

FACULTY AND STUDENT PERCEPTIONS OF PODCASTING: EMPIRICAL EVIDENCE FROM FOUR HIGHER EDUCATION INSTITUTIONS

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ABSTRACT

Colleges and Universities are looking for ways to reduce student costs and improve student learning retention. Podcasting has been in play for ten years now, giving time for a broader audience to use this technology. This paper presents the findings of a study which looks at use and felt effectiveness of podcasting in online courses by both faculty and students. The survey looks at how podcasting may aid in improving focused student learning. How willing faculty is to use podcasting in place of costly textbooks is answered. The frames of this survey include: awareness, utility, effectiveness, learning styles, technology, and cost. In 2015, surveys were given to online graduate and undergraduate Business students and faculty at four higher education U.S. institutions. Results suggest that faculty should consider using podcasting in online courses to place focus on providing further explanation of stated learning objectives in order to meet the expectations and needs of today's student population.

JEL: A2

KEYWORDS: Awareness, Utility, Effectiveness, Learning Styles, Technology, Cost

INTRODUCTION

Student use of social networking and other Internet technologies has grown over recent years, producing an expectation of further use in education. Student and faculty have shown concern about growing tuition and fees, including the costs of textbooks (Silver, Stevens, & Clow, 2012). The rate of inflation for the price of higher education textbooks has risen by 72% (GAO, 2005). The U.S. Government's aim of providing financial aid to students, helping to ensure accessibility and affordability of higher education, has spurred an investigation into costs associated with obtaining a degree. In order to stay in good graces and to be eligible for aid, Colleges and Universities too are looking for ways to reduce student costs and improve student learning retention. Much research, in the past 10 years, measures student and faculty perception and use of podcasting in higher education. The speed of adoption of new technologies warrants further investigation of where interests stand today. In particular, this paper looks at how podcasting acceptance and use has infiltrated higher education learning. This study examines student and faculty perception of podcast effectiveness in applying multiple learning styles to achieving learning outcomes. The opportunity of using podcasts as a focused response to rising textbook cost is also explored. The remainder of the paper is organized as follows: Section two is a review of prior studies related to the areas of awareness, utility, effectiveness, learning styles, technology, and costs. Section three described the data used and the methodology followed. Sections four presents the findings from the survey results. Section five provides the conclusion, contributions, implications, and notes on future research direction.

LITERATURE REVIEW

Podcasting awareness and use is continuing to see an upward trend, although slowing. An Edison Media survey found that 49% of Americans feel that they are familiar with the term “podcasting”, up from 22% in 2006 (Webster, 2015). Students still want traditional methods of teaching and learning, but in addition are showing signs of acceptance of new methods that they feel increase student learning, such as podcasts (Robson & Greensmith, 2010). Students seek out ways to improve learning including: text messaging, RSS feeds, podcasts, and social networks (Cassidy, Britsch, Griffin, Manolovitz, Shen, & Turney, 2011). Practical uses for podcasting could aid in improving attention and facilitate note-taking, by allowing for repeated viewing (Khechine, Lakhal, & Pascot, 2013; Evans, 2008). The study also showed that some disadvantages include the lack of interaction and visual contact (Khechine et.al, 2013). In a study by Berger (2007), students noted a favorable response to podcasting use in explanation of problem solving. Faculty looks for ways to encourage student interaction in online education. Using video podcasts including: instructor announcements, weekly or chapter attention grabbers, or discussion starters can be a way to promote student engagement. Allowing students to address one another via podcast is another way of making the lessons more personal and interactive. Encouraging students to create and present their own podcasts is an active way to reach course goals when oral presentations are assigned (Carnegie Mellon, 2007). Instructional designers expect to see an increase in information “chunking” (Donnelly & Berg, 2006). Chunking of information allows students to learn targeted information quickly.

McCoog addresses each multiple intelligence learner through activities using technology (McCoog, 2007). Although McCoog proposes using the Internet, he does not mention podcasting and how it can address each learner preference. As technology has become more common, education has heeded the call with an updated approach to learning theory. The widely used Bloom's Taxonomy and Mayer's Cognitive Theory of Multichannel Learning are examples of where this change may occur. All levels of Bloom's may be reached through a combination of podcasts and classroom response systems, known as “clickers” (Graver & Roberts, 2013). Graver and Robert's (2013) reference to using “clickers” to achieve the “do” and “evaluate” concepts, while using podcasts to cover lecture material. Mayer's Cognitive Theory of Multichannel Learning states that students need both words and images to ensure learning (Mayer, 2003). The theory is based on three theoretical assumptions.

Dual channel assumption notes that learning needs to meet two different channels, using both visual images and verbal sounds for full processing to occur (Clark & Paivio, 1991). The limited capacity assumption states how much people can process is limited; potential is there for information overload (Clark & Paivio, 1991). Dual channel, limited capacity, and active learning could all be addressed through chunks: short video and audio podcasts that are focused on important topics. Graver and Roberts (2013), recommend that podcasts be 15 minutes or less for maximum effectiveness. Students will not find podcasts effective if used without supporting material. Using audio podcasts alone could lead to a failure to meet the needs of other types of learners, besides auditory learners (Mayer, 1997). Combining pictures with words in lessons helps to increase learning and memory (Mayer & Moreno, 2003). Mayer & Moreno's research shows that multimedia can be used to stimulate two of the five senses, hearing and seeing (2013). Podcasts used in conjunction with other learning methods can function to aid in success.

In a 2009 Aston University study, researchers found that students did indeed feel that video and voice podcasts noticeably benefit learning, when used with lecturer slides (Parson, Reddy, Wood, & Senior, 2009). Students perceived that learning improved when podcasts were used for reviewing course materials (Robson & Greensmith, 2009; Graver & Roberts, 2013). Evans (2008) added that students preferred podcasts over their textbooks and notes taken. Robson & Greensmith (2010) concluded that faculty should recognize the usefulness of podcasting as a means to engage students learning. Robson and Greensmith (2009) found that students who had experience with using podcasts before the course perceived podcasts to be more valuable. Those students tended to utilize the course podcasts more

(Robson & Greensmith, 2009). This study also found that students used podcasts to listen to and watch introductions, activities, and as review (Robson & Greensmith, 2009). (Robson & Greensmith, 2009) concluded that faculty's lack of familiarity, training, time availability may hinder acceptance and may make them reluctant to create and use podcasts. From this study, faculty indicated that they may have not created their own podcasts for courses (Robson & Greensmith, 2009). Faculty did use podcasts themselves indicating that they see value (Robson & Greensmith, 2009). In order to reach maximum effectiveness from a podcast, use must be aligned with assignments (Garver and Roberts, 2013). Students find it important to know the benefits, purpose, and the connection to the lesson that the podcast brings in order to have buy in of it use (Garver & Roberts, 2013).

Podcasting, in its infancy, was characterized by RSS (really simple syndication) subscription and its push feeds that connected the listener to a recorded series of conversations (Anzai, 2007; Carnegie Mellon 2007; Fizz, 2013). Over time, the process evolved to include more options, such as both video and audio, and flexibility of distribution, which encouraged more widespread use and a broader audience (Brown & Green, 2007; Webster, 2014). In this study, podcasting is defined as a digital audio or video file made available as a link, for downloading to a computer or portable media player, typically available as a series, but could be used separately for topic/lecture information within the learning management systems (LMS) of online courses, or courses that utilize these LMS.

Podcasting is a low cost way of providing focused information to student users (Zeng, 2009). The largest cost of producing a podcast is time and labor (Carnegie Mellon, 2007). The ability of the faculty member to create podcasts might impact the desire to produce. The person producing the podcast must have knowledge of how to generate an RSS feed in order to list the location of podcast episodes (Carnegie Mellon, 2007). Production requires recording hardware, like digital microphones and digital cameras, and software for editing audio and/or video segments (Carnegie Mellon, 2007). Common podcasting economic business models include sponsorships, advertising, and donations. Having a College or University sponsor the faculty made podcast would be a way for the message to target current and potential students. Higher Education institutions could also explore outside sponsorship in order to gain financial support. "Sponsorship is seen as being less intrusive in comparison to advertising, making it more acceptable to users."(Crofts, Diley, Fox, Retsema & Williams, 2005). Sponsorships would work well for institutions that are large and/or offering podcasts for a broader audience. Reaching a broader audience would help to attract sponsors. Listener donations are given in the form of "tips" whereby the listener shows appreciation and support for the podcast by leaving a monetary donation. In education, tips are not an accepted exchange between students and faculty, but donations to institutions may be more welcome. Student and faculty have shown concern about growing tuition and fees, including the costs of textbooks (Silver, Stevens, & Clow, 2012). The rate of inflation for the price of higher education textbooks has risen by 80% from 2002-2012 (GAO, 2013). The U.S. Government's aim of providing financial aid to students, helping to ensure accessibility and affordability of higher education, has spurred an investigation into costs associated with obtaining a degree. A possible way to reduce costs associated with course materials is to include teacher led podcasting.

DATA AND METHODOLOGY

A hypothesis was drawn:

H_0 : Having experience with podcasts has no effect on students' acceptance of replacing required textbooks with instructor selected learning outcome focused podcasts.

H_a : Having experience with podcasts has a positive effect on students' acceptance of replacing required textbooks with instructor selected learning outcome focused podcasts.

In order to validate the research question, a pilot study was conducted. Data was collected by surveying online undergraduate Business students and faculty in one higher education institution. This set a base understanding in order to benchmark how well students understood and used podcasting. In the pilot study, students were asked to define podcasting. Descriptions of podcasting given included: subscription, posted, link, video, audio, and short message. This gave the author reason to believe that understanding of the definition of podcasting has expanded beyond the traditional scope of the push feed RSS subscription as it was originally designed. The author defined podcasting to include links that may be posted to the LMS being used at the surveyed institution. This definition was provided to participants prior to completing the survey.

Following the pilot study, two surveys were distributed. One survey was given to undergraduate and graduate MBA Business students from four higher education institutions and the other to faculty of Business courses at both the graduate and undergraduate levels at the same four institutions. The surveys were distributed in week nine of the program, in both spring and fall, following midterm exams. The student survey was administered through an external party, by providing an invitation and link in the course LMS: Moodle, Blackboard, and Canvas. A total of 508 (91%) out of 557 students completed the student questionnaire. Of the 508 respondents, 32 (6%) students responded that they have no experience in watching or listening to podcasts. The survey was divided into four sections. The first section, completed by all 508 students, collected demographic information such as College/University attending; as well as the level of current standing, undergraduate and graduate. The second section, experience, identified the students who used podcasts, the types used, and how selected. The third section, effectiveness, collected information on student perception of learning styles and value of podcasts. The fourth section, use, questioned self use. In this section, students noted: faculty use of podcasts in courses; whether repeated use of podcast was done for further learning; and felt comfort of using podcasts to focus on course learning objectives in place of a required textbook.

Through an emailed invitation, 165 Business faculty members were invited to participate in a survey. Of the 165 faculty invited, 158 participated. The emailed invitation included the external party's survey link. This was done in order to control the respondent's invitation and responses received. Responses from faculty who teach both online and on-campus were recorded. Faculty and students voluntarily completed the surveys. Student data was assigned random numbers with an associated indicator variable for program level and college. The response rate may normally be noted as impacted by the method of survey, online versus hard print however; in this case measuring the perception of online students via an online method makes sense. These students, who do not normally meet on campus, already are prepared to receive all of their learning materials and direction online. In order to reach online faculty, who like their students, are living in various states, an emailed invitation is the most efficient manner to make contact. Students surveyed took courses that included weekly modules consisting of: written lecture included as notes on the PowerPoint slides, discussion forums, quiz, case-studies that included equations to use in solving problems.

RESULTS AND DISCUSSIONS

In a pilot study, students were asked to define podcasting. Descriptions given included: subscription, posted, link, video, audio, and short message. This gave the author reason to believe that understanding of the definition of podcasting has expanded beyond the traditional scope of the push feed subscription as it was originally designed. This information led to the author defining podcasting to include links that may be posted to the LMS being used at the surveyed institution. In Table 1, the student's selection of podcasts was focused in four areas: education, hobbies, entertainment, and news. The survey results showed that students use podcasts more for educational purposes and entertainment than for hobbies or as a news source. Of the students who have utilized podcasts, either video or audio, 74% noted using podcasts for educational purposes, 58% use podcasts for entertainment, and 39% for hobbies. Students

already accept podcasts as an education medium, as long as the podcasts present information they are trying to obtain.

Table 1: Podcast Types-Student Use

| Types of Podcast | Student Choice of Podcast % |
|------------------|-----------------------------|
| Education | 74 |
| Hobbies | 39 |
| Entertainment | 58 |
| News | 29 |

This table shows the reason for selection of podcasts as determined by students. The Column one lists the types of podcasts being utilized by students. Column two indicates the student’s usage of each category type, shown as a percentage.

Table 2 shows both students and faculty perception of student learning styles. When students were asked to share how they learn best, the majority (71%) indicated that they prefer multiple learning style methods. Looking further, the results show that 58% want to receive course information in chunks, whereas none of the students indicated a preference for longer lectures that included complete lesson materials. Students noted long complete lectures, not chunked, covering a broader group of objectives, as being the least effective and valued format for learning. This gives credence to the idea that focused learning and depth is more sought after by students than a broader view. Sixty-eight percent of students indicated that learning objectives are better retained when presented in a manner that may be reviewed multiple times. Only 9% of students saw discussions as being an important tool in reaching learning objectives. Students showed preference for videos (48%) over an audio only option (29%) as a preferred learning mode. This is consistent with Mayer’s (2003) Theory of Multichannel Learning, which states the need of including both words and images.

Faculty was also surveyed to determine how they felt students learned best. The results of the faculty survey showed that faculty and students agree that students learn best when multiple learning styles are addressed. Eighty-two percent of faculty noted that lessons presented in multiple learning styles reach student needs the best. Faculty identified the need to present materials in chunks (67%) over providing information in long lectures (4%), which was consistent with student perception. Thirty-eight percent of faculty perceived discussions to be a more important means of reaching learning objectives than students. Faculty too chose video representation (26%) over an audio format as a preferred learning mode, reflecting that of students. These findings point to the need to deliver information in a shortened, more manageable format, to reach students as they perceive that they learn best; consistent with Donnelly & Berg (2006). This also shows that faculty agrees with this need and should find ways to meet this need. The general principle behind podcasting is to offer video and/or audio in a short focused downloadable format that may be viewed multiple time, meets these goals. Utilizing discussions to reach learning objectives were seen as far more important by faculty (38%) than by students (9%).

Students indicated that they desire the ability to review course learning objective material multiple times. Survey results showed that 65% of students who have watched or listened to podcasts in the past have done so multiple times in order to gain a better grasp of the subject matter. This is consistent with previous studies performed by Robson & Greensmith (2009) and Graver & Roberts (2013), noting that students feel that podcasts used for reviewing course materials improves learning. Faculty in this survey agreed with students and previous student studies when 54% recognized that online students learn best and retain what they learn when learning objectives are presented in a manner that may be reviewed multiple times. Faculty should consider including podcasts that focus on course learning objectives as a review in order to meet students study needs.

Table 2: Learning Styles-Student Preference and Faculty Perception

| Method of Learning Preferred | Student Selected Preference % | Faculty Perception of Student Learning Preference % |
|--|-------------------------------|---|
| Visual presentation | 48 | 26 |
| Audio lessons | 29 | 10 |
| Review multiple times | 68 | 54 |
| Discussion format | 9 | 38 |
| Complete lectures | 0 | 4 |
| "Chunks" or short topics of focused lectures | 58 | 67 |
| Multiple learning styles | 71 | 82 |

This table shows the learning style preferences of surveyed students and faculty. Column one shows the identified learning styles. The weight of the student's felt benefit from each learning style is shown in column two. The weight of the faculty's perception of student learning preference is noted in column 3.

Table 3 shows how students say they study in relation how faculty perceives students actually study. Twenty-nine percent of students stated that they are likely to read the entire textbook chapter from beginning to end, when learning about identified course objectives. Sixty-five percent of students are more likely to search for the answer by looking for important points in the chapter, skipping what does not answer the question. The remaining 6% of the students surveyed indicated that they seek out topic videos. These findings fall in line with how faculty saw student study methods to be true. However, faculty noted an even higher rate of direct searches, citing students to be three times more likely to search for answers by skimming the textbook than to read the chapter. These findings point to the need for faculty to chunk information and include video to support lesson learning objectives. Video podcasts addresses both of these needs. Chunking can allow podcasts to meet the student's instructional needs not provided by textbooks. Chunking enables students to “skim” across video and audio podcasts to find desired instructional material.

Table 3: Student Study Habits-Student and Faculty Perception

| Method of Learning Preferred | Student Selected Study Habit % | Faculty Perception of Student Study Habit % |
|--|--------------------------------|---|
| Actually read the entire chapter. | 29 | 10 |
| Search for important points in the lecture and/or chapter. | 65 | 87 |
| Seek out topic videos in order to find answers or extend learning. | 6 | 3 |

This table shows the student's percentage of study habits of students as indicated by students. Column one shows the identified preferred study habit. Column two shows the student's perception of how they study for course topic information. Column three shows the perception of the faculty as to how students actually study.

Table 4 shows that students emphatically identified video podcasts that contain information on how to solve equations or problems, as the most important use of podcasts in courses (69%). Thirty-four percent of students surveyed felt that podcasts were also helpful in providing an explanation in practical use to Business course topics. Students note podcasts to be much less useful in other areas: explaining a historical perspective, course announcements (1%), anticipatory set attention grabbers (3%), discussion starter (3%) or explanation of theory (1%). The faculty and student surveys show disconnect between perceptions of podcast usefulness in identified areas. Faculty note podcasts shown for solving equations to be least important. This finding is concerning since students value podcasts most when reviewing how to solve equations. Faculty rank using podcasts to explain the historical perspectives, and discussion starters as being the most important (53%), followed by giving an explanation of practical use (48%), using them for attention grabber anticipatory sets (41%), and announcements (35%). Integrating podcasts into the lesson where students find it useful will encourage students to utilize technology in the learning process.

Table 4: Areas of Importance of Podcasting Use-Student Preference and Faculty Perception

| Uses of Podcasting in Classes | Student Selected Preference % | Faculty Selected Preference % |
|-------------------------------|-------------------------------|-------------------------------|
| Solve equations or problems | 69 | 16 |
| Explanation of practical use | 34 | 20 |
| Course announcement | 1 | 8 |
| Anticipatory set | 3 | 13 |
| Explanation of theory | 1 | 19 |
| Discussion Starter | 3 | 18 |

This table shows the perceived importance of podcasting in the Business classes as noted by students and faculty. Column one shows the identified uses. The weight of the student's felt importance from each area of learning is shown in column two. The weight of the faculty's felt importance from each area of learning is shown in column three.

Table 5 shows that although all courses utilize podcasts, students did not necessarily make use of the podcasts or notice who authored the podcast. Only 32% of students surveyed noted the podcasts used were made by their own instructors and 3% were made from other sources. Students noted (26%) that no podcasts had been made available in the course. Students who noted instructor made podcasts were being used were 89% more likely to view the podcast. This suggests that identifying faculty made podcasts would increase the use and awareness of podcasts in courses. Students perceive faculty made resources as more valuable than outside sources. Links not differentiated from text or websites could make the podcasts more difficult for the student to identify and use. An area of further research should look into whether or not podcast links including explanation of content, use, and format will increase student observation.

Table 5: Podcast Use in Courses-Faculty and Students

| Faculty Using Podcasts % | Faculty Recorded Podcasts % | Students Use of Faculty Created Podcasts % | Students Use of Outside Podcasts % | Students Not Realizing Podcasts Were Offered % |
|--------------------------|-----------------------------|--|------------------------------------|--|
| 100 | 22 | 32 | 3 | 26 |

This table shows the current use of podcasts in courses by both faculty and students. Column one shows the percentage of faculty who are currently utilizing podcasting in the course materials. Column two indicates the percentage of faculty who has recorded their own podcast information to be used in the courses that they teach. Column three shows the percentage of students who noticed that the course faculty member created the podcasts being used. The Fourth column shows the percentage of students who noticed that the podcasts being used were made from sources other than their instructor. The Fifth column identifies the percentage of students who did not realize that podcasts were being offered in the course materials.

Table 6 shows that students feel instructor selected, learning objective focused podcasts as a viable option to textbooks. The majority, 71%, of students noted yes; podcasts would be acceptable in the place of textbooks. Fourteen percent of students noted that required textbooks are absolutely necessary. Another 15% of students were not sure that podcast use in the place of required textbooks could be acceptable. The survey results indicate that students with no podcast experience are more reluctant to choose podcasts over a textbook. Upon further review, of those with no experience with podcasts, half noted that they would not desire podcasts in place of textbooks. The other half noted that they would welcome faculty selected podcasts that focus on course learning objectives in place of a required textbook. Would faculty members consider using podcasts to focus on course learning objectives in the pace of a required textbook? Some faculty (9%) showed that they are currently utilizing podcasts in the place of a required textbook. Thirty percent are against replacing textbooks with podcasts. Twenty-six percent indicated that they would indeed consider using podcasts instead of textbooks. Another 44% noted that they may consider using podcasts in place of textbooks as an option.

Table 6: Podcast Replacing Textbook-Faculty and Students

| Preference | Student Choice % | Faculty Choice % |
|-------------------------------------|---------------------|---------------------|
| Yes, Podcasts Can Replace Textbooks | 71 | 26 |
| No, Textbooks are Still A Must | 14 | 30 |
| Maybe, Not Sure | 15 | 44 |

This table shows the preference of textbooks and podcasting by both faculty and students. Column one shows the preference to either utilize podcasts in the place of textbooks, to continue to utilize textbooks, as well as the percentage of those surveyed who are uncertain with their preference of textbook or podcast. Column two indicated the percentage of each student choice. Column three indicates the percentage of faculty preference of each choice.

CONCLUDING COMMENTS

The purpose of this study is to determine if podcasts may potentially replace textbooks by looking at current use. Business courses in four higher education institutions were surveyed. Two surveys were given over two semesters in 2015; one to Business students and a second to faculty. The student survey was distributed to 557 Business students at four higher education institutions. 508 responses were considered appropriate for statistical analysis. 165 Business faculty members received surveys, 158 responses were considered for review. A hypothesis was drawn: H_0 : Having experience with podcasts has no effect on students' acceptance of replacing required textbooks with instructor selected learning outcome focused podcasts. H_a : Having experience with podcasts has a positive effect on students' acceptance of replacing required textbooks with instructor selected learning outcome focused podcasts. This study shows students' experience with different information delivery formats has informed their preferences. Podcasting is useful to students when the information meets student needs.

Faculty does not perceive one area of focus for the use of podcasts. Students emphatically point to podcasts that include explaining how to solve specific problems and provide specific information as most important. Students learn best by having information provided in chunks, which allow skimming for knowledge. This is akin to skimming a text for answers. Student also noted that chunking improved understanding and retention. Students acknowledged in the survey that they are reading in a searching pattern in order to answer specific questions, rather than reading the entire chapter from beginning to end. The research does not show that textbooks should be thrown out altogether, but it does show that faculty should start including podcasts, whether self-produced or gathered, that are learning objective specific in their lesson plans. Students prefer podcasts that specifically answer questions related to the lesson. This may lead to preference for chunking and indexed podcasts that are easily searchable. By doing this the faculty will be able to target specific learning outcomes and gain the attention of students, in turn increasing student learning and retention. This study was limited to Business students. Possibly, other disciplines may respond more favorably to podcast. Future research should explore more variables to measure student acceptance and use of podcasting as a primary course resource. Podcasts have the potential to be prepared in "chunked" topic specific recordings, both audio and video. The use of podcasts may address the Cognitive Theory of Multimedia Learning framework more efficiently. A second area of research should study how describing content use and format will increase student observation; thereby increase use of podcasts offered in courses.

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