

A Proposal to Measure Racial Differences
in Usage of the iPhone by College Freshmen

Doug L. Mendenhall

Texas Tech University

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The purpose of this paper is to explore the uses made by college freshmen of the Apple iPhone, one of the most recent and robust innovations in mobile communication technology. This research specifically casts an eye toward whether cultural differences in usage develop along racial lines among college freshmen during the course of a single academic year spent as classmates. This study adds to the body of existing research into the uses and gratifications theory as it relates to population subgroups who construct their own shared meanings for and uses of mass media within a larger society.

An unusual dimension of this study is that differences in evolving student uses of the technology have the opportunity to stand out all the more clearly given the unusual circumstances at a private university in the Southwest in which all incoming freshmen are given the iPhone (or its non-telephone equivalent, the iPod touch) so that they employ a single, consistent device. This provides a sort of high-tech petri dish for observing cultures constructed around a single type of mobile communication device in a single physical community.

Literature Review

Uses and Gratifications Theory

Central to uses and gratifications theory is the concept that people make their own uses of the mass media, rather than serving as passive foils for whatever the media wish to “do” to their audiences (Katz, Blumler & Gurevitch, 1974). Throughout the 1970s and '80s the idea of an “active” audience creating its own meanings became increasingly important to the development of more refined versions of U&G (DeFleur & Ball-Rokeach, 1982). If

anything, this trend intensified with the advent of a new generation of mobile telecommunication devices that offer users more opportunities to personalize mass media. The ubiquitous music of the iPod, for example, has been described as allowing its users to “negate public spaces through their prioritization of their own technologically mediated private realm” (Bull, 2005). In other words, users are able to surround themselves with a bubble of whatever media meaning they care to create. Goggin (2009) sees the iPhone as the current pinnacle of this continuum: “A theme in the rise of the mobile, or cell, phone has been how it underscores the active role that people play in the orchestration and use of culture. The gambit of the iPhone is that the mobile phone itself will be decisively remade, and through this that media culture will itself be reformed.”

With power in the hands of the user to change culture itself, researchers are increasingly challenged to “decode the uses and gratifications of such communication experiences” (Lin, 1996), both individually and in informal networks. For example, Campbell and Russo (2003) showed that among a population of cell phone users, more similarities emerged in how those phones were used within a participant’s personal communication circle than outside the circle, demonstrating that U&G may be a shared or communal phenomenon. Since 2005, concurrent with the diffusion of “smart phones” such as the iPhone, the applications of the U&G approach to various subsets of mobile telecommunications audiences have multiplied. Expressing the status quo as just the tip of what a few years of advancements will show, Westlund (2008), predicts that, “Although the technological architecture of the mobile device has made it a multimedia device, different users will continue to form their own individualized usage patterns.”

The Wide World of Usage Patterns

Nation by nation, patterns of unique mobile usage patterns are emerging in the literature. Case studies reporting significant differences have examined South Korean mobile-phone adoption rates (Kyounghee & Bum Soo, 2009), Taiwanese reception of mobile ads (Ming-Sung Cheng, Blankson, Shih-Tse Wang & Shui-Lien Chen, 2009), Hong Kong text-messaging rituals and manners (Lin & Tong, 2007), Palestinian girls' secretive romantic conversations (Hijazi-Omari & Ribak, 2008), Colombians' enticement into civic involvement (Rojas & Puig-Abril, 2009), Cypriot gender differences in Facebook use (Taraszow, Aristodemou, Shitta, Laouris & Arsoy, 2010), New Zealand teens' strategies for avoiding high telephone fees (Bröge, 2009), and a Lesotho university's development of social relationships among staff members using text messages (Ekanjume, 2009). This literature is thematically connected by the use of mobile technology to create unique subcultures—all examples of uses and gratifications theory, which focuses not on the capabilities of the technology, but on the human ability to shape that technology into solutions to a spectrum of different needs.

Of course, factors besides nationality have also been the subject of investigations. Even before owning a mobile phone, research suggests that the quest for shared meaning has already begun with decisions about which local network to buy into for maximum gratification and utility (Corrocher & Zirulia, 2009). Australian teenagers were shown to vary in mobile usage based on the class of their parents, which affected earlier home usage patterns (North, Snyder & Bulfin, 2008). Members of Alcoholics Anonymous turned mobile phones into a valuable tool for their recovery, according to a survey that found them using the device in unique ways to strengthen their social network ties (Campbell & Kelley,

2006). The extent of female nursing students' addiction to their mobile phones was shown to be dependent to an extent on a combination of healthy lifestyle attributes and the levels of their extroversion and neuroticism (Ezoe, et al., 2009). Adolescents with "specific language impairment," which inhibits their ability to read and spell, were shown to make different relative uses of the texting and speaking functions of their mobile phones compared to their non-impaired peers (Conti-Ramsden, Durkin & Simkin, 2010). Starstruck young lovers made different relative uses of their mobile phones according to their relational styles, operationalized as their levels of uncertainty, love/commitment, and personal attachment style (Jin & Pena, 2010).

Mobile Technology and Race

All of these provide examples of societal subsets carving out shared meanings for mass media messages by use of emerging mobile technology. However, the question of whether and how different ethnic groups are using mobile technology to create shared communities has not been substantially addressed.

Some nibbling around the issue is taking place, such as the British qualitative study that suggests that "appropriation and use of mobile phones is intersected by gender, ethnicity and social positioning and that mobiles are key props in the production of young people's identity" (Green & Singleton, 2007). Looking for evidence of a "digital divide" at a large urban college, Cook and Germann (2008) found differences between white and black students in degree of technological literacy. When college students are interacting with their academic advisers, black students are less likely than whites to prefer e-mail over face-to-face discussions of such matters as their goals and instrumental tasks (Taylor, Jowi, Schreier & Bertelsen, 2011). Ethnicity of youths in Belgium was shown to be a significant

factor in the extent of their Internet and computer usage (Mertens & D'Haenens, 2010). However, in a study of the information technology habits of 12-year-olds, only a single racial difference was seen, along the dimension of behavioral self-concept (Jackson et al, 2010). Elsewhere, a survey of adoption rates across racial divides found some significant differences for four out of 13 varieties of communication devices—CD players, camcorders, cell phones, and Internet services—and discovered that predictors of adoption also varied by race, with income predicting white adoption, but relative advantage predicting black adoption (Dupagne & Salwen, 2005). African Americans were shown to use mobile devices more frequently to listen to music and play games than other racial groups, while whites were more likely to check email on mobile devices (Lee & Lee, 2010). However, more research is needed beyond the question of which devices are adopted and into the question of how those devices are then employed. That is how the current proposal seeks to expand the literature.

Research Question

Explorations of how specific cultures, societies, and groups create their own understanding and uses of mass media are certainly not a novelty, but because of its short history little research has been completed into the place of the iPhone in this realm of study. The current proposal is an attempt to illuminate that corner by answering a broad question about race in a university population in which every participant has access to this mobile communication. As Srivastava (2005) points out in his discussion of the effects on society of mobilization, “There are four classic facets to the sense of belonging: place, family, country and race. Mobile technologies have certainly had an impact on the first

two.” Examples earlier in this paper have demonstrated the impact on the third. This research question is an attempt to find out whether it has had an effect on the fourth facet.

RQ1: Can differences be observed in patterns related to the usages of mobile technology along racial lines during the first year of iPhone usage by college students?

Again, it cannot be overemphasized that the quasi-laboratory setting of this university campus offers a unique opportunity, which includes the ability to pinpoint the start of the participants’ shared use of the iPhone and in essence click the stopwatch at the end of the academic year, measuring the differences that may occur during a fixed amount of time. Such accuracy is difficult to achieve in a real-world environment.

Method

Unique University Setting

A sample will be drawn from the 2010-2011 freshmen class of a small college in the Southwest, analyzing the uses each student makes of his/her iPhone by means of an online survey conducted near the end of the academic year. The private liberal arts school at which this research will take place began in 2008 the practice of supplying all of its incoming freshmen with their choice of an iPhone or an iPod Touch, a more limited version of the same device that was selected by approximately a third of the first class of students (Ash, 2008); the Touch lacks telephone functionality and some other features but because of this does not require the user to bear the cost of entering a monthly telephone service contract. Initial research in conjunction with the university’s Mobile Learning Initiative indicates lower levels of student involvement—along the axes of academic, social, and entertainment uses—among those who selected the less functional Touch (ACU, 2010). The

stated philosophy undergirding this practice is not merely to attract prospective students by dangling the latest trendy technology, but to bring mobile learning into the classroom and bring higher education more into line with the learning style of post-2000 teenagers. What's different about this generation? "They were bloggers and texters, as comfortable with YouTube and Flickr as they were with breathing. For this generation of students, the digital world provided an infrastructure that shaped their daily lives" (ACU, 2010). The university's strategy in beginning to hand out iPhones was to harness this ubiquitous digital familiarity and adapt it to providing a high-quality education.

The campus offers a universe of approximately 1,000 freshmen students, almost all of who began in August using the mobile devices concurrently and in similar circumstances and settings. With 54% of American teens saying they send text messages daily (Lenhart, Ling, Campbell & Purcell, 2010), it is a fair assumption that most participants in the current research have at least some experience with cell phones or other smart phones and may have already developed their own uses and attitudes related to the devices. However, Laszlo (2009) points out clear increases in all categories of utilization of iPhones not just beyond ordinary cell phones, but well beyond other smart phones as well.

Sample Needs

Sample size for this project will be based on the desire to observe differences at the level of racial identity. The most recent statistics for an incoming class of freshmen at the test school indicate approximately 10% each Hispanic and black students, with smaller percentages of several other racial and ethnic groups. Using this baseline figure to calculate a sample size that would include approximately 30 black and 30 Hispanic students to

provide sufficient power to draw conclusions about racial subsets, I propose drawing a sample of 300 freshmen.

All incoming freshmen at this religious-affiliated university are required to enroll in a Bible course during each semester. The largest of these courses contains more than 300 students and serves as a convenient, random sample of freshmen. Therefore, I propose to take advantage of this concentration of freshmen in a setting nonspecific to any major or discipline, administering the survey to members of this Bible class.

A high degree of student compliance is anticipated because the task will be framed in relation to the Mobile Learning Initiative, which participants already will understand is a high-priority undertaking by the university and for many a factor in their decision to attend this particular school (ACU, 2010).

Similarly, a high degree of faculty compliance is anticipated because the subjects of the analysis coincide with two stated university priorities. First, the gathering of data about student use of the iPhone will illuminate the stated goals of the initiative itself. Second, the attempt to shed light on how and whether racial groups are forming networks using mobile technology speaks to ongoing attempts to increase minority student retention at the overwhelmingly white university (Williamson, 2010), with George Pendergrass, director of the school's Office for Multicultural Enrichment, quoted as saying, "This is something we need to get the whole school involved in." His assessment of the causes of low retention rates among minority students includes their lower rates of creating and drawing strength from networking and support groups within the campus population. Uncovering electronic evidence of that deficit would inform administrative attempts to correct this problem,

which is a common one, as evidenced in literature about the propensity of black students to be socially isolated in majority-white universities (McClintock, 2010).

Variables

In addition to information on ethnicity gathered from participants, they will be questioned about previous mobile technology experience, previous personal computer experience, type of device selected, and frequency of use for 10 common functions.

Additionally, respondents will be asked to rate the importance of the mobile device as an academic tool and for social interactions with several groups, such as their classmates, their family/friends, and their instructors and other university personnel.

Data collection

Data were collected using the online service Survey Monkey, which allows for participants to complete the survey using their iPhone or other mobile device as well as a personal computer. Three invitations were extended to the 300-plus students in the freshman Bible class during April 2011 to participate in what was described as a study of mobile technology uses. Estimated time to complete the survey was less than 2 minutes. No mention was made of race during the recruitment of participants because of a concern that this emphasis would skew responses.

Results

The survey was plagued by poor participation, with only 122 students responding. This was problematic, because the small sample size made it impossible to separately analyze each racial group. Instead, the 23 participants who identified themselves as anything other than “white” were grouped into a single category of “non-white” in order to

create a large enough subset for analysis. This group contained 10 blacks, seven Hispanics, four Asians, and two who identified themselves as “other.”

Analysis utilizing chi square failed to reveal any statistically significant differences in survey responses along the variable of ethnicity. For instance, in terms of prior exposure, 48% of non-whites and 41% of whites said they had used iPhones before arriving at the university ($p = .901$), 30% of non-whites and 39% of whites said they had previously used another type of smart phone ($p = .639$), and more than 90% of both non-whites and whites said they had previously owned or had daily access to a home computer or laptop ($p = .432$). Questions addressing the frequency of 10 common activities on a mobile device also were statistically far from revealing any racial differences by employing chi square. The 10 activities were: watching video ($p = .753$), playing games ($p = .892$), text-messaging ($p = .798$), using Twitter ($p = .915$), e-mailing ($p = .420$), using Facebook ($p = .797$), reading textbooks and other books ($p = .583$), listening to music ($p = .974$), surfing the Internet ($p = .359$), and taking photographs ($p = .407$).

Only in one of several questions involving the importance of the iPhone as a social tool did race-based results approach statistical significance. As shown in Table 1, when participants were asked to rate the importance of their mobile device as a social tool for interacting with other students at the university, non-whites ($M = 4.05$, $SD = 1.046$) responded with lower ratings than whites ($M = 4.45$, $SD = .886$), $t(119) = 1.92$, $p = .058$. This was much closer to significance than questions about mobile devices as an academic tool ($p = .483$), a social tool for interacting with friends and family ($p = .582$), or a social tool for interacting with university faculty and staff ($p = 1.52$).

Table 1**Please rate the importance of your mobile device to you as ...***Mean responses on a scale of 1 (not important at all) to 5 (very important)*

	Ethnicity	N	Mean	Std. Deviation
An academic tool.	Nonwhite	22	3.73	1.032
	White	96	3.54	1.132
A social tool with friends and family elsewhere.	Nonwhite	22	4.32	1.171
	White	96	4.45	.950
A social tool with other students at the university.	Nonwhite	22	4.05	1.046
	White	97	4.45	.866
A social tool with staff/faculty at the university.	Nonwhite	22	3.23	1.193
	White	97	3.62	1.141

Discussion

The sample size in this study was far too small to allow for measurement of racial subdivisions with sufficient statistical clarity. A much larger sample is needed if such measurements are to be undertaken. However, such an expanded investigation may be warranted on the basis of the single glimmer of significance in this undersized current study. Administrators for the university at which the study was conducted have identified a problem of retention of minority students, and have suggested that part of the blame for this is that minority students are not able to build for themselves a comfortable support group within the larger university population (Williamson, 2010). The fact that survey results may indicate that non-white students see the iPhone as less useful in creating such a support group than white students do is worth further study. It appears from these findings that non-white students are just as familiar with the devices as white students, that they use them for the same mechanical functions as white students, that they get as much academic use from them as white students, and that they use them just as effectively for building and maintaining interpersonal relationships with existing friends and family members as white students do. Only in using the mobile devices to socialize with other

students does a possible racial difference appear, and this possible difference merits further study.

Even that expanded study would be only a beginning. At best it will offer only a fuzzy suggestion of what the landscape may be. Beyond the methodology of this study, for example, dealing more specifically with the different ways that subcultures use the 350,000 (and rising) available iPhone apps presents an immense challenge to mass communication research methods.

The next quantitative step to be taken is to develop a strategy for measuring strength of use of individual applications. Without this power, it will be difficult to answer questions such as “Do Hispanic users gravitate to different entertainment apps from black users? or “Is there a generational gap between choice of primary social media app on the iPhone?”

The next qualitative step to be taken—and one that perhaps needs to complement most quantitative mobile communication studies—is to conduct in-depth interviews with users from within the sample frame, seeking explanations for any differences highlighted by the quantitative data.

It is a promising but daunting field of study.

It is a pity that researchers seeking answers to these questions can’t simply ask, “Isn’t there an app for that?”

The answer, of course, would be, “Not yet.”

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Appendix 1: Proposed survey instrument for student iPhone usage

1. What is your sex? Male/female
2. What is your race/ethnicity? White/Black/Hispanic/Asian/Other
3. Which mobile device do you use? iPhone/iTouch/Other
4. Is this your primary electronic communication device, used more often than a laptop, personal computer or other device? Yes/No
5. Before enrolling at ACU, did you own or have daily access to the following devices?
 - 5a. iPhone or iTouch. Yes/No
 - 5b. Another type of smart phone. Yes/No
 - 5c. A home computer or laptop. Yes/No
6. Please rate the importance of your mobile device to you as an academic tool. Scale of 1 (not important at all) to 5 (very important)
7. Please rate the importance of your mobile device to you as a social tool within the following groups using a scale of 1 (not important at all) to 5 (very important)
 - 7a. With other students at ACU.
 - 7b. With friends and family elsewhere.
 - 7c. With staff/faculty at ACU.
8. Please rate how often you use your mobile device for the following activities using a scale of 1 (never), 2 (occasionally), 3 (weekly), 4 (daily), 5 (several times a day)
 - 8a. To watch video.
 - 8b. To play games.
 - 8c. Text messaging
 - 8d. Twitter
 - 8e. Email
 - 8f. Facebook
 - 8g. To read books – textbooks and others
 - 8h. To listen to music.
 - 8i. To surf the Internet.
 - 8j. To take photographs.