

Podcasts: An Additional Content Delivery Method for College Students

Michael G. Gibbs
Capitol College

Georgia Bracey & Pamela Gay
Southern Illinois University Edwardsville

This study analyzes 354 responses to an online survey exploring how students download podcasts, where they listen to them, and what they listen to. The authors find that 22% of the respondents report they regularly listen to one or more podcasts for three or more weeks, and that 20% of the podcasts they listen to are information based, with women being one and a half times as likely to listen to information-based content. This study also reports on the differences as a function of age in how podcasts are acquired and listened to. This study demonstrates that undergraduate students are self-selecting to acquire informational content, such as science and news related content, via podcasts and suggests this new form of media can be used as an additional content delivery form.

Keywords: Podcasts, technology, student learning, technology in teaching, iPod

INTRODUCTION

Students today have more content input streams than at perhaps any point in the past. From textbooks to text messages, no question is more than a click or a page turn away from an answer. While most student questions perhaps focus on "Who's going to the game?" a certain fraction of their questions will be education-based. What is unknown is how often students use these new technologies to not only answer their questions but to sate their curiosity on educational topics. If students are self-selecting to access educational content in the forms of online videos and podcasts, then a new source of ancillary materials has been identified, and it becomes necessary to consider adding these new media to our educational resource arsenal.

Michael G. Gibbs is an Assistant Professor in Business and Information Science at Capitol College in Laurel, Maryland. Georgia Bracey is a graduate student in Physics & Astronomy Education Research, and Pamela Gay is an Assistant Research Professor at Southern Illinois University Edwardsville in Edwardsville, Illinois. Please contact Dr. Gibbs at: mggibbs@capitol-college.edu

This study reviews the current understanding of the Internet and new media content-consuming habits of college students and examines the demographics and specific podcast listening habits of a population of college students to see if they are self-selecting educational content. The data is analyzed to begin a process of understanding the effectiveness of using podcasts as ancillary classroom materials. Of particular interest to this study are students' podcast-consuming habits.

INTERNET USAGE

INTERNET AND THE GENERAL POPULATION

According to a number of recent reports and studies, the number of Americans using the Internet, and the time they spend online, continue to increase. Some of the most recent information comes from the Project for Excellence in Journalism (2008) in a report titled, "The State of the News Media 2008: An Annual Report on American Journalism." The report indicates that in 2007, eight in ten Americans age 17 and older used the Internet to gather information; an increase from 66% in 2006. The same survey asked when individuals were last online. "Fully 72% of Internet users said they had been online the day before, up from 65% in 2006" (Project for Excellence in Journalism, 2008, p. 1). The European Travel Commission (2007) states that as of November 2007, 71.5% of the United States population uses the Internet, up by 125.6% from 2000. Not only is the percentage of Americans using the Internet increasing, but the time those individuals spend online is increasing as well. The Center for the Digital Future University of Southern California Annenberg (2008) found that in 2007, Americans 17 and older indicated they spend 15.3 hours a week online; up one hour per week from 2006.

As Internet access habits change, what is being accessed is changing as well. The Online Publishers Association's (2007) indicates that during the past four years the primary purpose for the use of the Internet changed from communications to content acquisition.

While most people think of World Wide Web pages when they think of the Internet, the reality is that Internet-based content takes many forms. One popular form of content is the podcast. These personal on-demand audio broadcasts first started to appear in 2004, and podcasting has come to define the process of distributing multimedia content, primarily audio, over the Internet through merging the technology from RSS syndication, portable MP3 players and blogging (Price, Gay, Searle & Brissenden, 2007). Simply put, "podcasting consists of nothing more than posting an audio file formatted as an MP3 (short for MPEG-1 Audio Layer 3) on the Internet and partnering it with a bit of code to facilitate automated download onto the listener's hard drive" (Gay, Price, & Searle, 2007, p. 36).

The Pew Internet & American Life Project reported that more than 22 million adults, some 11% of the population in the United States, indicated they own either an iPod or MP3 player with 29% downloading podcasts from the Internet with the purpose of listening to audio files (Rainie & Madden, 2005).

But what are the users accessing when they download a podcast? One of the more recent studies regarding podcasts by Rainie and Madden (2005) did not address the types of podcasts individuals utilize. Prior to the advent of podcasts, Rainie, Kalehoff and Hess (2002) examined college students and their use of the Internet, in partnership with comSore Media Metrix, and stated that the highest number of web page hits was from livejournal.com (20%), an online personal journal service, followed by Audiopalazy.com (18%) that provided the software to swap files with music-related sites next (18%), and educational resources for homework at (18%).

COLLEGE STUDENTS USING THE INTERNET

Research is limited when it comes to the current podcast habits for college students. Jones and Madden (2002) report in, “The Internet Goes to College: How students are living in the future with today’s technology,” as part of the Pew Internet & American Life Project, that in comparison to the general public, college students are the largest segment of Internet users, for they have grown up with the technology and it is part of their daily life. “One-fifth (20%) of today’s college students began using computers between the ages of 5 and 8. By the time they were 16 to 18 years old, all of today’s current college students had begun using computers – and the Internet was commonplace in the world in which they lived” (Jones & Madden, 2002, p. 2). At the time of this 2002 study, the authors reported that students indicated they used the Internet to communicate with others and conduct research. “College students use the Internet nearly as much for social communication as they do for their education” with 42% indicating their primary purpose for the Internet was for social communication – and this is before the advent of Facebook or MySpace (Jones & Madden, 2002, p. 3).

Fast-forward five years to 2007. With a steady increase in the overall use of the Internet and the broad adoption of Apple’s iPod and other similar MP3 players, college students, having come of age in the Internet world, are only increasing their use of technology. Ferguson, Geer and Reardon (2007) report that college students within the United States indicate they use iPod technology instead of the radio for entertainment, relaxation/escape, and alleviate loneliness. The primary finding of their report, “Uses and Gratifications of MP3 Players by College Students: Are iPods more popular than radio?” is that iPods and MP3 players are more popular to traditional age college students than the radio (Ferguson, Geer & Reardon, 2007). In another study, Chung (2008) sampled 636 college students (23.5% graduate, 75.6% undergraduate and .9% other) at a Midwestern university to investigate their behaviors towards podcasts. She found the primary motivations for college students to utilize podcasts to be: “1) voyeurism/social interaction/companionship, 2) entertainment/relaxation/arousal, 3) education/information, 4) pastime/escape, 5) habit, and 6) convenience” (Chung, 2008, p. 24).

Realizing that college students are an important demographic, Nielsen Media Research announced that starting in 2007 they would begin including the television viewing habits of college students living away from their parent’s home as part of their overall rating system (Mahan, 2006). The Center for the Digital Future University of Southern California Annenberg School (2008) reports on the online habits of Internet users within the United States, indicating that on a weekly basis 96% of the respondents use the Internet for email, 71% for Internet surfing, 60% to find news, 43% for product information, 38% for banking or other financial services, 37% for instant messaging, 34% for playing online games, and 25% to search for humorous content.

PODCASTS IN EDUCATION

In the fall of 2004, Duke University made headlines when they provided all approximately 1,650 incoming freshmen Apple iPods containing the orientation schedule, various university calendars and even the lyrics to the school fight song (Flanagan & Calandra, 2005). After the first year of the program, the university issued an analysis indicating that the greatest usage for the iPods was for foreign language classes (Jaschik, 2005). Flanagan and Calandra (2005) indicate that Duke primarily created podcasts for the purpose of disseminating recorded lectures and the discussions to students. Duke is recognized as a pioneer in integrating the podcasting technology into the academic curriculum. A year after Duke began its program, podcasting was still seen to be new as

the emerging stream of technology (Bull, 2005), with podcasts not being introduced into the iTunes music store until the summer of 2005.

Now, four years and one graduating class after the introduction of the podcast to the public, it is time to assess the impact this new media is having on students. From Duke taking that first step in 2004, to today's research into online content acquisition, studies are being defined to test the benefits of using podcasts in undergraduate academic programs. One example comes from Kingston University, in the United Kingdom. They conducted a study regarding the benefits to first year undergraduate students using podcasts to assist in improving their learning and study skills. Edirisingha, Rizzi and Rothwell (2007) report podcasts served as a positive supplement to the classroom by providing additional information regarding the assignments. A second study in 2007, done in the United States at Rockingham Community College, focused on the instructional use of podcasting for their student and faculty. In this study, Preuss (2008) found that 12% of the full-time faculty used podcasting for either lectures, selected material or review sessions and that providing instructional podcasts decreases absenteeism and reduces class withdrawal rates. While not conclusive, Preuss (2008) also indicated that podcasts can be a factor in improvement for the cumulative course grade point average.

METHODS

THE SURVEY

The primary objective of the survey was to begin a process of understanding of the Internet and new media content-consuming habits of college students, along with their podcast listening habits and to determine if they are self-selecting educational content. Specifically, the survey asks how they acquire podcasts, what they listen to, where they listen to them, why types of podcasts and how often they download them.

The survey asked respondent how they acquired and listened to podcast along with the frequency. Data regarding the content-consuming habits of college students was gathered by asking what podcasts they select to subscribe to, what their favorite podcast(s) are, and their favorite educational or news podcasts.

PRODEDURE

Starting in January 24, 2008 an Institutional Review Board-approved, eleven-question, online survey was launched asking respondents about themselves (gender, age, grade and location), how they acquire and listen to podcasts, and what they select to acquire. This survey remained live until May 12, 2008, and received 354 responses. The survey was advertised via email through the Astronomical Society of the Pacific's monthly e-newsletter and emails to over 1,000 astronomy "101" instructors. To entice people to complete the survey everyone was offered a discount at the Astronomical Society of the Pacific's online gift shop in exchange for submitting at least the agreement to the consent form (all other questions could be left blank).

LIMITATIONS

The sample was purposely biased toward students enrolled in non-majors college-level astronomy classes because the intent was to better understand how potentially astronomy-interested individuals may or may not seek educational content. In the final sample it was found that there was a significant bias toward undergraduate college

students from the state of Arizona with 248 of 349 respondents who provided state information. It is believed that a professor at the University of Arizona may have given extra credit to undergraduate students in an astronomy “101” class that participated in this survey. The authors are unsure what bias this may have introduced but feel it may have allowed for a more diverse student sample set (e.g. age and gender) than may have otherwise self-selected to participate.

DEMOGRAPHICS

The survey allowed individuals outside the target demographic of undergraduate college students to submit responses. Twenty-one of the 354 respondents who indicated their grade were outside the targeted grade bracket (undergraduate first year to fourth year) and this number was too low to study in a statistically significant way. Therefore, these responses are excluded from the analysis.

For the entire sample the gender ratio was M:F, 49.5%:50.4%. Broken down by age, however, women dominate the first year college sample and men dominate the second year and higher sample (see Table 1). This trend with grade is more of a reflection of who is taking introductory astronomy than of anything related to podcasting. This is an interesting bias suitable for follow-up research, but is not relevant to this paper.

Table 1. Gender Ratio of Undergraduate Respondents by School Year

Undergraduate Year	Males		Females	
	#	percent	#	percent
All	164	49.5%	167	50.5%
First year	92	44.9%	113	55.1%
Second year	45	52.3%	41	47.7%
Third year	16	59.3%	11	40.7%
Fourth year and higher	11	84.6%	2	15.4%

Table 2. Age as a Function of Undergraduate Year

Undergraduate Year	Mean Age	Standard Deviation	Minimum Age	Maximum Age
All	19.4	2.3	18	38
First year	18.5	0.9	18	29
Second year	19.6	1.2	18	26
Third year	23.2	4.4	20	36
Fourth year and higher	23.2	4.7	21	38

One of the quandaries faced in the analysis was if the data sort by grade or by age, and how the two methods of sorting affect outcomes. In examining at the relationship between age and grade, it was found that the average age increased non-linearly with grade, with non-traditional students skewing the third year sample to a higher than

expected age (Tables 2 and 3). Due to the small sample sizes, students who are in their fourth year and higher are in a single group and students ages 22 and older were grouped into the same category.

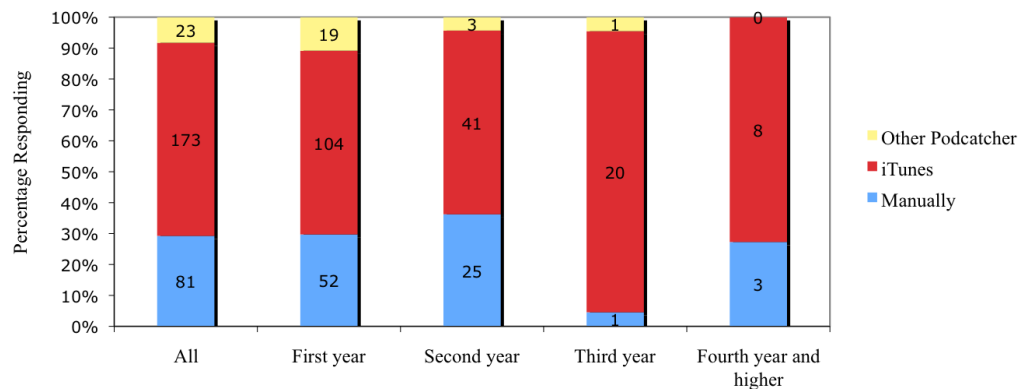
Table 3. Undergraduate Year as a Function of Age

Age	# First year	# Second year	# Third year	# Fourth year and higher
All	208	90	34	17
18	111	5	0	0
19	93	44	0	0
20	1	32	3	0
21	0	1	13	7
≥223	8	18	10	

DATA ANALYSIS AND RESULTS

The survey asked respondents to identify how they acquire podcasts (manually, through iTunes, or using another podcatcher) and where they listen to them (school computer, home computer, MP3 player). As indicated in Figures 1 and 2, there is a bimodal distribution in download habits, with the 18-20 year olds preferring to use iTunes, while the 21+ year olds more often manually downloaded podcasts. This age dependency is also reflected in the data sorted by grade, where a marked jump in manual downloads in the third year students' rate of manual downloads is found.

Figure 1: Podcast Acquisition Methods by Undergraduate Year



The respondents' listening habits also show differences, although not as extreme. Compared to the average first year student dominated response pool, the third year students stood out through a Chi-Squared p value of 0.06 while the fourth year students had a p value of 0.8, which makes them indistinguishable from the average sample. Examined by age, the middle age bracket of 21 is radically different ($p=0.02$ for $N=21$), with none of them using school computers, and very few listening on MP3 players. The 22+ year old sample, however, was indistinguishable from the mean ($p=0.35$) (Figures 3 and 4).

Figure 2: Podcast Acquisition Method by Age

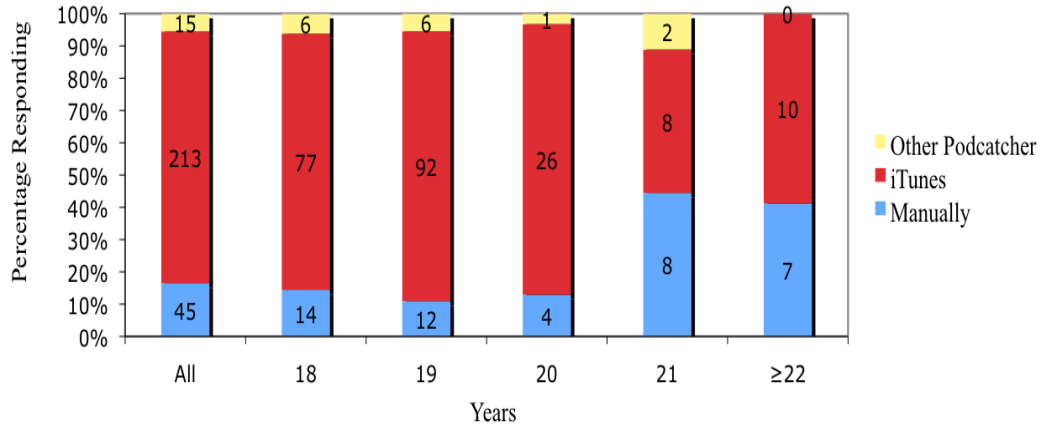


Figure 3: Podcast Listening Device by Grade

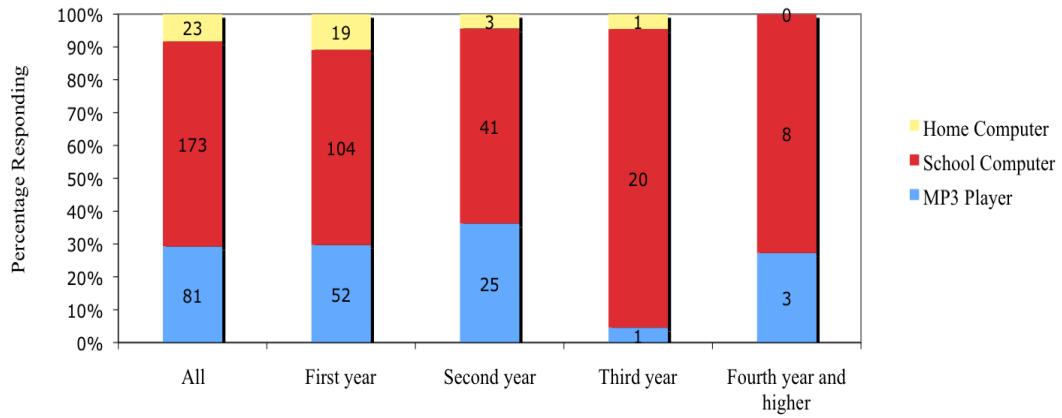
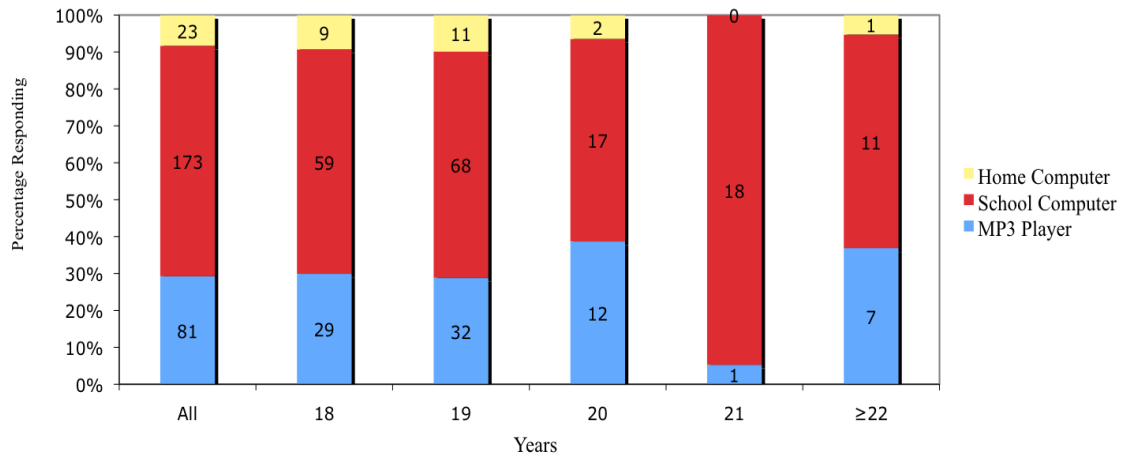


Figure 4: Podcast Listening Device by Age



In addition to asking students how they acquired and how they listened to podcasts, they were also asked how many podcasts they listened to. It was discovered that there was an odd disconnect between the responses to the first two questions and the later question. While 273 respondents stated a preferred mechanism for downloading podcasts and 277 stated how they listen to them, only 77 people indicated they had regularly listened to one or more podcasts for more than 3 weeks. This disconnect could indicate three different scenarios:

1. respondents are indicating how they have acquired podcasts, even though they do not regularly listen to any now;
2. respondents are indicating how they would acquire and listen to podcasts based on experience with other file types (such as music); or
3. people are simply making up answers.

The first two possibilities acting together could be the likely causes for this discrepancy based on the three circumstantial pieces of evidence: 1) Those who listen on an MP3 player listed iTunes more often – a result that matches the popularity of iPods; 2) Those using school computers were more likely to manually download podcasts; and 3) people who picked "Prefer Not to Answer" on one question, generally answered it on both, as indicated in Table 4. These correlations seem to indicate people were not randomly clicking buttons when they answered these questions, even if they do not regularly listen to any podcasts.

Table 4. Correlations between download mechanism and listening mechanism

Listening Mechanism→ ↓ Mechanism	Home Computer	School Computer	MP3 Player	Prefer not to answer Download
iTunes	73%	61%	84%	7%
Manually	3%	17%	5%	2%
Other Podcatcher	20%	17%	7%	2%
Prefer not to answer	3%	4%	4%	89%

In considering the 77 individuals who did respond that they listened to one or more podcasts, there is a statistically insignificant trend in younger students being more likely not to listen to podcasts. At all ages the majority of students did not listen to podcasts, and those who did listen to them typically only listened to 1 or 2 (see Tables 5 and 6). Future studies should also ask if people listen to audio books or talk radio and should use this data to see if there is a correlation between listening to classic spoken word audio (e.g. talk radio and audio books) and listening to podcasts.

Table 5. Relationship Between Age and Number of Podcasts Listened to

Age	None	Statistics for those listening to 1 or more				
		median	average	stdev.	min.	max.
All	79%	1.0	3.4	11.3	1.0	99.0
18	77%	1.0	1.9	1.3	1.0	6.0
19	64%	1.0	2.0	1.8	1.0	8.0
20	86%	2.0	9.3	27.0	1.0	99.0
21	74%	1.0	1.0	0.0	1.0	1.0
≥22	63%	1.5	4.0	5.9	1.0	16.0

Table 6. Relationship Between Undergraduate Year and Number of Podcasts Listened to

Age	None	Statistics for those listening to 1 or more				
		median	average	stdev.	min.	max.
All	77%	1.0	3.4	11.3	1.0	99.0
First year	77%	1.0	2.0	1.5	1.0	6.0
Second year	74%	1.0	6.5	20.7	1.0	99.0
Third year	81%	1.0	1.0	0.0	1.0	1.0
Fourth year and higher	77%	2.0	6.3	8.4	1.0	16.0

PODCASTS

From the 354 responses obtained with the survey, 70 respondents indicated they listened to podcasts on a regular basis (daily, weekly, etc.) for more than three weeks and listed the titles of the podcasts. These podcast titles were then standardized to insure that all respondents were referring to the same podcast by the same title. A final list of 128 titles was obtained. (See Appendix B)

The podcast titles were sorted according to category of topic. Ten categories were used: general entertainment, comedy, music, sports, news, science, formal education, technology, religion, and health/wellness. These topics were also split into two general categories: information-based and non-information-based. General entertainment, comedy, music, and sports were included in the non-information-based category, and the remaining topics were put into the information-based category.

Since the majority of the survey responses came from college undergraduates, the data used in the analysis was limited to the age range of 18-24 years. In this age range, there were 60 respondents—24 females and 36 males. The females reported listening to 49 different podcasts, and the males reported listening to 80. This list of 129 podcasts was then analyzed according to subject category and gender of listener. The categories listened to most often by both males and females were general entertainment (38.8%), followed by sports (17.1%) and music (16.3%), as shown in Table 7. However, when a chi-square analysis was done to examine significant differences between male and female subject category preferences, a value of $p = 0.29$ was obtained indicating no significant difference.

When this same list of 129 podcasts was sorted into the two general categories of information-based and non-information-based topics, there were 79.1% in the non-information-based category and 20.9% in the information-based category. A chi square analysis was done to look for differences between males and females, and, again, no significant difference was found ($p = 0.22$) across all topics, however when looking at just information-based versus non-information-based, we find women listen to information based titles 1.5 times more frequently than men.

Table 7. Percentage of 18-24 Year-olds Listening to Podcasts

Podcast Subject Category	Breakdown of listeners by topic (percentages)		
	Females	Males	Whole Sample
Entertainment (general)	40.8	37.5	38.8
Sports	14.3	18.8	17.1
Music	16.3	16.3	16.3
Education (formal)	2.0	1.3	1.6
Science	6.1	3.8	4.7
Health/Wellness	6.1	0.0	2.3
Religion	0.0	2.5	1.6
Comedy	2.0	10.0	7.0
News	12.2	8.8	10.1
Technology	0.0	1.3	0.8
Summary: Information-based	26.5	17.5	20.9
Summary: Non-Information-based	73.4	82.5	79.1

Next, the data was sorted based on the respondent's year in college—first year or second year. There were 30 first year students and 20 second year students who reported listening to 63 and 49 different podcasts respectively. Here again it was found that the top three categories preferred by the combined group of first and second year students were general entertainment (41.1 %), sports (17.0 %), and music (15.2 %). When a chi-square analysis was performed, a value of $p = 0.002$ was obtained, indicating a significant difference between podcast topics listened to by first and second year students. The number of students in their third year and higher were too small to study in detail, but their numbers, and the numbers for the earlier years are reported in Table 8.

When the general topics of information-based and non-information-based were analyzed for first year and second year respondents, it was found that 19.6 % of the reported podcasts were information-based and 80.4% were non-information-based. A chi square analysis resulted in a value of $p = 0.51$ indicating no significant difference between first year and second year undergraduate listening preferences.

Table 8. Percentage of Podcasts Listened to in Different Categories by Listener's Undergraduate Year

Podcast Subject Category	First Year (N _{podcasts} =63)	Second Year (N _{podcasts} =49)	Third and up Year (N _{podcasts} =17)	Summary (N _{podcasts} =129)
Entertainment (general)	50.8	28.6	29.4	41.1
Sports	9.5	26.5	5.9	17.0
Music	9.5	22.4	5.9	15.2
Education (formal)	0.0	4.1	0.0	1.8
Science	1.6	4.1	0.0	2.7
Health/Wellness	4.8	0.0	0.0	2.7
Religion	0.0	4.1	0.0	1.8
Comedy	12.7	0.0	5.9	7.1
News	9.5	10.2	5.9	9.8
Technology	1.6	0.0	47.1	0.9
Summary: Information-Based	17.5	22.4	52.9	19.6
Summary: Non-Information-Based	82.5	77.6	47.1	80.4

CONCLUSIONS AND DISCUSSION

PODCASTING AS PODTEACHING

As indicated through the data obtained from the survey, this study begins a process to analyze the effectiveness of utilizing podcasts to supplement traditional undergraduate classroom materials based on whether or not undergraduate students utilize podcasts. Prior research, such as the Pew Internet & American Life study, clearly indicates that college students utilize podcasts and that they are the highest segment within the United States population to utilizing this technology (Jones & Madden, 2002). Chung (2008) outlines that college students utilize podcasts for a number of reasons, one of which is education. These findings correspond with the results from this study, as shown in table 5. Edirisingha, Rizzi and Rothwell (2007), indicate that podcasting can be used to supplement classroom instruction. This study indicates that regardless of gender and the process to acquire podcasts, 22% of the respondents indicate they listen to podcasts on a regular basis. Graphs 1a and 1b show a bimodal distribution in the downloading habits of college students aged 18-20 years preferring to use iTunes. Those twenty-one and above tend to prefer to manually downloaded podcasts. Those that are downloading podcasts tend to be younger first year students, as indicated in table 2b, and also tend to be the most frequent podcast users. While this survey did not investigate why younger students use technology more so than older undergraduate students, prior research by Jones and Madden (2002) reports that a possible reason is that younger college students utilize podcasts and other similar technologies because they have been common place in their lives. Therefore, utilizing podcasts for first-year undergraduate students could be a new educational tool.

While we know that college students are accessing technology and podcasts, this study begins a process to understand what information they are accessing through this resource.

As table 5 indicates, the respondents to this survey utilize podcasts for entertainment (38.8%), sports (17.1%) music (16.35), news (10.1%) and comedy (7.0%). The research shows that 4.7% indicated their primary interest in downloading and listening to podcasts was science and was for 1.6% formal education. While science and education were behind other areas of interest, the combined two, along with technology at .8%, provide for a combined total of 7.1%. While overall entertainment may currently be the primary use of podcasts, this study does demonstrate that students are utilizing podcasts for some level of an intellectual purpose.

STUDENTS UTILIZE PODCASTS

This study indicates that the traditional age undergraduate college student population, regardless of gender, utilizes podcasts to access a variety of material from the Internet, from entertainment to education, and this clearly demonstrates they are utilizing podcast technology regardless of how they download the material. Based on numerous studies as indicated previously, the use of technology is only increasing – primarily with the younger American population. This provides an opportunity for professors to supplement their classroom material (e.g. lectures, discussion and textbooks) with podcasts. If professors do use the podcasts as an educational resource, as they do at Duke University, then simple podcasting could turn into podteaching.

The majority of the respondents to the survey conducted for this study are utilizing podcasts for information and entertainment purposes. There is a segment of the undergraduate student population within this study that listens to education, science and technology content. While this is a relatively small percentage of the overall sample population (7.1%), these students are accessing this information on their free time in a non-classroom setting. If undergraduate students were assigned to utilize information via podcasting, such as they are at Duke University, hopefully the percentage of students accessing educational material via podcasts will increase. In order to know this for sure, a targeted survey would need to be conducted at an institution of higher education that requires their students to utilize podcast within their overall curriculum just as some professors use films, PowerPoint presentations and Blackboard. Additionally, as podcasts continue to grow in popularity and an increased amount of educational material becomes available through this new media resource, a follow-up survey of traditional age undergraduate college students could occur to compare those findings with the results from this study.

SUPPLEMENTING IN-CLASSROOM LEARNING

Accessing information via podcasts allows students to not only utilize a new form of technology, but also to supplement their in-classroom learning experience while traveling, at the gym or during their free time. Additional research is needed to understand when and where undergraduate students listen to podcasts.

This study provides an initial indication into the use of podcasts by traditional age undergraduate students within the United States and that they are in fact using this rather new technology to access various forms of entertainment and that they also access educational topics. Students are self-selecting to access educational content in the forms of online videos and podcasts. This provides for a new source of ancillary materials available to professors to supplement the traditional classroom learning experience. Therefore, it is necessary for educators to consider adding new media resources, such as podcasts, to their educational resource arsenal in educating students.

REFERENCES

- Bull, G. (2005). Podcasting and the Long Tail. *Learning & Leading with Technology*, 3(33), 24-25.
- Center for the Digital Future University of Southern California Annenberg School. (2008). *2008 Digital Future Report*. Los Angeles. Retrieved June 16, 2008, from http://www.digitalcenter.org/pages/current_report.asp?intGlobalId=19
- Chung, M. (2008). *Podcast Use Motivations and Patters Among College Students*. Unpublished Masters Thesis, Kansas State University, Manhattan.
- Edirisingha, P., Rizzi, C., & Rothwell, L. (2007). Podcasting to Provide Teaching and Learning Support for an Undergraduate Module on English Language and Communication. *Turkish Journal of Distance Education*, 3(8), 87-102.
- European Travel Commission. (2007). *New Media Review*. Retrieved June 16, 2008, From <http://www.etcnewmedia.com/review/default.asp?SectionID=10&CountryID=93>
- Ferguson, D., Greer, C., & Reardon, M. (2007). Uses and Gratifications of MP3 Players by College Students: Are iPods More Popular than Radio? *Journal of Radio & Audio Media*, 2(14), 102-121.
- Flanagan, B., & Calandra B. (2005). Podcasting in the Classroom. *Learning & Leading with Technology*, 3(33), 20-22.
- Gay, P., Price, A., & Searle, T. (2007). Astronomy Podcasting: A Low-Cost Tool for Affecting Attitudes in Diverse Audiences. *Astronomy Education Review*, 1(5), 36-52. Retrieved October 10, 2007, from <http://aer.noao.edu/cgi-bin/article.pl?id=192>
- Jaschik, S. (2005). Duke Analyzes iPod Project. *Inside Higher Ed*, Retrieved June 25, 2008, from <http://www.insidehighered.com/news/2005/06/16/ipod>
- Jones, S., & Madde, M. (2002). *The Internet Goes to College: How students are living in the future with today's technology*. Washington, DC: Pew Internet & American Life Project.
- Mahan, C. (2006). Nielsen Ratings to Include College Kids. *TV.com*. Retrieved June 16, 2008, from <http://www.tv.com/story/3300.html>
- Online Publishers Association. (2007, August). *Web User Spending More of Their Time With Content*. Retrieved June 16, 2008, from <http://www.online-publishers.org/newsletter.php?newsId=242&newsType=pr>
- Preuss, M. (2008). *Instructional Podcasting in Higher Education: Rockingham Community College Pilot Study*. Wentworth, North Carolina: Rockingham Community College.
- Price, A., Gay, P., Searle, T., & Brissenden, G. (2007). A History and Informal Assessment of the Slacker Astronomy Podcast. *Astronomy Education Review*, 1(5), 53-69. Retrieved October 10, 2007, from <http://aer.noao.edu/cgi-bin/article.pl?id=188>
- Project for Excellence in Journalism (2008). *The State of the News Media 2008: An Annual Report on American Journalism*. Washington, DC. Retrieved June 16, 2008, from <http://www.stateofthenewsmedia.com/2008/>
- Rainie, L., & Madden, M. (2005). *Podcasting*. Washington, DC: Pew Internet & American Life Project.
- Rainie, L., Kaleyhoff, M., & Hess, D. (2002). *College Students and the Web*. Washington, DC: Pew Internet & American Life Project Data Memo

APPENDIX A: SURVEY

The following questions were presented to survey participants in addition to a standard IRB consent document.

1. What is your gender? Male Female Prefer Not to Answer
2. How old are you? [*drop down menu going from "under 13" to "over 80"*]
3. What grade are you in? If not in school, what is your highest degree?
(*The following options were presented in a drop down menu*)
 - 7th grade
 - 8th grade
 - 9th grade
 - 10th grade
 - 11th grade
 - 12th grade
 - College Freshman
 - College Sophomore
 - College Junior
 - College Senior
 - College Super Senior
 - First Year Grad Student
 - Second Year Grad Student
 - Third Year Grad Student
 - Forth Year Grad Student
 - Fifth Year Grad Student
 - Sixth or more Year Grad Student
 - No High School Degree / Not a Student
 - High School Degree
 - Technical Certification
 - Associates Degree
 - Bachelors Degree
 - Postgraduate Professional Certification
 - Masters Degree
 - Doctoral Degree
 - Prefer Not to Answer
4. What country do you live in? [*drop down menu of 239 nations and territories*]
5. If you are from the United States or Canada, what state or province do you live in? [*drop down list of all States/Territories in the US and Canada*]
6. How do you typically download Podcasts (audio or video)
 - Manually Download
 - iTunes
 - Other Aggregator Software
 - Prefer Not to Answer

7. How do you typically listen / watch Podcasts (audio or video)?
 Home Computer
 iTunes
 MP3 Player
 Prefer Not to Answer
8. How many Podcasts (audio or video) do you subscribe to? [*drop down of 0 to 99*]
9. What weekly/daily Podcasts [audio or video) have you listened to for more than 3 weeks? (Up to 10, or 10 favorites) *text fields were presented to allow up to 10 free form entries*
10. What is your favorite Podcast (audio or video)? *text field for free form entry*
11. What is your favorite *educational or news* Podcast (audio or video)? *text field for free form entry*

APPENDIX B: COMPLETE LIST OF PODCASTS

- 1 106.1 kmel
- 2 ABC News
- 3 ABC television shows
- 4 ABC World News – Video
- 5 Alice radio 97.3
- 6 Alpha Pup Records
- 7 American University Political Science Dept.
- 8 Apple bottom jeans
- 9 Apple quick tip of the week
- 10 Ask A Ninja
- 11 Astronomy a Go Go
- 12 AstronomyCast
- 13 BBC
- 14 BBC: Global News
- 15 Beatport.com Burners
- 16 Best of YouTube
- 17 Buffy Buffcast
- 18 Bungie Podcast
- 19 Call On Me
- 20 Casas Church Podcast
- 21 Chanel Podcasts
- 22 Chuck Powell
- 23 Clumsy- fergie

24	CNN
25	Comedy
26	Comedy Central
27	Cranky Geeks
28	Cubscast - Chicago Cubs Podcast
29	Daily Giz Wiz
30	Dane Cook
31	Dane Cook Video
32	Dane Cook's Tourgasm
33	Different NASA Podcasts
34	Diggnation
35	Disney
36	DMHS
37	Dr. Joy Brown
38	Economist: The Week Ahead
39	Entertainment
40	Entourage
41	ESPN
42	ESPN PTI
43	Fashion Week in Paris
44	Flight of the Concords
45	Fresh Air - NPR
46	GHS Electronic Music
47	Golden State Warriors
48	Grammer Girl
49	Grandmas boy
50	Grey's Anatomy
51	Happy Tree Friends
52	Hood figga
53	Intelligence Squared – NPR
54	Italian
55	iTunes New Music Tuesdays
56	Itunes radio
57	Jim Rome
58	Jodcast
59	Local radio station
60	Mac Break
61	Man Show
62	Marc Jacobs Podcasts
63	MAZICANA.COM
64	Michael Medved

- 65 Mitch in the Morning - 950 KJR
- 66 Mix 106.5
- 67 Mtv podcasts-dashboard confessional
- 68 Muggle Cast
- 69 Music
- 70 Music downloads
- 71 Music videos
- 72 National Geographic Video Shorts
- 73 NBC television shows
- 74 New Horizons at Jupiter – ASP
- 75 New York Times
- 76 News
- 77 Nike Soccer (Joga TV...I think)
- 78 Oakland Raider
- 79 Official Phoenix Suns Video Podcast
- 80 Onion Radio
- 81 Onion Radio News
- 82 Onion Video News
- 83 Our song- taylor swift
- 84 Pardon the Interruption (PTI)
- 85 PBS
- 86 Planetary Radio
- 87 Pottercast: Official Harry Potter Podcast
- 88 Prairie Home Companion
- 89 Project Runway
- 90 Psychology class lectures
- 91 Reggae
- 92 Ringside Seat to the Formation of Planets - ASP
- 93 Science Friday – NPR
- 94 Science Magazine
- 95 Science News
- 96 Science Times (NY Times)
- 97 Scientific American: 60 Second Science
- 98 Security Now
- 99 SETI AWA
- 100 Slacker Astronomy
- 101 Soccer
- 102 Software Engineering Radio
- 103 Spider man
- 104 Sports
- 105 Sports Highlights

- 106 Sportscenter
- 107 Stardate - McDonald Observatory
- 108 Strong Bad Email
- 109 Sunday Puzzle – NPR
- 110 Taking a Hit: Asteroid Impacts & Evolution
- 111 Talk of the Nation – NPR
- 112 Tech 5
- 113 This American Life
- 114 This I Believe
- 115 This Week in Media
- 116 This Week In Tech
- 117 Today Show
- 118 Top Gear - BBC
- 119 United Streaming
- 120 Unknown Worlds Podcast
- 121 Ussoccer.com
- 122 Wait Wait...Don't Tell Me! - NPR
- 123 Watching the Directors
- 124 World Story of the Day – NPR
- 125 Yoga Sessions from YogaDownload.com
- 126 Yoga Today - New Classes Every Day
- 127 YOGAmazing
- 128 Youtube