The Use of Podcast Lectures and Other Helps for College Students

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INTRODUCTION

The purpose of this research study was to investigate the attitudes and behaviors of a population of students enrolled in social science classes at a medium sized central Texas State university regarding the factors associated with student's use of professor provided audio lectures files (i.e., hereafter, podcasts). The research literature documents the increasing popularity of professors' use of podcasting, particularly in the hard sciences, and it is clear the social science faculties are closing the gap. In short, the use of podcasting is on the rise. Like any other technology, however, the literature also suggests that more research is needed on student attitudes towards such usage, the effectiveness for learning, and questions regarding the reduction of student anxiety, particularly at the university level, as well as in the social sciences. This study examines a much needed area of research—namely, are students using podcasts? And, if so, when and how—moreover, what are their attitudes toward such professorial attempts to enhance education.

REVIEW OF LITERATURE

History of Podcasting in Higher Education

The etymology of the term "podcasting" is based on the combination of the words iPod and broadcasting. The word podcasting has since evolved to mean the use of any audio device to download audio files from the internet or other sources (Nataatmadja & Dyson, 2008). Podcasts have been used extensively by radio stations to provide music to listeners and for internet sources to sell or offer free downloads of music files (Nataatmadja & Dyson, 2008). Podcasts are unique in that they do not require proprietary technologies for usage, they can be subscribable, and they are not streamed, but rather downloaded to the user's computer or personal device (Lim, 2005). Podcasting allows users to download and listen to content from their computer or portable MP3/MP4 player, affording the convenience of listening to the content of the user's choice when and where they choose (Kamael Boulos, Maramba, & Wheeler, 2006). The expansive use of podcasts garnered attention by academics, and in 2005, Duke University offered first year college students iPods, and faculty were urged to develop student learning applications. Other higher education institutions quickly followed suit, and classroom recordings, course content, faculty lectures, and interviews were made available via podcasts for students to download (Nie, 2008).

Educational Applications of Podcasting

The literature suggests that there are four main applications for podcasting in education: mobile learning, recording traditional classroom lectures, providing feedback to students, and delivering artifacts generated by students (Clark, Sutton-Brady, Scott,

& Taylor, 2007). Podcasting allows students to utilize technology they already own for entertainment for educational purposes (EDUCAUSE Learning Initiative, 2005). There are many educational applications for podcasting, which include, but are not limited to: recordings of lectures for students unable to attend class, recordings of lectures for students to review at their leisure, and recordings of the textbook chapters which allow students to review chapters while performing other tasks (Kamael Boulos et al., 2006). One study noted that students listen to podcasts on their commute to and from work, while at work, and while at home, thus maximizing "down time" and providing students the opportunity to learn and/or review course material at the time and place of their own convenience (Tynan & Colbran, 2006).

Podcasting also accommodates several types of learning styles, thereby, allowing students to actively listen to lectures without taking notes, or podcasting allows students to review and edit their notes after the lecture while listening to a podcast of the original lecture (Scutter, Stupans, Sawyer, & King, 2010). Because students are already familiar with the technology used to listen to podcasts, educational podcasts are easy to use and are a non-threatening way to provide educational material (EDUCAUSE Learning Initiative, 2005).

Podcasting is also useful to students for whom English is not their first language, as podcasts allow for repetitive listening (Clark, Sutton-Brady, et al., 2007). Some universities have discovered that podcasting is a convenient option for English as a Second Language (ESL) students as these students can access instructor provided audio files instead of individually recording lectures for their own personal use (Scutter et al., 2010). It has been suggested that students that have other learning difficulties also benefit from podcasting as an additional learning support tool (Dale, 2007).

While podcasting cannot replace the traditional classroom experience, it provides educators another avenue to connect with students in a format that is familiar and inexpensive to use and operate. According to McGarr (2009), podcasting can be used as a substitute for traditional lecture, a supplement to learning materials, and/or as a creative tool for students. Finally, podcasting allows faculty members to provide a course with universal design—i.e., all students are equally served, requiring no special measures for disabled students.

Limitations of Podcasting

There are several limitations or downsides to podcasting. Podcasts are only as good as the podcaster, and as such, sound quality, speech patterns, and intonations of the recorder affect the quality of the outcome. Most faculty members and educators are not professional broadcasters and may need assistance and/or training on how to use the technology and the how to improve the quality of their recorded lectures. Another limitation of podcasting is that downloading podcasts requires sufficient bandwidth in order to operate, which may be an issue for some students (EDUCAUSE Learning Initiative, 2005; Clark, Taylor, & Wescott, 2007). In addition, podcasts are not interactive, making no allowance for audience participation. Students cannot ask questions or interact with their instructors when listening to the podcasts like they can in traditional lectures. Furthermore, since podcasting is an auditory medium, hearing

impaired students may find they have limited usefulness (EDUCAUSE Learning Initiative, 2005).

Some educators are concerned podcasts will encourage students to miss class and/or lead to passive learning, whereby students only listen to the material and do not actively engage with the content of the lecture (Scutter, Stupans, Sawyer, & King, 2010). Research has also shown that students prefer traditional or face to face lectures over podcasting, and therefore, it appears that podcasting is best used as a supplemental tool (McGarr, 2009).

The Future of Podcasting and Education

In addition to listening to podcasts, students can record their own. They can record notes or comments on the lecture or textbook, or they can use podcasts to reflect on the material they have learned (EDUCAUSE Learning Initiative, 2005). The future holds no limit for the applications of podcasts, as higher education looks to provide educational materials to students in new and innovative manners to include missed lectures, instructions for assignments and laboratory experiments, as well as "interfacing podcasts with video applications – listening to a podcast while viewing related material on the Web" (EDUCAUSE Learning Initiative, p. 2). As the potential for the use of this media grows, so will the enthusiasm of educators to incorporate this technology in their pedagogy. Nonetheless, when utilized, faculty members need to assess the ultimate effectiveness of such usage; hence, the purpose of this study was to examine two faculty members' experiences with podcasting and their students' assessment.

Methodology

The first two authors conducted a pilot study on 74 students in the spring semester of 2013, for refinement of the research instrument, which is comprised of basic demographics; attitudinal and behavioral podcast usage items; and open ended comments. The final instrument was distributed in the fall semester of 2013, resulting in a total response set of 76 students. This population of students represents the social sciences at two campuses, roughly 100 miles apart. These data, once coded and assessed, provide research data that answers questions about the use of podcasting in the social sciences.

These data were entered into SPSS, Excel, and Word for data analysis, and the results are presented herein to document student attitudes and behavior in classes where faculty provides a podcast of each lecture on the Blackboard computer system for student personal usage. There was no requirement that students use the podcasts in the study; they simply could use them if they wanted. Each professor used a portable tape recorder with a USB port, allowing the lecture to be loaded to Blackboard as a podcast for students to use as they wished. Thus, irrespective of type of class, although all of these were lecture classes, the teachers acted exactly the same in providing students the podcasts in the process of their separate classes.[1] At the end of the

semester of podcasting all lectures in the eight classes represented, 76 students responded to the aforementioned research instrument, thereby, allowing their responses to be coded into both SPSS and Excel, statistically analyzed, and assessed.

Research Findings and Discussion

### Population Data and Independent Variables

The population of 76 students has a modal sex of female (62%), with 38 percent of subjects being male. The average age is 27; however, the median age is 21, showing a negative skew in age, which is typical at this particular university. Regarding ethnicity, the mode is Caucasian (80%), followed by 13 percent Hispanics, and 10 percent African-Americans. Most of the student population is comprised of seniors (59%). Thirty-seven percent are juniors, and the remaining four percent, sophomores. Representing the social sciences, this population's modal major is criminal justice (59%)—one of the largest majors on campus and the largest in the social sciences. There are also nine percent political science majors, 11 percent psychology, nine percent, sociology, and other, which comprised 24 percent, including, business, social work, nursing, chemistry, history, and liberal studies majors. These data clearly show the diversity of students within the social sciences, as particularly representative of this university. As was expected, few students had a legitimated, documented disability (4%), while seven percent reported having an undeclared disability, and 68 percent reported none. This variable is particularly important given the use of podcasting to approach universal design in classroom settings.[2]

In examining the other independent variables used to assess the behaviors and attitudes regarding the use of podcasting, these variables are summarized as follows. The average study time is 9.44 hours per week, and the average grade point average is 2.95. The average of absences, also self-reported data as in the previous two cases, is low at 2.51 per semester. Most students reported never missing class, with a median number of absences of 2.00. The students' ability to use the computer resulted in high scores, particularly regarding the use of Word, Blackboard, and then, Excel. One hundred percent of students report being very familiar (75%) or familiar (25%) with using Word, while 57% are very familiar with Blackboard usage (41% are familiar), and Excel was the least familiar. Still, specifically regarding Excel usage, 39 percent report being very familiar, 51 percent familiar, and nine percent, unfamiliar.

In order to insure no difference between the two professors and their students on separate campuses, t-tests showed no significant difference between the students of each teacher on average study time (t= -.90), and grade point average (t= 1.42). As well, the demographics of each campus are fairly represented in the study. Since the teachers conducted the recording, posting, instructing, etc., exactly the same in each class, the course type has to be examined. Thirty-two percent of the students are in Face to Face classes, while 33 percent have Face to Face with online components, and finally, 36% had totally online courses—a very even distribution of this independent variable.

Dependent Variables, Percentages, and Correlations

The most important dependent variable is of course the actual usage of podcasts among the students. In Figure 1, we see that 24 percent report "Never" using the podcasts, and another 20 percent report "Seldom" use. Still, nine percent "Always" use them, while, 17 percent report "Often," and 30 percent, "Sometimes" use. Overall, 56 percent are using podcasts in these classes at least sometime, if not always.

FIGURE 1: SUBJECTS' PODCAST USAGE (N= 76)
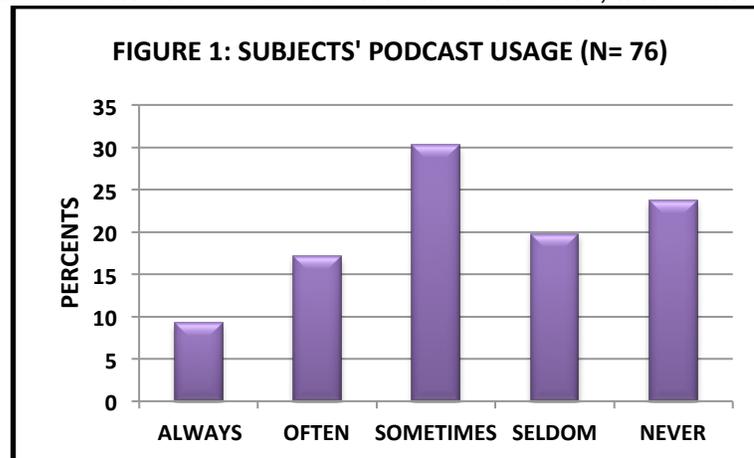
As for where subjects listened to podcasts, 13 percent used them at school; one percent listened at work, none at a Wi-Fi location, and 76 percent at home. Of the students using podcasts, they typically listened within one week of class lecture or posting (34%); only 16 percent used the lectures within one day, 18 percent within two days, and 8 percent reported use more than one week after the posting. The reasons subjects report using podcasts included to supplement course lectures (22%), to assist with homework assignments (29%), to study for exams (12%), and 8% use them to explain handouts and other supplemental materials.

The student subjects also reported their particular attitudes regarding the use of podcasts regarding several different dependent variables. Eighty-six percent either strongly agreed or agreed that the files were helpful in supplementing lectures; ninety percent believe the files assist with homework assignments, and 83 percent believe podcasts help with studying for exams. Ninety percent agreed or strongly agreed that any teacher posting podcasts is demonstrating the desire to help students learn. Twenty percent of students believed the files were too difficult to acquire to make it worth their while. Sixty-two percent of students agreed that audio files can compensate for missing class; however, few used the files for this purpose, as the absence rate showed (Median Absences = 2.00). Concerning the difficulty of using the files, 19 percent agreed that they did not know they could contact the Blackboard Help Desk for aid in downloading the files, and 23 percent agreed that the files were just too much trouble to use.

In the correlational analysis, all variables have been correlated (using the appropriate level of correlational statistics) to assess the factors that affect the use of podcasts in this research study.[3] Regarding the demographic variables, sex is related to podcast use, with 38 percent of females reporting often using the files (V= .35). Age shows no relationship with podcast use (V= .04). This population of subjects simply did not have the variation in ethnicity that would allow it to correlate with the dependent variable. Classification, however, showed a very strong, negative correlation with

podcast usage—meaning, the sophomores and juniors are more likely to use the podcasts than seniors (V= -.58). Subjects' major also affected podcast use with a moderate correlation of V= .36, with 11 percent of criminal justice students using podcasts, then political science majors, and finally psychology, sociology, and other use the podcasts more often. There is no relationship between professor and use, with 50 percent of Anderson's students reporting often use and 48 percent of Hankhouse's reporting the same.

Examining behaviors and attitudes in relation to podcast use is an important part of this study, and these student characteristics showed interesting results. In regard to disability status, there is a moderate relationship between this variable and usage—with 66 percent of those with a declared disability reporting use, versus 60 percent of the subjects with non-registered disability, and 22 percent usage for those with no disability (V= .22). The amount of time subjects study is weakly related to podcast use--r_s= .12; in other words, the more time subjects study the more they use podcasts. Grade point average showed no relationship to podcast use (r_s= .09); however, absence rates did weakly relate, with those having more absences, actually using podcasts less (r_s= -.17). Using Blackboard familiarity as a measure for computer facility, there is no relationship with podcast use (G= .09). Last, when examining the course type, there is weak relationship between this variable and podcast usage (V= .15). When reporting often use of podcasts, Face to Face subjects reported 21 percent, followed by 24 percent for the Face to Face with Online Components, and topped off with fully Online subjects, with the most often use at 33 percent.

Discussion and Conclusions

Clearly, as noted in the review of literature, podcasting at the university level is on the rise, without adequate assessment as to its particular outcome. This research study involves two faculty members assessing the use of podcasting their class lectures to Blackboard for students' optional use. All students in the two professors' total of eight classes, who chose to complete the survey instrument, resulted in 76 subjects for this study. The demographics show that the sample well represents the social sciences at the two campuses, and the t-tests comparing average study time and grade point averages of the subjects document no significant difference between the two campuses—at least for purposes of this study.

The report of these students being very familiar with using computer programs, such as Word and Excel, shows a fairly good sense of computer usage on the basics. The authors assume that such students, with basic instruction, would be able to at least open a podcast from Blackboard and listen; others of course may have downloaded them for mobile listening. Again, students did not have to use the podcasts—this was completely optional, as faculty has little way of telling if these are utilized or not, since downloading does not mean they listened, and listening does not mean they learned— this is definitely an area for further study.

Based on these data, the most important factors affecting podcast use by students herein are sex, with females more likely to use podcasts. Since seniors often "check-out," it is not surprising that there is a direct order to usage by classification, with

sophomores and then, juniors, being more likely to use podcasts. Since no major is more likely than any other to have disability students (registered and non-registered), and since criminal justice has more male majors, it seems likely this major would find less use for the podcasts. While there is also an order to podcast use by course type, we know that those students, who are going to use podcasts, just are. Students in each type of course reported anywhere from 21 percent to 33 percent of often using—thus, there is a difference in use, with online courses highest, then face to face with online components, followed by face to face. In a totally online class, podcasts are of course an important tool, as students may or may not be provided a lecture—in our classes; we loaded podcasts of lectures to all classes equally—the students took advantage of this provided tool.

When students use podcasts, this study discerns that they could listen anywhere, but are more likely to listen to the lectures at home, and very few listened at work. Typically, they listened to the podcasts within a week of their posting. Moreover, professors are notoriously concerned about podcasting and absences—this study documents that while students appreciate podcasts for the few times they miss (on average twice per semester), they do not miss numerous classes, thinking and rationalizing that the podcasts will be there, as many fear. In fact, there was a negative relationship between absences and use—the more absences, the less podcast use.

Given the numerous possibilities provided students by the posting of podcasted lectures, one of the most important factors is stress reduction. Eighty-three percent either agreed or strongly agreed that audio files reduce stress, as the student has a net to fall back on. We also wondered, however, if the reverse might be true—i.e., students stress because the podcasts are available but they may not take advantage, thus giving them a feeling of being behind. Twenty-two percent agreed and strongly agreed that it does create stress if the files are there and a student chooses not to avail themselves of the aid. Thus, podcasting is positive for students who use them or at least know they are there for use—then stress is reduced; however, if you simply do not take advantage, students feel like they may have missed something, resulting in overall stress. We know too that 23 percent of students simply found them to be too much trouble to use.

In summary—this research investigation into the use of podcasting lectures to a variety of students, documented these to be helpful in online classes, as well as the other types. Moreover, even though we had a small number of students with registered and non-registered disabilities, their use suggests that podcasting lectures may readily become part of universal course design. Finally, professors are deemed to be caring and are liked for posting podcasts of lectures, and it only seems to improve the course for students—with the exception of those who opt out of use; and, student stress is reduced just knowing the podcasts are available—irrespective of use. While many used them, they provided stress relief. The relationship between use and stress relief is very strong (G= .49); more use is related to a sense of student stress reduction. However, we also found that less use is negatively related to a sense of stress--when a student chooses not to use the podcasts, stress results from thinking they should be using available materials (G= -.76).

In conclusion—should professors use podcasts or not? Overall, this study documents a positive experience with the use of podcasted lecture material in these social science classes in central Texas. While there is some stress for not availing

oneself of tools that are optional, this is no reason not to provide these for the students who wish to accomplish their work and avail themselves of all possible information. More research is needed using a sample that has more disability students and finally, learning results simply must be examined to see if the actual use of podcasts does more than provide a Linus Blanket Effect—of reducing stress, making students appreciate their teachers, and moving toward the provision of universal design in courses. There is no doubt that we have extended the opportunity for learning and provided support for students who opt to use posted podcasts—as is always the case in education, some will fall on fallow ground; but, others, with help and encouragement, bear fruit. The faculty member has to work a bit harder—but we believe it pays off. More research is needed to verify these findings, assess the use by disability students with a larger population, and to tie use of podcasting to actual grade improvement.

USE OF PODCAST LECTURES

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Substantive Footnotes

[1] This study has been approved by the IRB at Tarleton State University.

[2] Universal design is—"a scientifically valid framework for guiding educational practice that:

A. provides flexibility in the ways information is presented, in the ways students respond or demonstrate knowledge and skills, and in the ways students are engaged; and
B. reduces barriers in instruction, provides appropriate accommodations, supports, and challenges, and maintains high achievement expectations for all students, including students with disabilities and students who are limited English proficient. [HEOA, P.L. 110-315, §103(a)(24)] (http://sped.dpi.wi.gov/sped_udl)

[3] For this correlational analysis, Cramer's V is used for nominal variable assessment; Gamma is used for ordinal discrete data; Spearman's Rho is used for ordinal continuous variables; and Pearson's r for two interval-ratio variables. This table summarizes all findings reported herein:

FIGURE 2: SUMMARY OF CORRELATIONS BETWEEN INDEPENDENT VARIABLES AND PODCAST USE (DEPENDENT VARIABLE)		
VARIABLES	**STATISTIC**	**CORRELATION**
SEX	CRAMER'S V	**V= .35***
AGE	CRAMER'S V	V=.04
CLASSIFICATION	GAMMA	**G= -.58***
MAJOR	CRAMER'S V	**V= .36***
PROFESSOR	CRAMER'S V	V=.09
DISABILTY STATUS	**CRAMER'S V**	**V= .22***
STUDY TIME	SPEARMAN'S RHO	**r_s= .12***
GRADE PT AVERAGE	SPEARMAN'S RHO	r_s= .09
COMPUTER FAMILIARITY	GAMMA	G= .09
TYPE OF COURSE	CRAMER'S V	**V= .15***

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