4)(a) recoupments and 11(o) scrapping allowance:
 - a. not once
 - b. once

- c. two – three times
- d. more than three times

2. I listened to the podcast on section 13's, the building allowances:

- a. not once
- b. once
- c. two – three times
- d. more than three times

3. I listened to the podcast on section 11(e) wear and tear allowance and section 12C machinery and plant used directly in a process of manufacture:

- a. not once
- b. once
- c. two – three times
- d. more than three times

4. I listened to the podcast on section 20A the ring-fencing of assessed losses:

- a. not once
- b. once
- c. two – three times
- d. more than three times

5. These podcasts are helpful study tools that assisted me in my learning:

- a. I strongly disagree
- b. I disagree
- c. I agree to an extent
- d. I strongly agree
- e. Not applicable, since I did not listen to the podcasts.

6. In an ideal world, all my lectures will be presented on podcasts that I can listen to whenever it suits me, and class time will only be used to do examples and exam technique.

- a. I strongly disagree
- b. I disagree

- c. I agree to an extent
- d. I strongly agree
- e. Not applicable, since I did not listen to the podcasts.

7. The ideal podcast is the following length:

- a. shorter than 3 minutes
- b. 3-6 minutes
- c. 6-10 minutes

8. I would like to have podcasts on the other taxation topics as well:

- a. I strongly disagree
- b. I disagree
- c. I agree to an extent
- d. I strongly agree
- e. Not applicable, since I did not listen to the podcasts.

9. I learn best by: (please choose the most appropriate option, only one)

- a. Reading/writing
- b. Visually (pictures, diagrams, symbols, graphs)
- c. Kinetically (you need to do things to understand)
- d. Aurally (hearing)

10. I had trouble downloading the podcasts

- True
- False

11. I would want podcasts that (Please select all applicable options):

- a. Only deal with one specific section (for example, only 11(e), or only Section 13 quin)
- b. have more examples
- c. have more theory
- d. only gives outlines of the work. Not so much of theory, just the bigger picture

12. Please provide us with any additional comments which you may have relating to BEL200

Open question

QUESTIONS REGARDING THE ESTATE DUTY SOUND FILES:

13. I listened to the sound files on estate duty:

- a. not once
- b. once
- c. two – three times
- d. more than three times

14. If you did not listen to the sound files, please provide a reason why you did not do so:

Open comment

15. I listened to the sound files on Estate Duty, and it was a valuable learning experience:

- a. Not applicable, since I did not listen to the sound files.
- b. I strongly disagree
- c. I disagree to an extent
- d. I agree to an extent
- e. I fully agree

16. In an ideal world, all my lectures will be presented on sound files that I can listen to whenever it suits me, and class time will only be used to do examples and exam technique.

- a. I strongly disagree
- b. I disagree
- c. I agree to an extent
- d. I strongly agree
- e. Not applicable, since I did not listen to the sound files.

17. The ideal sound file is the following length:

- a. 10 – 20 minutes long
- b. 20 - 30 minutes long
- c. 30 – 45 minutes long

- d. longer than 45 minutes
- e. Not applicable, since I did not listen to the sound files.

18. I would like to have sound files on the other taxation topics as well:

- a. I strongly disagree
- b. I disagree
- c. I agree to an extent
- d. I strongly agree
- e. Not applicable, since I did not listen to the sound files.

19. I learn best by: (please choose the most appropriate option, only one)

- a. Reading/writing
- b. Visually (pictures, diagrams, symbols, graphs)
- c. Kinesthetically (you need to do things to understand)
- d. Aurally (hearing)

20. I had trouble downloading the sound files:

- a. True
- b. False

21. I would want sound files that (Please select all applicable options):

- a. Only deal with one specific section (for example, only 11(e), or only deemed property as defined for Estate Duty)
- b. have more examples
- c. have more theory
- d. only gives outlines of the work. Not so much of theory, just the bigger picture

22. I prefer the concept of sound files where an entire lecture is recorded, above the concept of podcasts, where only a specific concept is recorded (short period of time).

- a. I strongly disagree
- b. I disagree
- c. I agree to an extent

d. I strongly agree

e. Not applicable, since I did not listen to the sound files and/or podcasts.

23. Based on your answer in question 48, please provide reasons why you prefer the one above the other.

Open comment

24. I am a member of the BEL200

facebook group: a True

b False

25. If you are not a member of the BEL200 facebook group, please provide reasons why you are not a member:

Open question