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# Lazy User Theory and Interpersonal Communication Networks

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# LAZY USER THEORY AND INTERPERSONAL COMMUNICATION NETWORKS

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## ABSTRACT

This research examines individual adoption and use of communication technologies through a communication perspective by utilizing concepts from the lazy user theory of solution selection. The user state (individual technology use characteristics) and peer communication are hypothesized to predict switching costs (communication device satisfaction) and laziness. A one-shot survey of 687 individuals consisting of college students, Facebook, and Reddit.com users collected data later subjected to exploratory factor analysis and multiple regression. Factor analysis revealed four aspects of user state; portable tech-ers, onliners, workers, and relationshipers; three types of peer communicators; conversationalists, web-referencers, and peer superiors; and one type of switching cost, switchers. Three multiple regressions confirmed both hypotheses user state and peer communication account for 14.7% of the variance in switching costs and 11% and 9.9% of the variance in laziness. The study concludes that there are four factors, varying in importance, that an individual considers when adopting a communication device, and three primary strategies for seeking information about communication devices. Switching decisions and laziness are, to some extent, influenced by the user state and peer communication and future research should again examine concepts from the lazy user theory empirically.

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# CHAPTER I

# INTRODUCTION

In modern society individuals are faced with a myriad of technology-driven solutions to life's problems. Technology users must accomplish the complex task of sorting out which technologies to utilize in order to facilitate their needs, such as communication and entertainment. This complex task grows more challenging when considering the constantly changing nature of technology in the 21st century.

Looking at the example of communication technologies, users choose among non-Internet and Internet capable cellphones; tablet, netbook, notebook, and desktop computers; and gaming consoles, portable media players (e.g. Ipod touch), and e-readers for their communication and entrainment needs (though in reality, a myriad of other options exist). To continue this example further, imagine a user who chooses the combination of an Internet-capable smart phone and desktop computer to meet all of their communication and entertainment needs. This user engages in a process known as

technology adoption where a user considers the costs associated with a new technology before making the decision to adopt that particular innovation. Some of the costs the smartphone and desktop user considers are economic (e.g., the price of the desktop and smart phone), while others are mental (e.g., the difficulty of learning how to use the new devices). The decision becomes complicated as the user realizes that he will soon be faced with newer more advanced technologies that outperform past ones. A newer smart phone may be scheduled for release with faster network speeds. More efficient processors and motherboards could be released that outperform those in the user's desktop. The convergence of technologies also affects the smartphone and desktop user as new communication technologies offer to merge the smartphone and desktop computer into a single device (Canonical Ltd., 2012; Paul, 2012). These economic and mental issues, as well as concerns about a communication device becoming obsolete or unnecessary, demonstrate some of the many problems individuals face when choosing a new device, or adopting a new technology.

The problems individuals and organizations face surrounding the choice and use of communication devices represent an important area for research known as technology adoption. The argument purporting the importance of technology adoption research is rationalized below. A review of literature follows the rationalization section that describes previous technology adoption theories, introduces the lazy user theory and its concepts, and emphasizes the importance of two additional concepts that can be added to enhance the theory, peer communication and switching costs. Concluding the review, two hypotheses and two research questions are proposed**.** Next, the methods section outlines

the study, a one-shot survey designed to empirically asses the concepts defined in the literature review. Two sub-headings, participants and measures, describe those who participated in the study and the instruments used to asses each concept respectively. Following methods, the results section tables the findings of the study derived from exploratory factor analysis and multiple regression along with some illuminating descriptive statistics. The final discussion section interprets the results of the study, offers possible limitations in its design, and proposes work for future studies.

# CHAPTER II

# LITERATURE REVIEW

Technology adoption research can be of much importance to communication scholars, individuals, corporations, and technology gatekeepers. Technology adoption research may interest communication scholars for three reasons: the technology being analyzed, communication factors that may influence adoption, and the contribution to scholarly literature already in place.

## *Individuals and Corporations*

Both individuals and corporations (or any groups of technology users) stand to benefit from technology adoption research in two ways. First, by increasing their personal ability to become critical and skeptical users of communication technologies and second, by understanding how to use communication processes to their benefit when making technology adoption decisions. More specifically, individuals and groups could become more critical consumers by using results from research to refine their criteria for the

selection and application of communication technologies. For example, research highlighting the mobility of communication devices and web 2.0 communication could influence people and businesses to consider the portability of the devices they choose to adopt and their web 2.0 capabilities (Jackson 2007). Also, individuals and groups might use communication processes more effectively by using techniques based on or developed from research findings. One example, the hypothetical finding that people who talk with friends about technology are more informed when making communication device purchase decisions, could be adapted into a technique that urges people to seek advice from their peers and interpersonal networks to combat confusion, remorse, and anxiety surrounding such purchases.

*Technology Gatekeepers*

Technology adoption research can aid technology gatekeepers. The term technology gatekeepers describes those organizations who develop, market, sell and otherwise provide access to technology on a grand scale. Technology adoption research benefits these gatekeepers by allowing them to make more informed decisions concerning the development, marketing, and sale of technology, specifically communication devices. An understanding of the principles that hinder technology adoption may assist technology gatekeepers to avoid furthering those communication technologies that are "doomed" from the start. Historical examples of such technologies that individuals failed to adopt include the mini-disc, laser disc, and AT&T Videophone 2500 (Borwick 2003, Laserdisc 2002, Steinberg 2007). Further benefits for technology gatekeepers include the ability to develop strategies that better address consumer concerns regarding communication

technologies. One example of a marketing strategy in place that addresses such concerns is Best Buy's Buy Back program. This program alleviates consumer fears of their technologies soon becoming obsolete by allowing customers to trade old devices back to the store for cash toward the purchase of a newer device (Best Buy, 2012). Additionally, technology gatekeepers can derive information useful for advertising purposes from technology adoption research. Secondary data analysis of technology adoption research would allow advertisers to profile and cluster different types of consumers demographically that advertisers could then target and reach more directly (Malhotra, 2002).

*Communication Scholars*

Often times the technologies that are analyzed in technology adoption research are communication technologies (Campbell 2011; Collan & Tetard 2007; Constantiou 2008; Lei-da 2008; Reagan 2002). Understanding the processes behind how these communication technologies are adopted should be a goal of communication scholars. The knowledge provided by a conceptual understanding of how communication technologies are adopted could inform any number of studies that examine these technologies themselves (Lei-da 2008; Bouwman et al. 2012), digital realms of communication accessed through these technologies e.g. social networking websites, e-mail, SMS, gaming networks, (Leong et al. 2011; Young, Kelsey, & Lancaster 2011; Dansieh 2011; Ledbetter & Kuznekoff 2012), and studies that examine communication technologies as an extension of oneself (Vishwanath & Chen 2008). Secondly, technology adoption research may be of great import to communication scholars as

communication factors may influence technology adoption. Research has shown communication as a critical component of the diffusion of innovations (Rogers 2003). More work from communication scholars can determine the role communication plays in technology adoption. Finally, technology adoption research adds to a well-established cross-discipline body of literature on the subject with work from communication, psychology, sociology, computer, and information science scholars having developed a number of theories on the subject (Schneberger & Wade 2008, Halawi & McCarthy 2006).

The four sections of this literature review discuss previous technology adoption theories, the lazy user theory of solution selection, switching costs, and peer communication. A discussion of past theories reveals a gap in the literature concerning technology adoption at the personal level among interpersonal networks. The lazy user theory of solution selection purports to fill this gap by suggesting new concepts of importance for communication researchers, some of which are empirically examined in this report.

*Previous Technology Adoption Theories*

Though numerous technology adoption theories exist as of February 2012, a gap in the literature arguably exists where current theory fails to explain technology adoption among smaller groups of individuals. Theories present in current literature include the theory of reasoned action or TRA (Fishbein and Ajzen 1975), the theory of planned behavior or TPB (Ajzen 1991), the technology acceptance model or TAM (Davis 1986, Davis, Bagozzi, & Warshaw 1989), the unified theory of acceptance and use of

technology or UTAUT (Venkatesh et al 2003), the task-technology fit or TTF (Goodhue and Thompson 1995), the cognitive fit theory or CFT (Vessey 1991, p. 220), and the diffusion of innovation theory or DOI (Rogers 2003). A brief outline of some of these major theories (TRA/TPB, TAM, UTAUT, and DOI) is presented in the following paragraphs. Each paragraph explains a theory and describes how it fails to accurately explain technology adoption in intimate interpersonal networks.

*Theory of Reasoned Action (TRA) and the Theory of Planned Behavior (TPB)*

The theory of reasoned action is a model of attitude-behavior consistency developed by Fishbein and Ajzen (1975). The model assumes that people rationally calculate the benefits of engaging in a particular action and carefully consider how others will view the behavior under consideration (Perloff 2008, p.130). Ajzen branched out to create his theory of planned behavior which adds the component of perception of behavioral control to the attitude and subjective norm components of the theory of reasoned action (Perloff 2008, p.135). With regard to technology adoption and communication device use the theory offers a model to explain the intention to, and perhaps use of, a piece of communications technology. The benefits of using the TRA and TPB to examine communication device use in interpersonal networks include both theories individual focus and their emphasis on the importance of attitude toward a technology and cultural norms as predictor variables. The drawbacks of TRA and TPB include their general nature and lack of specificity. Both TRA and TPB fail to address important elements of technology use that might otherwise account for much unexplained variance in an empirical model based on either of these theories.

*Technology Acceptance Model (TAM)*

The technology acceptance model is an extension of Fishbein and Ajzen's theory of reasoned action developed and refined by Fred Davis (1986, Davis, Bagozzi and Warshaw 1989). Similar to TRA, TAM replaces many of TRA's attitude measures with two new concepts, perceived usefulness and perceived ease of use. TAM's advantages stem from the addition of these two technology-focused concepts that deal with enhanced performance and effortlessness. Many studies replicating Davis' original work have provided empirical evidence on the relationship between usefulness, ease of use, and adoption of a technology (Adams, Nelson & Todd, 1992; Davis, 1989; Hendrickson, Massey & Cronan ,1993; Segars & Grover, 1993; Subramanian, 1994; Szajna, 1994). Still, TAM may have disadvantages for the purposes of examining communication technologies. The theory comes from an information systems discipline that fails to incorporate a communications perspective. Such a perspective, which includes communication variables in an empirical model, may prove essential to a fuller understanding of the adoption of communication devices.

*Unified Theory of Acceptance and Use of Technology (UTAUT)*

The unified theory of acceptance and use of technology (UTAUT) attempts to both improve on the TAM model and consolidate several theories on technology adoption (Venkatesh et al. 2003). Aspects of the TRA, TPB, and TAM are clearly seen in UTAUT which seeks to explain user intention to use an information system, as well as the subsequent behavior of users. A concept unique to UTAUT includes the use of demographic information as moderating variables. UTAUT examines how age, gender,

and experience (with a given technology) interact with other variables measuring performance expectancy, effort expectancy, and social influence to affect technology adoption decisions (Venkatesh et al. 2003). UTAUT's focus on demographic information as moderating variables could prove useful to modeling communication technology use as applications of UTAUT have demonstrated the importance of the user characteristics of age, gender, and technological prowess (Koivimäki, Ristola, & Kesti 2008; Eckhardt, Laumer, & Weitzel 2009; Curtis et al. 2010; Verhoeven, Heerwegh, and De Wit 2010). Detractors of UTAUT cite the complexity of the theory (Bagozzi 2007; Van Raaij & Schepers 2008). Additionally, none of the theory's many concepts address communication variables which make it possibly less than ideal for addressing the adoption of communication devices.

*Diffusion of Innovations Theory (DOI)*

The theory of the diffusion of innovations applies to most innovations, from food to technology, and tracks the spread of a particular innovation through a society. There are four crucial elements identified in the diffusion of innovations, the *innovation* itself, and the *communication* of that innovation in a *social system* over *time* (Rogers 2003, p.11). The type of individual faced with the innovation is also considered important by the theory. An individual's willingness to accept an innovation is steered by her characteristics, placing her in one of five categories of individual innovativeness - innovators, early adopters, early majority, late majority or laggards (Rogers 2003). Other factors that affect the rate of adoption in the theory include relative advantage, compatibility, complexity, trialability, and observability (Rogers 2003, p.58). DOI theory

has been applied and adopted widely to explain general innovation adoption. The theory is especially useful for examining innovation adoption on a grand scale at the organizational level. One example comes from Skalski, Neuendorf, and Atkin (2006), who use the theory to predict the adoption of media information technology programs at the doctoral level among university communication departments. DOI does not limit itself to general innovation, but adequately describes large-scale technology adoption as well. Applying DOI theory to the adoption of telecommunications technology, Reagan (2002) describes what makes predicting the success of new telecommunications innovation so difficult through historical examples with qualitative theoretical reasoning. Still another positive aspect of DOI is that the theory may lend itself to both qualitative and quantitative work. Another study uses DOI as a framework for a mathematical model to predict audience interest in adopting digital television. A computer assisted telephone survey paired with multiple regression successfully described a number of factors (age, gender, media use, new technology adoption) significantly related to eagerness to adopt digital television (Atkin, Neuendorf, Jeffres, & Skalski, 2003). Indeed, at first glance DOI offers relatively few disadvantages and could be seen as the ideal theory for a communication scholar's examination of technology adoption. DOI incorporates communication variables, offers qualitative and quantitative viewpoints, situates itself at the societal level, and is arguably adaptable to technology adoption problems and questions. However, a case can be made for another technology adoption theory focused at the individual level that examines the communication among interpersonal networks, and that looks specifically at technology adoption and not general innovation in the broad

sense like DOI. Collan and Tetard's (2007) Lazy User Model (LUM) could provide the basis for such an alternative theory that might prove of value to communication scholars.

*Lazy User Model of Solution Selection / Lazy User Model (LUM)*

The lazy user model of solution selection (LUM) was presented by Collan in 2007 (further developed by Collan and Tétard again in 2007) and tries to explain how an individual selects a solution to fulfill a need from a set of possible solution alternatives. According to the LUM, a user is likely to choose the solution that demands the least effort (Collan and Tétard 2007; Collan and Tétard 2009). The LUM relies upon a parsimonious, Occam's razor approach suggesting technology users are lazy and will often select a solution to their problem(s) that is easiest for them to achieve. This principle of least effort that the LUM relies can be found in works on a variety of topics such as physics (Zipf 1949), linguistics (Cancho & Solé 2003), musical composition (Zanette 2006), and medicine (Reichle et al 2000).

A solution selection process is sparked by the need of the user. The *user need* is an "explicitly specifiable want", either tangible or intangible, that can be fulfilled completely" (Collan and Tétard 2009, p. 3). Hence, the user need defines the set of possible solutions that will solve a problem. The need for information, such as flight timetables, is an example of an intangible need that can be fulfilled completely, by several different solutions; in order to acquire flight timetables one might use text-TV, the Internet, call the airport or another party who possesses information on flight timetables, or send a text message asking for the information. A tangible need may be, for example, the need for a tram ticket, which can be bought from a kiosk, a vending machine, the tram

driver, or with a mobile phone. The concept of user need applies to any situation where a user has a specific need that can be fulfilled completely by one of several solutions (Collan and Tétard 2009). These several solutions to user need are then limited by the *user state***.** The user state is a description of both the user and the circumstances that surround her at the time of the need. Characteristics of the user include factors such as age, gender, social and cultural belonging and experience, plus any type of experience that is relevant for solving or fulfilling the problem or need in question. Considering the flight timetables example, the possible solutions would be limited by the user state. Thus, a user with no access to Internet would be forced to exclude this option from her list of possible solutions. For an elderly person with no or little experience of the Internet or text messaging, using the mentioned solutions would require a much higher effort than using the phone book (to call the airport), which we can assume that she generally uses to find telephone numbers. Using the Internet to acquire the timetables is not impossible in her case; however, this option requires the user to learn to use the solution first. Making an effort to learn the new solution is unlikely in the case of the elderly woman, since another good solution is already familiar. A mobile phone user sitting on a bus, in urgent need of the timetables, would be forced to exclude most other alternatives than using the mobile phone to acquire the needed information, whether it be to use SMS, the Internet, or phoning someone. Consequently, the user state limits the set of possible solutions that fulfill a need or solve a problem (Collan and Tétard 2009). To complete the process, a user is said to select a solution from those remaining to her that carries the least amount of effort. Effort, as defined in *Lazy User Theory: A Dynamic Model to Understand User*

*Selection of Products and Services* (Collan and Tétard 2009, p. 3), can be measured in various forms, and is the combination of money spent, time used, and energy used (physical or mental work). The different forms of effort do not necessarily carry equal weight, but may vary from situation to situation.

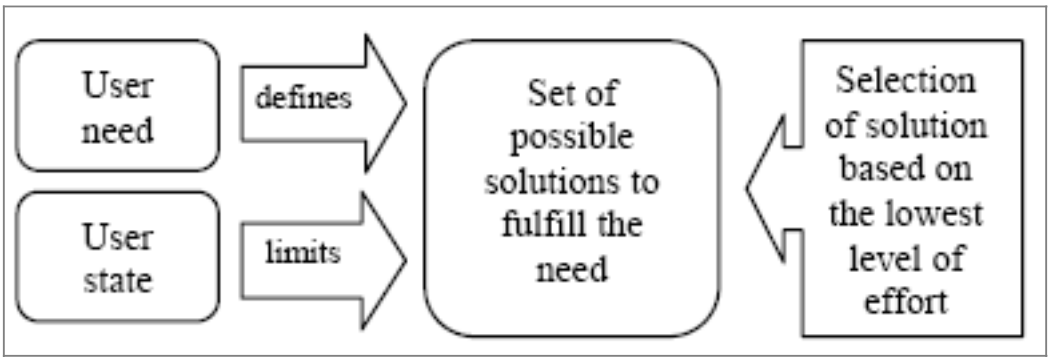


Figure 1 The Lazy User Model of Solution Selection

*Switching Costs and Peer Communication*

The concepts of the lazy user model were originally developed by Collan and Tetard to successfully gauge mobile device selection and use in individuals. The LUM accomplishes this by providing a qualitative framework with the concepts of user need, user state, and the path of least resistance to model the adoption decisions of mobile users. Yet, it may be possible to extend the theory beyond the use of mobile devices to account for the adoption of any technology. The conceptual devices within LUM could be used to examine the adoption and use of a broad range of communication devices. A LUM study of technology adoption would seek to understand how user desires (user need) and user characteristics (user state) affect individual technology adoption decisions. Still, other components might be added to the LUM to enhance its utility as an empirical tool for communication researchers. Two possible additions to the LUM that would improve its capabilities are switching costs and peer communication.

*Switching Costs*

The concept of switching costs deals with the concept of user effort. In the LUM a user is said to choose the solution which requires the least effort. Switching costs refer to the time, energy, and monetary costs a user needs to spend in order to learn how to use a new solution. In other words, the barriers from moving from established way of doing things to a new system. For instance, switching from a laptop to a tablet device when reading and composing e-mails would require a user to learn a new operating system and how to function without a keyboard. Another example, switching from reading print books to using an e-reader necessitates a user investing in an e-reader device. Switching

costs have been identified as a factor affecting the adoption of goods and services in several economic and marketing studies (Hess and Richart 2002; Chen and Hitt 2006; Klemperer 1987a; Klemperer 1987b; Nilssen 1992) and have many implications for the LUM. Users make a trade-off between previous investments and future possible investments (Colland and Tetard 2009, p.5). A user will be reluctant to switch to a new solution if that new solution does not offer superior advantages. Therefore, users will prefer situations where switching costs are minimal. Though there are a variety of switching costs, Collan and Tetard assert that learning-based switching costs are the most significant determinants of solution selection (2009). When making a technology adoption decision the LUM asserts that people will go about acquiring information about a solution to estimate the switching costs involved, especially learning switching costs. However, the LUM fails to outline how this process of information gathering is achieved.

*Peer Communication*

In the LUM users seek the easiest solution, perhaps by avoiding high switching costs. The users in the model seek information to make better technology adoption decisions, but where they discover this information may not fully be understood. It is possible that the individuals modeled in the LUM turn to their interpersonal networks for information on solutions to meet their needs. A user may consult his family, friends, and others such as product reviewers on e-commerce websites or members of an online forum dedicated to a particular technology. This proposed information-gathering behavior may be either conscious or unconscious and such peer-communication could prove a significant additional component to the LUM. Additionally, peer communication may have special

significance when considering communication devices. Communication devices facilitate peer communication and may catalyze discussions that make a user more aware of possible solutions to meet her needs.

Taken together, the additional concepts of peer communication and switching costs enhance the LUM. Before the addition of these two concepts the LUM acts as a qualitative framework for mobile researchers seeking to understand the selection of products and services. Expanding the LUM beyond mobile devices to consider technology adoption in general allows for the examination of the concepts within the LUM, user need, user state, and the effects of laziness. Adding the concept of switching costs to the model grants insight into the process of how one technology is chosen over another, an important determination in technology adoption research. Finally, and of most importance to communication scholars, the additional concept of peer communication allows for the examination of communication's role in technology adoption at the interpersonal level. Communication is a arguably understudied realm within technology adoption research of interest to laypersons, scholars, and businesses.

The design of the study outlined below is quantitative in nature, opposed to prior qualitative work with the LUM. The reasoning behind this empirical approach, derived from the paradigmatic perspective of objective empiricism, is twofold. The first reason for this method is to validate the tennants of the LUM. By mathematically testing the concepts of the theory researchers can assess the relative importance of each concept. Additionally, scholars can compare mathematical models of the LUM to the theoretical original in order to determine if the LUM needs revision. The second purpose for an

empirical method is to craft measures for the constructs of the lazy user model, so that it can be applied in a number of contexts. Quantitative work with DOI, TAM, and UTAUT have aided scholars. Establishing measures for the LUM would possibly allow it to analyze technology adoption behavior in a similar fashion.

*Hypotheses*

The modified version of the LUM proposed above and used in this study aims to measure user need, user state, switching costs, and peer communication. Two hypotheses and two research questions aim to examine the relationships among these concepts.

Based on the logic advanced above, individual characteristics alongside peer communication should predict communication device satisfaction. This leads to the first hypothesis:

H1: User state (user characteristics) and peer communication affect switching costs (device satisfaction)

Similarly, individual user characteristics along with peer communication should predict laziness, or the underlying method of communication device selection (solution selection), as indicated in the second hypothesis:

H2: User state (user characteristics) and peer communication affect laziness

Knowing what communication devices individuals possess and how they use those devices allows for an assessment of user need. Furthermore, trends in current communication device ownership and use provide opportunities to conjecture about possible future trends. Two research questions are therefore advanced:

RQ1: What communication devices do individuals own?

RQ2: How do people use the communication devices they possess?

# CHAPTER IV

# METHODS

## *Pilot Study*

Prior to the actual study, a pilot study was conducted to assess the questionnaire that would later be used in the main study. A copy of the pilot study questionnaire is available in Appendix B and a copy of the final version of the questionnaire is supplied in Appendix C. The participants in the pilot study included 31 undergraduate students enrolled in a communication course on research design at a large, urban, midwestern university. The students received course credit for their participation, which included taking a paper version of the web survey and offering their critique. Their responses to the pilot study were later included in the final study after visual and statistical comparisons of the data from each group found no glaring differences among responses. Some changes recommended by the students were included in the final survey. The question, "I have considered switching to communications devices different from those I

currently use" had a typo where the two Likert items, Somewhat Agree and Agree, switched positions. The section of questions labeled "switching costs" was changed to "communication device satisfaction" as the students felt this new label better reflected the questions being asked in this section and considered the new terminology less confusing. In the user/hardware characteristics and communication device use sections, the answer option television was added for the question, "what devices do you use to watch television and movies?". Also in these sections the answer of desktop pc was removed from the question asking "which communication devices do you carry with you everyday?". A final change to these sections and the final questionnaire overall was the additional option of gaming console to most questions on hardware characteristics and communication device use.

*Participants*

The participants in the one-shot web based survey on technology adoption came from three groups. The first group was a convenience sample of 165 undergraduate students at large, urban, midwestern university. This group included those students who participated in the pilot test. The students were recruited from three communication courses and were offered extra credit (course credit for pilot test members). The second group included 47 individuals recruited through the social networking website Facebook via snowball sampling. The final group of 472 individuals was gathered from the social news website reddit.com. The website divides itself into sub-reddits or smaller forums for people interested in a particular topic. The web-survey was posted to several sub-reddits that focus on topics relevant to the survey. The forums selected included technology,

video game, computer building, and social science sub-reddits. The survey results of the convenience sample of redditors (reddit.com users) was visually and statistically compared to the results of the Facebook and student surveys. After a visual inspection of the data cells no obvious differences among the three groups were evident. Further examination of descriptive statistics for each of the three samples similarly did not reveal any overt characteristics that might differentiate the groups. Thus, these three groups of individuals were combined into one large group for the purposes of data analysis. After removing one case where the individual failed to complete the majority of the survey, a total of 683 respondents remained; the respondents were comprised of 165 undergraduate students, 47 Facebook users, and 471 redditors. As an additional incentive to undergraduate students as well as an incentive to Facebook users and redditors, a random drawing for an Amazon Kindle e-reader was held for those who opted in at the conclusion of the survey.

Other pertinent demographic information about the participants in the study includes age, sex, and race. The age of participants ranged from 18 to 84 with an average age of 24. The median age of participants was 22 and the mode or most common age among participants was 20. Overall, age was positively skewed toward younger individuals and heavily peaked through those aged 18-25. This is evidenced visually in the histogram of participant age in Appendix D. The indicated biological sex of participants included 167 females and 409 males. The other 107 participants failed to indicate their biological sex. 65.6% (448 individuals) of respondents identified themselves as White/Caucasian, 15.5% (106 individuals) of respondents did not indicate a race, 5.6% of respondents (38

individuals) identified themselves a Asian or Pacific Islander, 5.1% (35 individuals) of respondents identified themselves as African American, 4% (27 individuals) identified themselves as Other, 3.5% (24 individuals) identified themselves as Latino/Hispanic, and 0.7% (5 individuals) identified themselves as American Indian or Alaskan Native. Two pie charts showcasing a percentage and frequency breakdown of race are exhibited in Appendix E.

*Measures*

The web-based questionnaire used in the study was divided into six sections, User Characteristics, User/Hardware Characteristics, Communication Device Use, Communication Device Satisfaction (Switching Costs), Peer Communication, and Demographic Information. Each section of the questionnaire was designed to assess a particular component of the modified LUM identified in the literature review. The User Characteristics section contained 21 7-item Likert scale questions. The 21 questions were designed as an instrument to assess the LUM concept of user state. The User/Hardware Characteristic section contained four questions analyzing what communication devices people own versus those that they wish to have. The four questions were designed as an instrument to measure the LUM concept of user need. The Communication Device Use section contained 11 questions that measure which communication devices individuals use to perform various tasks like checking and composing e-mails as well as speaking and messaging friends and family. The questions in the next section, Communication Device Satisfaction were designed as an instrument to measure the concept of switching costs. Ten, 7-item Likert questions about attitudes toward switching to new

communication devices composed the instrument. The next section of questions, titled Peer Communication, were designed to measure the concept of peer communication. The 13, 7-item Likert questions asked participants about their discussions with friends, family, and strangers about communication technology and their referencing of digital sources (online reviews, groups, and forums) on the topic of communication devices. The final section of the questionnaire asked about demographic information. Respondents were asked about their age, biological sex, and race. Other questions in the final section of the report were targeted toward college students and asked questions about student's status as either living on campus or being a commuter student. Another student-centered question inquired about where students completed most of their homework assignments. The last set of questions in the demographic portion of the questionnaire assessed participant's Internet use, cell phone use, text messaging use, amount of time spent playing video games alone and with others. These questions were straightforward and direct in nature e.g. when asking about Internet use participants were asked, "How many minutes did you spend on the Internet yesterday?". One indirect question in the final section was designed to assess interpersonal network size by asking the question, "How many close friends do you have?".

*Research Design*

In the most basic sense, the design of this study is a one-shot web-hosted survey. It used a convenience sample later subjected to exploratory factor analysis and multiple regression. A questionnaire was created to empirically measure the concepts of the lazy user theory which could later be analyzed with multivariate statistics. The questionnaire

was first drafted in a Word document and later digitized and uploaded to the survey hosting website kwiksurveys.com after having been presented to the university's internal review board (IRB) for approval. From here, the web-survey was printed out and paper versions were supplied to the pilot test group who completed the survey and provided feedback. The web survey was revised and the recruitment process began. A convenience sample of undergraduate students were recruited from three communication classes at a large, urban, midwestern University. Students were provided with slips of paper on which the web address to the survey was written; these same students were also sent an e-mail through their university e-mail accounts which contained the same URL for the web survey. Concurrently, a snowball sample of Facebook users was recruited through a link to the survey posted by the researcher as a status update on his Facebook page. Also during this time recruitment began on the social news website reddit.com as several relevant sub-reddits were notified about the study and provided with the web survey address. All three groups, students, Facebook users, and redditors, were made aware of the incentive for participating in the study, being entered into a prize drawing for an Amazon Kindle e-reader. The web -hosted survey was set up so that results from the three groups would be stored separately. Upon accessing the survey, participants were presented with a document asking for their informed consent to participate in the study (see Appendix A for a copy of this document). Data collection continued for a two-week period in late November 2011. The survey was closed December 1, 2011, to begin the process of data analysis. The paper surveys from the pilot study and the results from all three groups of web-surveys were translated into separate SPSS data files for analysis in

IBM's SPSS 20 program. A visual comparison of the data and a comparison of descriptive statistics among pilot testers, students, Facebook users, and redditors displayed no hugely differing characteristics among the four groups, so the SPSS data files and their results were merged into a single group and SPSS data file for analysis.

The single merged data file was inspected and its data cleaned and altered in the following ways. Responses where participants failed to complete a majority of the survey were discarded. Similarly, responses to questions about the length of time spent on the Internet, cell phone, and playing video games (both alone and with others) had to be reworked in some cases. Two initial questions about Internet and cellphone use asked for minutes spent, while the two later video game questions asked for hours spent. Responses where individuals had clearly and accidentally substituted minutes instead of hours in these later video game questions were changed to reflect hours (e.g. writing 45 [hours] when there are only 24 in a day clearly means that said person wanted to indicate 45 minutes or 0.75 hours of video game playing). Another recode was present in the data transformation of each Likert scale item. The data provided from kwiksurveys.com displayed the Likert variables as string variables with text instead of numerical values (Strongly Agree instead of a 1 and Strongly Disagree instead of a 7). The string variables were transformed into numerical variables. Questions in the User/Hardware Characteristics and Communication Device Use sections were dummy coded to tally the ownership and use communication devices and account for the multiple answers many respondents indicated in these sections. From the open-ended response components of these questions, two more communication device categories were added to those already

under analysis. The two devices added were e-readers and portable media players.

In all, four sets of statistical tests were performed on the data set derived from the web-questionnaire. The first were a set of descriptive statistics used in the decision to combine the three sample groups. The second were a set of descriptive statistics surveying communication device ownership and use within the combined data set to provide answers to research questions one and two. The third tests performed utilized exploratory factor analysis (EFA). The EFA was used to create factors out of the questionnaire instruments measuring user characteristics, communication device satisfaction, and peer communication. The factors derived from these EFA tests were used in three multiple regression analyses. These multiple regressions were the final statistical test of the study to either support or disconfirm hypotheses one and two. All three multiple regressions used demographic information as block 1 (specifically age, biological sex, and race), the user characteristic factors as block 2, and peer communication factors as block 3. The dependent variable for the first multiple regression was the factor for communication device satisfaction. The second and third multiple regressions examined the dependent variable of laziness through the two survey items, "I feel that learning how to use a new communication device would be too much work," and "I feel that using other communication devices would require less effort," which was reverse coded to represent, "other communication devices would require more effort."

# CHAPTER V

# RESULTS

*Descriptive Statistics and Sample Integration*

The decision to integrate the three sample groups (students, Facebookers. and redditors) was made after comparing charts generated from each sample's respective data sets. Five questions were chosen to represent the set of five instruments and sections within the questionnaire. Histograms and pie charts were created from the data provided from these five questions, with one chart for each sample and three samples per question. The first question "I have a strong enthusiasm for technology, especially new technology" comes from the user characteristics section. Comparing three histograms from each of the three samples (see Appendix F) the results are similar. The responses from each sample are both negatively skewed and peaked around answers indicating strong technology enthusiasm. The second question, "Indicate which of the following communication devices you own" with the possible answers of non-Internet capable

cellphone, Internet-capable smartphone, slate/tablet pc, netbook (mini laptop computer), notebook (laptop computer), desktop pc, and later e-reader and portable media player, comes from the hardware characteristics section. Examining three pie charts showing frequencies of communication device ownership among the three samples again yields similar results (see Appendix G). The three largest categories are the same for all sample groups, notebook, smartphone, and desktop pc ownership. Still similar among the three samples are the percentage of individuals who own notebooks, smartphones, and desktops. Other devices occupying comparable space on each of the three charts are netbook, tablet, and cellphone ownership. One notable difference among the samples is the student sample, which indicated owning more gaming consoles than the other two sample groups. The third question, "I have considered switching to communications devices different from those I currently use" comes from the communication device satisfaction section. Examining the three histograms (Appendix H) reveals mixed results, where Facebook user and redditor's responses are slightly similar while students responses are dissimilar. Both redditors and Facebookers have distributions that are neither positivity or negatively skewed but are notably peaked around neutral responses. Student responses are similarly un-skewed, but are also not as peaked. More students indicated higher than average responses either agreeing or strongly agreeing to considering switching communication devices, instead of below average ones. Despite differences in the distribution of the mean, the mean statistic of considering switching communication devices among the student, Facebook ,and reddit samples is practically identical (Appendix H). The fourth question, "I find myself engaging in conversations

with my friends about communications technology" comes from the peer communication section. A comparison of histograms (Appendix I) shows that the three charts are primarily similar. The charts are neither positively or negatively skewed and peaked around neutral responses. The data from redditors and students is more heavily peaked than the data from Facebookers. The fifth question is actually a series of questions about demographics, specifically age, biological sex, and race (Appendix J). Gender was one notable difference in demographic composition among students, Facebook users, and redditors. The redditor sample is primarily composed of men with 331 males and 57 females. Contrastingly, the student and Facebook user samples contained slightly more women than men, 66 males and 88 females for students, and 12 males and 22 females for Facebook users. All three samples included adults with a range of ages (from 18 to 84 years of age) with the vast majority of respondents having reported ages between 18 to 30 years of age. The three samples also were similar racially. The two largest categories of responses for each sample were White/Caucasian followed by those who opted not to indicate their race.

Having examined and compared the descriptive statistic charts for each sample, the decision was made to integrate the three data sets into one. Despite some differences in the demographic makeup of each sample (Appendix J), the technology all individuals had access to was comparable (Appendix G). Patterns of response to survey questions representative of larger scales were more similar than dissimilar (Appendix F, H, and I), demonstrating a lesser potential for sample bias. Combining the three samples was advantageous in terms of sample size, statistical power, and representation. Merging the

samples increased the sample size. An increased sample size allows for greater statistical power and confidence in the results derived from the survey. Additionally, the combined sample represents a wider variety of individuals than a similar study focusing solely on college students.

*General Descriptive Statistics*

Given their univariate nature and foundational importance, the answers to the two research questions are presented before the results for the hypotheses. Descriptive statistics analyzed users' hardware characteristics and use to provide the information necessary to answer research questions one and two. Additional results report on participants' media use. The findings for communication device ownership are tabled in Appendix K. Of the 683 respondents 35.1 percent (240 individuals) reported owning non-Internet capable cellphones while 65.3 percent (446 individuals) said they own Internet capable smartphones. All individuals reported owning one type of phone and a very small minority (3 individuals) own both types. Slightly more than 14 percent (96 individuals) reported owning tablet computers, 16.5 percent (113 individuals) own netbook computers, 75.3 percent (514 individuals) own notebook computers, and 63.1 percent (431 individuals) said they own desktop computers. Slightly more than 11 percent (77 individuals) reported owning own gaming consoles, and 4.5 percent (31individuals) own portable media players. Finally, 1 percent (7 individuals) said they own e-readers. The only noteworthy and significant correlation among device ownership was a highly negative correlation between non-Internet capable cellphone and Internet capable smartphone ownership ($r = -0.743$, $p < 0.01$)

Another set of descriptive statistics was specifically aimed at research question two, communication device use. The findings are tabled in Appendix K. Of the 683 respondents, the following individuals carry each of these devices daily: 30.2 percent (206 individuals) carry non-Internet capable cellphones, 64.4 percent (440 individuals) carry Internet-capable smartphones, 5.3 percent (36 individuals) carry tablets, another 5.3 percent (36 individuals) carry netbooks, 22.3 percent (152 individuals) carry notebooks, 0.9 percent (6 individuals) carry game consoles (e.g. game boy, playstation portable), 4.8 percent (33 individuals) carry portable media players, and 0.6 percent (4 individuals) carry e-readers. The following individuals use the following devices at either work or school: 24 percent (164 individuals) use non-Internet capable cellphones, 53.3 percent (364 individuals) use Internet-capable smartphones, 6.4 percent (44 individuals) use tablets, 10.1 percent (69 individuals) use netbooks, 49.9 percent (341 individuals) use notebooks, 26.4 percent (180 individuals) use desktops, 0.6 percent (4 individuals) use game consoles, 3.5 percent (24 individuals) use portable media players, and another 0.6 percent (4 individuals) use e-readers. The following individuals would like to own the following devices: 0.7 percent (5 individuals) would like non-Internet capable cellphones, 23 percent would like Internet-capable smartphones, 36 percent (246 individuals) would like tablets, 16.1 percent (110 individuals) would like netbooks, 10.7 percent (73 individuals) would like notebooks, 11.7 (80 individuals) would like desktops, 2.3 percent (16 individuals) would like game consoles, 0.1 percent (one person) would like a portable media player, and 0.3 percent (2 individuals) would like e-readers. The following individuals use the following devices to write papers: .3 percent (2 individuals) use non-

Internet capable cellphones, 4.1 percent (28 individuals) use Internet-capable smartphones, 2.3 percent (16 individuals) use tablets, 8.2 percent (56 individuals) use netbooks, 64.9 percent (443 individuals) use notebooks, 59.4 percent (406 individuals) use desktops, and nobody uses game consoles. The following individuals use the following devices to check e-mail: one percent (7 individuals) use non-Internet capable cellphones, 54 percent (369 individuals) use Internet capable smartphones, 9.7 percent (66 individuals) use tablets, 11.9 percent (81 individuals) use netbooks, 66.6 percent (455 individuals) use notebooks, 60.3 percent (412 individuals) use desktops, no person uses game consoles, 2.5 percent (17 individuals) use potable media players, and 0.4 percent (3 individuals) use e-readers to check e-mail. The following individuals use the following devices to compose e-mail: 0.9 percent (6 individuals) use non-Internet capable cellphones, 42 percent (287 individuals) use Internet capable smartphones, 7.3 percent (50 individuals) use tablets, 12.7 percent (87 individuals) use netbooks, 67.1 percent (458 individuals) use notebooks, 59.9 percent (409 individuals) use desktops, no person uses game consoles, 1.9 percent (13 individuals) use portable media players, and 0.1 percent (one person) uses an e-reader to compose e-mails. The following individuals use the following devices to talk to friends in real time: 23 percent (157 individuals) use non-Internet capable cellphones, 55.8 percent (381 individuals) use Internet capable smartphones, 5 percent (34 individuals) use tablets, 8.5 percent (58 individuals) use netbooks, 53.7 percent (367 individuals) use notebooks, 47.6 percent (325 individuals) use desktops, 1.8 percent (12 individuals) use game consoles, and 0.6 percent (4 individuals) use portable media players to talk to friends. The following individuals use

the following devices to message friends: 22.4 percent (153 individuals) use non-Internet capable cellphones, 56.8 percent (388 individuals) use Internet capable smartphones, 6 percent (41 individuals) use tablets, 10.7 percent (73 individuals) use netbooks, 57.8 percent (395 individuals) use notebooks, 51.8 percent (354) use desktops, one percent (7 individuals) use gaming consoles, 1.9 percent (13 individuals) use portable media players to message friends. The following individuals use the following devices to look at social networks: 1.8 percent (12 individuals) use non-Internet capable smartphones, 47.3 percent (323 individuals) use Internet capable smartphones, 9.2 percent (63 individuals) use tablets, 10.5 percent (72 individuals) use netbooks, 62.8 percent (429) individuals use notebooks,51.5 percent(352 individuals) use desktops, 0.7 percent (5 individuals) use gaming consoles, 2.5 percent (17 individuals) use portable media players, and 0.1 percent (one person) uses an e-reader to look at social networking websites. The following individuals use the following devices to play games: 3.2 percent (22 individuals) use non-Internet capable cellphones, 37.6 percent (257 individuals) use Internet capable smartphones, 8.1 percent (55 individuals) use tablets, 5.7 percent (39 individuals) use netbooks, 46.1 percent (315 individuals) use netbooks, 55.1 percent (376 individuals) use desktops, 18 percent (123 indviduals) use game consoles, and 2.9 percent (20 individuals) use portable media players to play games. The following individuals use the following devices to watch television shows or movies: 0.3 percent (2 individuals) use non-Internet capable cellphones, 14.6 percent (100 individuals) use Internet capable smartphones, 8.1 percent (55 individuals) use tablets, 7.6 percent (52 individuals) use netbooks, 56.5 percent (386 individuals) use notebooks, 50.2 percent (343 individuals) use desktops,

17.6 percent (120 individuals) use televisions, 7.3 percent (50 individuals) use game consoles, and 1.2 percent (8 individuals) use portable media players to watch television shows or movies. The following individuals use the following devices to read news: 0.9 percent (6 individuals) use non-Internet capable cellphones, 47 percent (321 individuals) use Internet capable smartphones, 9.2 percent (63 individuals) use tablets, 11.4 percent (78 individuals) use netbooks, 64 percent (437 individuals) use notebooks, 56.7 percent (387 individuals) use desktops, 0.6 percent (4 individuals) use game consoles, 2.5 percent (17 individuals) use portable media players, another 2.5 percent (17 individuals) read actual newspapers. The following individuals use the following devices to talk, in real time, to their families: 24.9 percent (170 individuals) use non-Internet capable cellphones, 53.9 percent (368 individuals) use Internet capable smartphones, 4.2 percent (29 individuals) use tablets, 4.8 percent (33 individuals) use netbooks, 34.4 percent (235 individuals) use notebooks, 26.5 percent (181 individuals) use desktops, 1.5 percent (10 individuals) use gaming consoles, and 0.3 percent (2 individuals) use portable media players to talk to family. The following individuals use the following devices to message family: 21.1 percent (144 individuals) use non-Internet capable cellphones, 54.2 percent (370 individuals) use Internet capable smartphones, 5 percent (34 individuals) use tablets, 8.3 percent (57 individuals) use netbooks, 44.1 percent (301 individuals) use notebooks, 36.6 percent (250 individuals) use desktops, 0.7 percent (5 individuals) use gaming consoles, and 0.9 percent (6 individuals) use portable media players to message family. In all, the data generated from these sets of descriptive statistics provides enough information to accurately answer research questions one and two. The answers on device

ownership and use inform the next analyses by mapping individual experiences with communication devices. The descriptive statistics show what communication devices people are most familiar with and utilize to accomplish specific tasks. These individual experiences with technology affect concepts used in the next analyses. User state is affected by individual proficiency with communications devices, and the breadth and depth of device ownership and use in the population determines the extent of knowledge peer communicators can communicate. Additionally, possible complications in the next analyses could be explained by current trends in communication device ownership and use moderating the concepts within both hypothetical relationships.

*Exploratory Factor Analysis (EFA)*

Three exploratory factor analyses were conducted on three sets of 7-item Likert scale responses from the questionnaire. The three sections of questions utilized were user characteristics, device satisfaction, and peer communication. Each factor analysis was completed with principal components factoring, orthogonal rotation, and an extraction cutoff of eigenvalue=1.0 (i.e., latent root criterion).

For the 21 user characteristics questions factor analysis resulted in six factors. The eigenvalues of the six factors range from 1.528 (7.274% of total variance) to 2.846 (13.554% of total variance). The full six factor solution explained 59.87% of the total variance. The measure of sampling adequacy was 0.777 (i.e., “meritorious” according to Hair, Anderson, Black & Babin, 2010) and the Bartlett’s test of sphericity resulted in a highly significant chi-square (8791.985, $p<0.001$), indicating the appropriateness of this set of 21 items for factor analysis. Communalitites ranged from a low of 0.375 to a high

of 0.732, indicating a reasonable amount of shared variance for all items.

The six factors were given labels based on those items loading highly and cleanly on each factor. Factor 1 was titled “portable tech-ers” due to high positive loadings for responses on items measuring the importance of communication device portability and the technical specifications of communications devices, upgradibility, longevity, and computing power. Factor 2 was titled “onliners” due to high positive loadings for responses on items measuring the importance of Internet access and talking to friends online. The “onliners” group also exhibited moderately-high positive loadings for responses on items measuring the importance of getting new communication devices frequently and using media on the go. Factor 3 was titled “workers” due to high positive loadings for responses on items measuring communication device use to communicate with peers and superiors in the classroom and workplace. Factor 4 was titled “Relationship-ers” due to high positive loadings for responses on items assessing communication device use to talk to family and friends. Factor 5 was titled “technophilers” due to a high positive loading on an item measuring enthusiasm toward technology and a high negative loading on an item measuring difficulty when learning how to operate new technologies. Factor 6 was titled “sated users” due to a high negative loading on an item measuring the outdatednesss of communications devices owned and a high positive loading on an item measuring communication devices’ communication need fulfillment.

For the 10 device satisfaction questions factor analysis resulted in three factors. The eigenvalues of the three factors range from 1.235 (12.352% of total variance) to 2.876

(28.763% of total variance). The full three factor solution explained 58.807% of the total variance. The measure of sampling adequacy was 0.749 (i.e., "meritorious" according to Hair, Anderson, Black & Babin, 2010) and the Bartlett's test of sphericity resulted in a highly significant chi-square (1373.146, $p<0.001$), indicating the appropriateness of this set of 10 items for factor analysis. Communalitites ranged from a low of 0.458 to a high of 0.712, indicating a reasonable amount of shared variance for all items.

The three factors were given labels based on those items loading highly and cleanly on each factor. Factor 1 was titled "switchers" due to high positive loadings on three items measuring considerations of other communication devices and thee moderately-high negative loadings on three items measuring current communication device satisfaction. Factor 2 was titled "retainers" due to high positive loadings on two items assessing learning difficulties associated with new device use and one other moderately-high positive loading on an item measuring data loss. Factor 3 was titled "misers" due to a high positive loading on one item measuring the importance of monetary costs as a barrier to switching communication devices.

For the 13 peer communication questions factor analysis resulted in three factors. The eigenvalues of the three factors range from 2.450 (18.850% of the total variance) to 2.825 (21.727% of the total variance). The full three factor solution explained 59.46% of the total variance. The measure of sampling adequacy was 0.806 (i.e., "meritorious" according to Hair, Anderson, Black & Babin, 2010) and the Bartlett's test of sphericity resulted in a highly significant chi-square (2843.280, $p<0.001$), indicating the appropriateness of this set of 13 items for factor analysis. Communalities ranged from a

low of 0.357 to a high of 0.836, indicating a reasonable amount of shared variance for all items.

The three factors were given labels based on those items loading highly and cleanly on each factor. Factor 1 was titled “conversationalists” due to a high negative loading on an item measuring avoiding the topic of communications devices among friends and high positive loadings on items assessing engaging friends, family, and strangers in conversations about communication technology. Factor 2 was titled “web-referencers” due to high positive loadings on three items measuring the influence of web content, reviews, and groups on communication device adoption. Factor 3 was titled “peer superiors” due to high positive loadings on three items gauging the influence of friends on a person’s communication device adoption. Factor 3 also had one additional item loading positively and moderately-high detailing communication device adoption after visiting a brick and mortar store.

*Multiple Regression*

Not all factors generated from the three exploratory factor analysis tests were used in the multiple regressions testing hypothesis one and two. Of the six factors in the first exploratory factor analysis only the first four, portable tech-ers, onliners, workers, and relationshipers, were chosen as a four factor solution for user characteristics. The last two factors, technophilers and sated users had the two lowest eigenvalues among the six factors. Additionally, these two factors each had only two items loading into their respective factors while the chosen four factors each had three or more items loading into them (see Appendix K, User Characteristics). Thus, due to statistical weaknesses the

factors technophilers and sated users were removed from the final four factor solution of portable tech-ers, onliners, workers, and relationshipers.

Of the three factors in the second EFA only the first, switchers, was chosen as a single factor solution for device satisfaction. The last two factors, retainers and misers, had much lower eigenvalues than the first factor (see Appendix K, Device Satisfaction). Six items loaded into factor one (switchers), while there were only three items loaded into factor two (retainers), and a single item loaded into factor three (misers). As the focus of this study is on what drives individuals to switch communication devices, the statistically weaker factors stressing communication device retention and economic considerations were discounted. Therefore, retainers and misers were removed from the final single factor solution of switchers.

Of the three factors in the third EFA, all three factors (conversationalists, web-referencers, and peer superiors) were included in the three factor solution for Peer Communication. Each of the factors had high eigenvalues (see Appendix K, Peer Communication). Additionally, each factor had three or more items loaded into them. Peer Communication is a major conceptual device in the study's alternative lazy user model. Ergo, all varieties of Peer Communication are important and each factor was included in the three factor solution of conversationalists, web-referencers, and peer superiors.

In all, three multiple regressions were performed to test hypotheses one and two. The first multiple regression examined the single factor solution from the second EFA (switchers) as the dependent variable, and the results support hypothesis one. Three

blocks of independent variables were used in this first multiple regression. Block one contained three items from the questionnaire assessing demographic information. The first two questions on age and biological sex were unaltered from their appearance in the questionnaire, “How old are you?” and, “Are you male or female?”. The third question assessing race was dummy coded from the questionnaire to measure whether or not somebody is White/Caucasian. Block two contained the four-factor solution from EFA one representing user characteristics, portable tech-ers, onliners, workers, and relationshipers. Block three contained the three-factor solution from EFA 3 representing peer communication, conversationalists, web-referencers, and peer superiors. These same three blocks of independent variables examining demographics, user characteristics, and peer communication were used in all three multiple regression analyses in this study. Graphic representations of the three multiple regressions performed provide visual clarification in Appendix M and the tabled results of each multiple regression are displayed in Appendix N.

An inspection of the final tolerances and condition indexes revealed no problems with multicollinearity in multiple regression one. The lowest tolerance was 0.788 for EFA1 factor 3: workers, well above the 0.10 threshold recommended by Hair, Anderson, Black & Babin (2010). Thus, the set of independent variables did not suffer from extreme multicollinearity, and passed the test for inclusion in a multiple regression. Multiple regression analysis one indicated 14.7% of the variance in the dependent variable, Communication Device Switching, was explained by the full set of independent variables, including measures of user characteristics, peer communication, and the

demographics of age, biological sex, and race. The adjusted R-squared showed 12.9% of the variance can be explained by these variables when adjusting for the number of independent variables and sample size. Multiple regression one was statistically significant as $p > 0.001$. Specifically analyzing each of the blocks of independent variables in multiple regression one found that block 1, demographics accounted for 0.3% of the variance in communication device switching, but was found not significant. Block two, user characteristics, accounted for the majority of explained variance. This block accounted for 11.7% of the variance in communication device switching when controlling for block 1 (significant at $p < 0.001$). The third block, peer communication, accounted for 2.8% of the variance in communication device switching when controlling for blocks 1 and 2 (significant at $p < 0.01$). Examining the correlation table from multiple regression one reveals more detailed information about the effects of the independent variables. The items that were not significant from block one had extremely weak correlations that were all close to zero. These findings indicate the demographics of age, biological sex, and race have no effect on communication device switching. Items from blocks 2 and 3 have positive and significant correlations, with the notable exception of relationshipers from block 2 which has the weakest positive correlation ($r = 0.060$) and is not significant. The findings from these final two blocks confirm hypothesis one as the concepts of user state and peer communication affect device satisfaction or switching costs (Appendix M).

The second and third multiple regressions assessed two items from the study's questionnaire, representing laziness, as dependent variables and confirm the second

hypothesis. The questionnaire item that acted as a dependent variable in multiple regression two was,"I feel that learning how to use a new communication device would be too much work". The three blocks of independent variables used in multiple regression two were the same ones utilized in multiple regression one (see Appendix M). An inspection of the final tolerances and condition indexes revealed no problems with multicollinearity in multiple regression two. The lowest tolerance was 0.789 for EFA 1 factor 3: workers, well above the 0.10 threshold recommended by Hair, Anderson, Black & Babin (2010). Thus, the set of independent variables did not suffer from extreme multicollinearity, and passed the test for inclusion in a multiple regression. Multiple regression analysis two indicated 11% of the variance in the dependent variable, laziness/too much work, was explained by the full set of independent variables, including measures of the demographics of age, biological sex, and race, user characteristics, and peer communication. The adjusted R-squared showed 9.1% of the variance can be explained by these variables when adjusting for the number of independent variables and sample size. The total R-squared is statistically significant at the $p < 0.001$ level, thus the independent variables' effect is not likely to have occurred by chance. The second block, peer communication, was the strongest, while user characteristics accounted for the least amount of variance.

The first block, demographics, accounted for 3.9% of the variance, and was significant at $p < 0.001$. The second block, user characteristics accounted for 0.8% of of the variance after canceling out block 1, but was not significant. The third block dealt with peer communication and represented 6.3% of the variance after allowing for blocks

one and two (significant at $p < 0.001$). The correlation table from multiple regression two yielded interesting results. The four factor solution representing user characteristics had no noteworthy correlations with the dependent variable of laziness/too much work as all the user characteristics variables were so close to r=0 to be negligible. None of these four factors of user characteristics were significant. In the peer communication block EFA 3 factors 1 and 2 conversationalists and web referencers were negatively correlated to the dependent variable, conversationalists ($r = -0.122$), web referencers ($r = -0.221$). Contrastingly, a slight positive correlation existed between EFA 3 factor 3 and laziness/too much work ($r = 0.118$). All three EFA 3 factors were significant. In the demographic block, age was positively correlated ($r = 0.102$), sex was negatively correlated ($r = -0.169$), and race, recoded to White-ness was slightly negatively correlated ($r = -0.068$). Biological sex was considered significant at $p < 0.001$ and age was also significant at $p < 0.102$. It should be noted that biological sex was dummy coded as 1=male and 0=female so that it could also be interpreted as male-ness. Ergo, the negative correlation between maleness and laziness/too much work ($r = -0.169$) could also be read as a positive correlation between femaleness and laziness/too much work ($r = 0.169$) (Appendix N). The results of multiple regression two indicate that age and biological sex predict learning related laziness to a small extent where older and female individuals are more likely to indicate that learning how to use a new technology is too much work. Additionally, peer communication predicts learning related laziness where conversationalists and web-referencers are less likely to and peer superiors are more likely to indicate learning how to use a new technology is too much work. User

characteristics are not significantly related to learning laziness. Before drawing a conclusion about how user characteristics fail to prove hypothesis two, examining multiple regression three's results would be prudent.

The second questionnaire item that acted as a dependent variable in multiple regression two was, a reverse coded version of the question"I feel that using other communication devices would require less effort". The reversed item effectively reads as, "I feel that using other communication devices would require more effort". The three blocks of independent variables were the same ones utilized in multiple regression one and two (see Appendix M). An inspection of the final tolerances and condition indexes revealed no problems with multicollinearity in multiple regression three. The lowest tolerance was 0.803 for EFA 1 factor 3: workers, well above the 0.10 threshold recommended by Hair, Anderson, Black & Babin (2010). Thus, the set of independent variables did not suffer from extreme multicollinearity, and passed the test for inclusion in a multiple regression. Multiple regression analysis three indicated 9.9% of the variance in the dependent variable, laziness/more effort, was explained by the full set of independent variables, including measures of the demographics of age, biological sex, and race, user characteristics, and peer communication. The adjusted R-squared showed 7.9% of the variance can be explained by these variables when adjusting for the number of independent variables and sample size. Multiple regression three was statistically significant as $p > 0.001$. Block 1, demographics, accounted for 1.5% of the variance in laziness/more effort but was found not significant. Block 2, user characteristics, represented 6.6% of the variance in laziness/more effort after allowing for block 1 and is

significant at $p < 0.001$. Block 3, peer communication, also had a significant effect ($p < 0.05$) accounting for 1.8% of the variance in laziness/more effort. The correlations from multiple regression three were straightforward. Correlations from block 1 variables were not significant and so weak as to be negligible. All of the four block 2 variables were negatively correlated with the dependent variable laziness/more effort, portable tech-ers ($r = -0.147$), onliners, ($r = -0.188$), workers ($r = -0.016$), and relationshipers ($r = -0.096$). Portable tech-ers, onliners, and relationshipers were significant correlations while workers, the weakest correlation, was not. Having examined the results of multiple regression two and three, hypothesis two is confirmed. Multiple regression two confirms that peer communication affects laziness while multiple regression three confirms that the user state and reaffirms that peer communication affect laziness. In all, portable techers, onliners, relationshipers, conversationalists, and peer superiors are less likely to indicate that using other communication devices would require more effort.

# CHAPTER VI

# DISCUSSION

From the results section enough information was acquired by the study to support hypotheses one and two and answer research question one and two. The implications of these findings, possible limitations present in this study, and suggestions for future research comprise the final section of this report. The discussion section begins with the ramifications of research questions one and two followed by hypotheses one and two and concludes with the topics of limitations in the study's design and implementation as well as possible direction for new scholarship in this area.

*Research question one*

Research question one asks the question, "What communication devices do individuals own?" Although limited to the data provided by this study and its three sample groups of students, Facebookers, and redditors the collected information on communication device ownership allows for some conclusions to be drawn and other

inferences to be made. Examining the samples separately (see Appendix G) the most striking difference is student's ownership of gaming consoles. The student sample population owned many more game consoles than either Facebookers or redditors. It could be that console gaming is more popular with college students because of the fact that they are a younger population more willing to embrace video gaming as a form of entertainment. Student culture could facilitate console gaming where networks of students play together. Another explanation exists in numerous marketing campaigns targeted at college bound students that package laptop computers together with consoles, and market the gaming console as an essential back to school item (Pinota, 2011). A few tests run solely on the student sample determined that roughly half of student respondents do not play video games alone (53.9%) or with friends (49.1%) while the other half play for an hour or more both individually (46.1%) and in groups (50.9%). Additionally positive correlations were found between game console ownership and playing video games individually ($r = 0.285$) and with others ($r = 0.283$). This finding indicates that game console ownership among college students may be much greater than other populations. Great care should be taken by communications and media scholars performing video game related studies when attempting to generalize their findings to a larger population. Examining the three sample groups in a combined fashion yields further intriguing results. Of the 683 people surveyed, every single person owned some type of cellular phone. This result alone speaks volumes about the widespread adoption of cellular phone technology and the prevalence of cell phones mark them as an important target for communications researchers. Comparing Internet-capable

smartphones to their non-Internet capable cellphone counterparts shows that 65.3% of participants own smartphones while 35.1% own non-Internet capable cellphones. Few individuals own both a smartphone and a non-Internet capable cellphone. These statistics on phone ownership reflect changes in the mobile device market that predict the growing popularity of smart phones eventually leading to the non-Internet capable cellphone's extinction (Martin 2008). To further demonstrate this trend, 23% of those who responded to the study's questionnaire indicated that they desire to own a smartphone. Tablet ownership included 14.1% of the combined sample population, but this study expects it to rise with time, with 36% of the population marking that they would like to own a tablet. Notebook ownership exceeds Desktop PC ownership, 75.3% compared to 63.1% which might indicate a preference for mobility and portability in computing and communication devices.

*Research question two*

Research question two asks the question,"How do people use the communication devices they possess?" This is a more complicated question than research question one, but the data collected from the study still allows for some conclusions and inferences about communication device use. Cellphones are the communication devices most frequently carried by individuals daily, followed by notebook computers. Nearly a third of individuals carry non-Internet capable cellphones while almost two thirds carry smartphones. These statistics closely resemble statistics on phone ownership and suggest that most individuals carry cellphones on a daily basis. The facts about what devices people carry with them become increasingly interesting when examining what

communication devices people use at either work or school. Three of the most frequently used communication devices are the same as those carried daily by individuals, non-Internet capable cellphone, smart phones, and laptop computers. Looking at e-mailing behavior, more people check e-mails on their smartphone, 54% of individuals, than compose e-mails on their smartphone, 42% of individuals, possibly due to difficulties with typing. Social networking occurred on all devices somewhat proportionally to device ownership with the notable exception of social networking on game consoles, less than one percent networking on consoles compared to more than ten percent ownership. This finding could support a claim that the ability to access social networking websites from any type of communications device has led to their widespread adoption in all formats. Sound advice to technology gatekeepers seeking to spread innovation or individuals or corporations hoping to spread a message would be to make these communications and innovations accessible to as large an array of communication technologies as possible. One example could be the importance of developing a mobile version of a website. In creating a web-page that can be accessed by a mobile phone in addition to more traditional notebook and desktop computers an individual or organization potentially gains a much larger audience. Perhaps due to low game console ownership, only 18% of the combined sample population indicated gaming on consoles. More individuals reported playing games on computers (55.1% desktop, 46.1% notebook) and Internet capable smart phones (37.6%). Comparing how respondents talk to (synchronous) and message (asynchronous) both their friends and family, individuals use notebooks and desktops to communicate with friends more frequently than family

members. Almost 60% use notebooks while 51.8% of those surveyed use desktops to message friends compared to 44.1% notebook and 36.6% desktop use to message family. Slightly over 50% use notebooks and 47.6% of respondents use desktops to talk to friends while 34.4% use notebooks and 26.5% use desktops to talk to family. Non-capable cellphone and smartphone use to message and speak with friends is largely similar to phone communications with family. There could be a host of reasons for more computer-mediated communication among friends than family. Older family members could be less tech-savy or spend less of their free time on computers when compared to friends, a group likely comprised of younger peers. Groups of friends could be required to interact on computers for work or school groups that later facilitates computer-mediated interaction outside of these groups. Culturally, it may be considered taboo to communicate with family members online. Communicating with family through public forums like social networking websites might be uncool, or associating with family online could cause unwanted privacy violations. A final reason could be that talking on the phone with family is considered more warm or personal than talking on the computer, perhaps considered as a less personal medium reserved for friends.

*Hypothesis One*

Hypothesis one asks if the concepts of user state and peer communication affect a third concept, switching costs (as defined by lazy user theory), otherwise known as device satisfaction. Before interpreting the results of multiple regression one, which confirmed this hypothesis, it is important to explore how the three sets of exploratory factor analysis (EFA) categorized the variables that account for user state, peer

communication, and switching costs. EFA one separated those items measuring user characteristics into six categories, later re-worked into the four factor solution of portable tech-ers, onliners, workers, and relationshipers. The first and strongest factor to emerge from EFA one, portable tech-ers, captures people stressing the importance of portability and mobility in their communications devices. The identification of this first factor highlights how mobility affects the ways people assess, adopt, and communicate using communication devices. The relationship between carrying a communication device every day and using it at either work or school (identified by the descriptive statistics assessing research questions one and two, see Appendix K) validates mobility as a vital criteria in a communications device. Those technologies which were most desired by research participants were all mobile communications technologies, tablets (36% desire), smartphones (23% desire), and netbooks (16.1% desire). One interpretation of these results is that for a communication device to connect us to others, it must first be personal. With the ability to access a communication device on our person and at all times, an individual gains the ability to connect and communicate with others anywhere instantaneously. The mobility criteria is the most important factor for the adoption of new communication devices. This emphasis on mobility criteria may be critical for researchers studying technology adoption of communication devices. Additionally, mobility's role might interest communication researchers studying the effects of presence with mobile technologies (Bracken, Pettey, Rubenking, & Guha 2008) and attachments to and use of mobile devices. Within the portable tech-ers factor, respondents also emphasized the importance of upgradibility, longevity, and computing power as being

influential in their technology adoption decisions. Technology gatekeepers should strive to develop communication technologies that are not only increasingly portable, but powerful, upgradable, and long lasting. The second factor from EFA one, onliners, grouped individuals who value being connected to the Internet. Their desire for the Internet access was so great that they "felt lost" without it and "needed" to be able to talk to friends online (Appendix L). The fact that desire for Internet access was the second strongest factor, after portability but before work or relationships, suggests that the Internet access and connection a communication device provides is more important than the communication or other tasks that the same communication device facilitates. Taken together with portability, the online factor introduces a pattern of two descending levels of importance criteria a person could use in selecting a communication device. Of first importance is portability, which can be said to anchor a communication device to oneself. Of secondary importance is a device's online potential where it links to the Internet and networks of resources, people, and places. It is possible with the online criteria that the specific function of the communication device is not taken into account as much as general access. The online criteria that separates connection to networks from specific functions that result from that connection may be an important distinction. Perhaps part of the reason communicators invest time and energy in communications devices is not for the act of communication through these devices itself, but rather for the aura of being "in touch" or "connected" that results from their use. These increased feelings of connectedness could be present in computer-mediated communication while absent in face-to-face interactions, vice versa, or may be motivated by psychological factors. In

any case, the concept of connectedness might explain individual preferences for mediated or interpersonal interaction. The third factor from EFA one is workers who indicated that communication devices helped them better communicate to and accomplish tasks with peers, classmates, and co-workers. The fourth and final factor from EFA one is relationshipers who stressed communication device's ability to help them to communicate with family and friends more easily. Their placement in the EFA shows that individuals weigh considerations about a devices ability to help them coordinate and accomplish tasks more heavily than those related to purely recreational interaction. Continuing the pattern from above, after considering the personal nature of a communication device (portable tech-ers) and its potential to connect to others and information (onliners), the third level of consideration is utilitarian (workers) with the fourth being social (relationshipers). Overall EFA one allows us to distinguish the more general concept of user state by exploring the underlying user characteristics that compose it. Ranking the importance of these user characteristics establish their level of influence when examining how user state affects switching costs in hypothesis one and laziness in hypothesis two.

The third EFA generated a three factor solution to account for peer communication. The three factors were conversationalists, web referencers and peer superiors. Each factor identifies a distinct strategy for consulting others about communication devices. Conversationalists are open do not hesitate to refer to both friends and strangers about communication devices talking about them frequently and asking others about those devices they might be unfamiliar with. Web referencers consult Internet forums, web reviews and other online resources about communication devices. Peer superiors prefer to

refer to close friends about communication devices learning from their experiences and having the opportunity to handle their devices. The breakdown of these factors helps to identify the techniques individuals use to derive information about communication devices from their interpersonal networks. This categorization is also useful as it indicates the relative popularity of each method. The peer communication tactics presented here are of use to individuals and organizations seeking out information on new technologies. A person or businessman might align their current behavior with one of these three examples and attempt to use adopt a differing communication behavior to access new knowledge about innovations present in their social networks.

The second EFA created three factors to explain the concept of switching costs. From the three factors the strongest factor, switchers, was chosen as a single factor solution. Switchers represent those individuals dissatisfied with their current communication devices who seek change. Using the switchers factor as a dependent variable in the study's first multiple regression analysis allows for an explanation of how user state and peer communication affect the desire to change communication devices.

The results from multiple regression one confirmed hypothesis one and reported that 14.7% of the variance in device dissatisfaction could be explained by both user characteristics (user state) and peer communication. Between user characteristics and peer communication, user characteristics were the stronger predictor accounting for 11.7% of the variance while peer communication accounts for 2.8% of the variance. These statistics indicate that individual merit-based assessments of technology have a greater impact on attitudes toward switching communication devices than information-

seeking communications among strangers, friends, and Internet sources. The implication is that the user state and peer communication affect device satisfaction, the consideration of switching costs, and communication device adoption. The confirmation of hypothesis one proves that the lazy user theory's concept of user state is valid within an empirical model and that the inclusion of communication variables (peer communication) is warranted. The successful inclusion of communication variables in this study suggest that including communication variables in technology adoption theories that do not possess them could account for previously unexplained variance in the empirical models these theories present. A final consideration concerning multiple regression one is the third block of independent variables that were excluded from the analysis. The demographics of age, biological sex, and race were not statistically significant predictors of communication device satisfaction. The lack of demographic effects on switching costs is surprising because most social scientists expect to have to control for the possible influence of age, biological sex, and race. The insignificance of block 1 establishes that demographics do not affect switching costs and that men and women of all ages and races experience similar difficulties in decisions surrounding the adoption of communication devices.

*Hypothesis Two*

Hypothesis two asks if the concepts of user state and peer communication affect a third concept central to the lazy user theory, laziness. The results from multiple regression two and three confirmed hypothesis two. In multiple regression two, 11% of the variance was explained largely by peer communication, accounting for 6.3% of the variance, and

demographics, accounting for 3.9% of the variance. In multiple regression three 9.9% of the variance was explained, now mostly by user characteristics which accounted for 6.6% of the variance. As each of the two multiple regressions identify user characteristics and peer communication, respectively, as major contributors to laziness; hypothesis two was supported. In multiple regression two, peer communication predicts individual attitudes about how learning how to use a new communication device is too much work. In multiple regression three, user characteristics predict individual attitudes about how using other communication devices would require more effort. These two multiple regressions provide information on the concepts that affect laziness, the driving force behind the process of solution selection in the lazy user theory (Collan & Tetard 2007). Predicting laziness aids in the understanding of the underlying method of communication device selection. Additionally, understanding how laziness incorporates itself into a process of lazy solution selection empirically can allow for an objectified mathematical model of the lazy user theory. A final point is found in the fact that two separate multiple regressions, assessing laziness, achieved two considerably different sets of results, each identifying different primary predicative concepts. A possible implication of the differences between the two multiple regressions is that the seemingly innocuous concept of laziness is more complex than anticipated. One question assessing laziness in communication device use asked about "learning difficulties" while the other emphasized "effort".

*Possible Limitations/Recommendations for Future Research*

A host of limitations are present in the current study that may be overcome in future research. Convenience samples were used rather than a more rigorous random sampling

method. To increase the generalizability of future studies random sampling methods should be utilized when possible. Selection bias may have been a factor. In the three groups chosen for the study students, Facebookers, and redditors might have had pro-technology leanings. From its inception the study, which relied on a web-hosted survey, excludes those individuals without easy access to a computer. Future studies should explore minority groups, immigrant populations, and individuals with a low socioeconomic status to uncover the differences, if any, with their adoption and use of communication devices. The decision to combine the three sample populations may have increased the statistical power of the results, but at the expense of being able to hedge three less powerful sets of results off one another. The participants in the study were primarily male and not exceptionally diverse racially. Furthermore, biological sex was examined rather than gender and gender's role in technology adoption and communication device use should be assessed in future studies. A lack of established scales were used in this study. Scales to index communication device ownership and use and the concepts of the lazy user theory, user state, user need, switching costs, and laziness need to be created and later honed through testing in a number of studies. Within the questionnaire, differences between netbook and notebook computers were negligible and they perhaps should have been combined into one category. The added communication devices of portable media players and e-readers seem unreliable and underrepresented. Not having portable media players and e-books available as multiple choice options for respondents in the initial survey may be the cause of their possible misrepresentation. Questions about social networking behavior were general. Participants

could have easily thought that social networking was limited to websites like Facebook and Google+ while a host of social network like features exist on other websites, such as Youtube.com, or through gaming platforms like Xbox Live, Steam, or the Playstation Network. A problem revealed by the last two multiple regressions is the complications that arose from laziness being derived from two single questionnaire items. Future scholarship should assess laziness with a series of questionnaire items later subjected to factor analysis. A more judicious method might provide a better measure of laziness and a greater conceptual understanding of it. The three multiple regressions in the report utilized confirmatory speculation where the researcher selects the variables to be run in the analysis. Other empirical studies of the lazy user theory might employ a stepwise method where the choice of predictive variables is carried out by an automatic procedure.

The modified version of the lazy user theory present in this report presents many opportunities for research. This study specifically targeted individuals and personal-consumer communication technologies. Other work empirically testing the lazy user model and attempting to expand its scope beyond mobile devices might consider looking at the organizational level and at the communication technologies and services utilized by these organizations such as web-services, domain hoisting, and research database access. Also, with its original emphasis on mobile communication technologies empirical versions of the lazy user theory might be used to predict the adoption of mobile services. Concepts from the lazy user theory like user state, user need, and laziness could be adapted to work within other technology adoption theories. Most importantly, future scholarship in technology adoption should consider the heuristic potential of

communication variables. The success of peer communication as an independent variable in this study encourages the discovery of new ways communication affects people's use of technology and the role communication plays in the information age.

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# APPENDICES

# Informed Consent

Title: New technology use and communication
Investigators: Dr. Paul Skalski, School of Communication, Cleveland State University (216) 687- 5042
James Hayes, School of Communication, Cleveland State University (216) 570-4303

We are studying the relationship between new media use and communication. In order to do this we are asking you to complete a survey asking a variety of questions about your use of new technologies and how you communicate with others.

Participation is completely voluntary and you may withdraw at any time, without penalty. The study will take about 20 minutes to complete, and you will be eligible to enter into a drawing to win an Amazon Kindle after finishing the survey. A month after the research has concluded, one participant will be selected at random to receive the Kindle. Students will receive extra credit or research participation credit for taking part, if their professor agrees to give them credit. There is no consequence for not participating in this study, and the risks involved are minimal and do not exceed those of daily living.

Your responses to the survey will be anonymous. Your name will not be collected or appear anywhere on the survey and complete privacy will be guaranteed. Names and contact information recorded for extra credit or research participation credit or the Kindle drawing will be collected and stored separately, maintaining your anonymity.

For further information regarding this research please contact Dr. Paul Skalski (216) 687-5042, email: p.skalski@csuohio.edu, or James Hayes at (216) 570-4303, email: jamesdwighthayes@gmail.com.

If you have any questions about your rights as a research participant you may contact the Cleveland State University Institutional Review Board at (216) 687-3630.

Clicking to continue will constitute your informed consent to participate in the survey as outlined above.

I am 18 years or older and have read and understood this consent statement and agree to participate.

Continue ->

Appendix B Pilot Questionnaire

# User Characteristics

Please indicate the extent of your agreement with each of the following statements by selecting a multiple choice option to indicate how much you agree or disagee

I have a strong enthusiam for technology, especially new technology.

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

I like being able to access the Internet wherever I go

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

I feel lost without Internet access

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

I need to be able to talk to my friends online

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

Technology helps me to communicate with my friends more easily

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagre**

I need to be able to talk to my family online

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

Technology helps me to communicate with my family more easily

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

Technology helps me better communicate with classmates

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

Technology helps me to better communicate with teachers/professors

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

Owning a piece of communication technology makes accomplishing tasks at school easier

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

I need to have some way for people to contact me in case of an emergency

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

Using media on the go is important to me

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

The longevity of my communications devices is important to me

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

The upgradeibility of my communication devices is important to me.

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

The computing power of my communication devices is important to me

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

The mobility of my communications devices is important to me.

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

I like to be able to carry my communications devices with me.

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

The communications devices I use currently fulfill all of my communication needs

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

It is difficult for me to learn how to use a new piece of technology

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

A person should get a new communications device frequently

**Strongly Agree  Agree  Somewhat Agree  Neutral  Somewhat Disagree  Strongly Disagree**

I feel that my current communications device is out of date

**Strongly Agree  Agree  Somewhat Agree  Neutral  Somewhat Disagree  Strongly Disagree**

# User/Hardware Characteristics

Indicate which of the following communication devices you own (check as many as apply):

Non-Internet capable cellphone

Internet-capable smartphone

Slate/tablet pc

Netbook (mini laptop computer)

Notebook (laptop computer)

If you own a communications device or devices other than those listed above specify them here:

Indicate which of the following devices you carry with you every day (check as many as apply):

Non-Internet capable cellphone

Internet-capable smartphone

Slate/tablet pc

Netbook (mini laptop computer)

Notebook (laptop computer)

Desktop pc

If you carry a communications device or devices with you everyday other than those listed above specify them here:

Indicate which of the following devices you use while at school (check as many as apply):

Non-Internet capable cellphone

Internet-capable smartphone

Slate/tablet pc

Netbook (mini laptop computer)

Notebook (laptop computer)

Desktop pc

If you use a communications device or devices at school other than those listed above specify them here:

Indicate which of the following devices you do not own but would like to own (check as many as apply):

Non-Internet capable cellphone

Internet-capable smartphone

Slate/tablet pc

Netbook (mini laptop computer)

Notebook (laptop computer)

Desktop pc

If there is a communication device or devices that you do not own but would like to own other than those listed above specify them here:

# Communication Device Use

## Which devices do you use to accomplish the following tasks (check as many as apply):

write papers

Non-Internet capable cellphone

Internet-capable smartphone

Slate/tablet pc

Netbook (mini laptop computer)

Notebook (laptop computer)

Desktop pc

If there is a device or devices you use to write papers other than those above specify them here:

check e-mail

- Non-Internet capable cellphone
- Internet-capable smartphone
- Slate/tablet pc
- Netbook (mini laptop computer)
- Notebook (laptop computer)
- Desktop pc

If there is a device or devices you use to check e-mail other than those above specify them here:

compose or write e-mails

- Non-Internet capable cellphone
- Internet-capable smartphone
- Slate/tablet pc
- Netbook (mini laptop computer)
- Notebook (laptop computer)
- Desktop pc

If there is a device or devices you use to compose or write e-mail other than those above specify them here:

talk to friends in real time

- Non-Internet capable cellphone
- Internet-capable smartphone
- Slate/tablet pc
- Netbook (mini laptop computer)
- Notebook (laptop computer)
- Desktop pc

If there is a device or devices you use to talk to friends in real time other than those above specify them here:

message friends
Non-Internet capable cellphone
Internet-capable smartphone
Slate/tablet pc
Netbook (mini laptop computer)
Notebook (laptop computer)
Desktop pc

If there is a device or devices you use to message friends other than those above specify them here:

look at social networking sites
Non-Internet capable cellphone
Internet-capable smartphone
Slate/tablet pc
Netbook (mini laptop computer)
Notebook (laptop computer)
Desktop pc

If there is a device or devices you use to look at social networking sites other than those above specify them here:

play games
Non-Internet capable cellphone
Internet-capable smartphone
Slate/tablet pc
Netbook (mini laptop computer)
Notebook (laptop computer)
Desktop pc

If there is a device or devices you use to play games other than those above specify them here:

watch television shows or movies
Non-Internet capable cellphone
Internet-capable smartphone
Slate/tablet pc
Netbook (mini laptop computer)
Notebook (laptop computer)
Desktop pc

If there is a device or devices you use to watch television shows or movies other than those above specify them here:

read news
Non-Internet capable cellphone
Internet-capable smartphone
Slate/tablet pc
Netbook (mini laptop computer)
Notebook (laptop computer)
Desktop pc

If there is a device or devices you use to read news other than those above specify them here:

talk to family in real time
Non-Internet capable cellphone
Internet-capable smartphone
Slate/tablet pc
Netbook (mini laptop computer)
Notebook (laptop computer)
Desktop pc

If there is a device or devices you use to talk to family in real time other than those above specify them here:

message family
Non-Internet capable cellphone
Internet-capable smartphone
Slate/tablet pc
Netbook (mini laptop computer)
Notebook (laptop computer)
Desktop pc

If there is a device or devices you use to message family other than those above specify them here:

## Switching costs

Please indicate the extent of your agreement with each of the following statements using a 1 to 7 scale, with "1" indicating "strongly disagree" and "7" indicating "strongly agree." You may circle any number from 1 to 7 to indicate how much you agree or disagree.

I have considered switching to communications devices different from those I currently use

**Strongly Agree Somewhat Agree Agree Neutral Somewhat Disagree Strongly Disagree**

I am satisfied with the communications devices I currently use

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

I feel that using other communication devices would make my life easier

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

I feel that using other communication devices would require less effort

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

I feel that learning how to use a new communication device would be too much work

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

I would only change the communication device I use if I was forced to (e.g. if a device breaks)

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

I do not feel that other communication technologies are superior to what I already use

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

The monetary cost of switching to a different communication technology is too high.

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

Switching to a new communications would mean having to learn a new operating system/way of doing things

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

I lose data whenever I switch to a new piece of communications technology

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

# Peer Communication

Please indicate the extent of your agreement with each of the following statements using a 1 to 7 scale, with "1" indicating "strongly disagree" and "7" indicating "strongly agree." You may circle any number from 1 to 7 to indicate how much you agree or disagree.

I find myself engaging in conversations with my friends about communications technology

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

When I see a stranger using a piece of technology I have never seen before, I ask them about it

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

I talk with my family about different communications technologies

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

At times, I use my friends' communication's devices.

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

I hardly ever talk to my friends about communication devices

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

I consult my friends before buying a new communications device

When I see other people using a communications device, I ask them how they like it.

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

Talking with friends influenced my decision to purchase a communications device

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

I have decided to purchase communication devices after getting the opportunity to use those of friends.

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

I made the decision to purchase a communication device after handling one at a store.

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

I look at what other people have to say online about new communication devices.

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

Looking at online forums and support groups influenced my decision to purchase a communications device.

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

Looking at online reviews influenced me to get a communications device

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

# Finally, some questions about yourself:

How old are you?

Are you male or female?
Male
Female

How would you define your race?
Black/African American
White/Caucasian
Latino/Hispanic
Asian or Pacific Islander
American Indian or Alaskan Native
Other
If you answered 'other' to the question above please use the following space to indicate your race

If you are a college student answering this questionnaire do you:
live on campus
commuter student

How many minutes did you spend on the Internet yesterday?

How many e-mails did you send out yesterday?

How many text messages did you send out yesterday?

How many calls did you make on a cell-phone yesterday?

If you made calls: How long were you on your cellphone (answer in minutes spent on

cellphone)?

Do you ever use a computer to make telephone calls?
Yes
No

If yes: How many phone calls did you make using a computer yesterday?

During an average weekday, how many hours do you spend playing video games with another person or group?

During an average weekday, how many hours do you spend playing video games by yourself?

How many close friends do you have?

If you are a student, where do you do most of your homework?
at home
at school
at work
other

If you answered other to the above question, please specify where you do your homework

If you are completing this survey for extra credit please give your last name, the name of your instructor, and the name of class you are to recieve the extra credit in, in the space below.

Finally, if you wish to be considered in the incentive for this survey, a drawing to win an Amaon Kindle e-reader, please provide some method for contacting you (an e-mail address or telephone number) in the space below.
That concludes the survey. Thank you very much for participating!

If you are interested in the results of this study and/or would like to contact this study's author for any other reason you may contact him at

jamesdwighthayes@gmail.com

# User Characteristics

Please indicate the extent of your agreement with each of the following statements by selecting a multiple choice option to indicate how much you agree or disagee

I have a strong enthusiam for technology, especially new technology.

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

I like being able to access the Internet wherever I go

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

I feel lost without Internet access

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

I need to be able to talk to my friends online

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

Technology helps me to communicate with my friends more easily

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagre**

I need to be able to talk to my family online

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

Technology helps me to communicate with my family more easily

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

Technology helps me better communicate with classmates

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

Technology helps me to better communicate with teachers/professors

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

Owning a piece of communication technology makes accomplishing tasks at school easier

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

I need to have some way for people to contact me in case of an emergency

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

Using media on the go is important to me

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

The longevity of my communications devices is important to me

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

The upgradeibility of my communication devices is important to me.

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

The computing power of my communication devices is important to me

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

The mobility of my communications devices is important to me.

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

I like to be able to carry my communications devices with me.

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

The communications devices I use currently fulfill all of my communication needs

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

It is difficult for me to learn how to use a new piece of technology

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

A person should get a new communications device frequently

**Strongly Agree  Agree  Somewhat Agree  Neutral  Somewhat Disagree  Strongly Disagree**

I feel that my current communications device is out of date

**Strongly Agree  Agree  Somewhat Agree  Neutral  Somewhat Disagree  Strongly Disagree**

# User/Hardware Characteristics

Indicate which of the following communication devices you own (check as many as apply):

If you own a communications device or devices other than those listed above specify them here:

Indicate which of the following devices you carry with you every day (check as many as apply):

Cellphone (without Internet capability)
Smartphone (with Internet capability)
Slate/tablet pc
Netbook (mini laptop computer)
Notebook (laptop computer)
Game Console

If you carry a communications device or devices with you everyday other than those listed above specify them here:

Indicate which of the following devices you use while at school (check as many as apply):

Cellphone (without Internet capability)

Smartphone (with Internet capability)

Slate/tablet pc

Netbook (mini laptop computer)

Notebook (laptop computer)

Desktop pc

Game Console

If you use a communications device or devices at school other than those listed above specify them here:

Indicate which of the following devices you do not own but would like to own (check as many as apply):

Cellphone (without Internet capability)

Smartphone (with Internet capability)

Slate/tablet pc

Netbook (mini laptop computer)

Notebook (laptop computer)

Desktop pc

Game Console

If there is a communication device or devices that you do not own but would like to own other than those listed above specify them here:

## Communication Device Use

Which devices do you use to accomplish the following tasks (check as many as apply):

write papers
- Cellphone (without Internet capability)
- Smartphone (with Internet capability)
- Slate/tablet pc
- Netbook (mini laptop computer)
- Notebook (laptop computer)
- Desktop pc
- Game Console

If there is a device or devices you use to write papers other than those above specify them here:

check e-mail
- Cellphone (without Internet capability)
- Smartphone (with Internet capability)
- Slate/tablet pc
- Netbook (mini laptop computer)
- Notebook (laptop computer)
- Desktop pc
- Game Console

If there is a device or devices you use to check e-mail other than those above specify them here:

compose or write e-mails
- Cellphone (without Internet capability)
- Smartphone (with Internet capability)
- Slate/tablet pc
- Netbook (mini laptop computer)
- Notebook (laptop computer)
- Desktop pc

Game Console

If there is a device or devices you use to compose or write e-mail other than those above specify them here:

talk to friends in real time
Cellphone (without Internet capability)
Smartphone (with Internet capability)
Slate/tablet pc
Netbook (mini laptop computer)
Notebook (laptop computer)
Desktop pc
Game Console

If there is a device or devices you use to talk to friends in real time other than those above specify them here:

message friends
Cellphone (without Internet capability)
Smartphone (with Internet capability)
Slate/tablet pc
Netbook (mini laptop computer)
Notebook (laptop computer)
Desktop pc
Game Console

If there is a device or devices you use to message friends other than those above specify them here:

look at social networking sites
Cellphone (without Internet capability)
Smartphone (with Internet capability)
Slate/tablet pc
Netbook (mini laptop computer)
Notebook (laptop computer)
Desktop pc
Game Console

If there is a device or devices you use to look at social networking sites other than those above specify them here:

play games
Cellphone (without Internet capability)
Smartphone (with Internet capability
Slate/tablet pc
Netbook (mini laptop computer)
Notebook (laptop computer)
Desktop pc
Game Console

If there is a device or devices you use to play games other than those above specify them here:

watch television shows or movies
Cellphone (without Internet capability)
Smartphone (with Internet capability)
Slate/tablet pc
Netbook (mini laptop computer)
Notebook (laptop computer)
Desktop pc
Television
Game Console

If there is a device or devices you use to watch television shows or movies other than those above specify them here:

read news
Cellphone (without Internet capability)
Smartphone (with Internet capability
Slate/tablet pc
Netbook (mini laptop computer)
Notebook (laptop computer)
Desktop pc
Gaming Console

If there is a device or devices you use to read news other than those above specify them here:

talk to family in real time
Cellphone (without Internet capability)
Smartphone (with Internet capability)
Slate/tablet pc
Netbook (mini laptop computer)
Notebook (laptop computer)
Desktop pc
Game Console

If there is a device or devices you use to talk to family in real time other than those above specify them here:

message family
Cellphone (without Internet capability)
Smartphone (with Internet capability)
Slate/tablet pc
Netbook (mini laptop computer)
Notebook (laptop computer)
Desktop pc
Game Console

If there is a device or devices you use to message family other than those above specify them here:

# Communication Device Satisfaction

## Please indicate the extent of your agreement with each of the following statements by selecting a multiple choice option to indicate how much you agree or disagee

I have considered switching to communications devices different from those I currently

use

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

I am satisfied with the communications devices I currently use

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

I feel that using other communication devices would make my life easier

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

I feel that using other communication devices would require less effort

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

I feel that learning how to use a new communication device would be too much work

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

I would only change the communication device I use if I was forced to (e.g. if a device breaks)

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

I do not feel that other communication technologies are superior to what I already use

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

The monetary cost of switching to a different communication technology is too high.

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

Switching to a new communications would mean having to learn a new operating system/way of doing things

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

I lose data whenever I switch to a new piece of communications technology

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

# Peer Communication

Please indicate the extent of your agreement with each of the following statements using a 1 to 7 scale, with "1" indicating "strongly disagree" and "7" indicating "strongly agree." You may circle any number from 1 to 7 to indicate how much you agree or disagree.

I find myself engaging in conversations with my friends about communications technology

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

When I see a stranger using a piece of technology I have never seen before, I ask them about it

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

I talk with my family about different communications technologies

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

At times, I use my friends' communication's devices.

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

I hardly ever talk to my friends about communication devices

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

I consult my friends before buying a new communications device

When I see other people using a communications device, I ask them how they like it.

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

Talking with friends influenced my decision to purchase a communications device

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

I have decided to purchase communication devices after getting the opportunity to use those of friends.

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

I made the decision to purchase a communication device after handling one at a store.

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

I look at what other people have to say online about new communication devices.

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

Looking at online forums and support groups influenced my decision to purchase a communications device.

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

Looking at online reviews influenced me to get a communications device

**Strongly Agree Agree Somewhat Agree Neutral Somewhat Disagree Strongly Disagree**

# Finally, some questions about yourself:

How old are you?

Are you male or female?
Male
Female

How would you define your race?
Black/African American
White/Caucasian
Latino/Hispanic
Asian or Pacific Islander
American Indian or Alaskan Native
Other

If you answered 'other' to the question above please use the following space to indicate your race

If you are a college student answering this questionnaire do you:

live on campus
commuter student

How many minutes did you spend on the Internet yesterday?

How many e-mails did you send out yesterday?

How many text messages did you send out yesterday?

How many calls did you make on a cell-phone yesterday?

If you made calls: How long were you on your cellphone (answer in minutes spent on cellphone)?

Do you ever use a computer to make telephone calls?
Yes
No

If yes: How many phone calls have you make using a computer in the past month? (Via services like google talk and skype)

During an average weekday, how many hours do you spend playing video games with another person or group?

During an average weekday, how many hours do you spend playing video games by yourself?

How many close friends do you have?

If you are a student, where do you do most of your homework?
at home
at school
at work

other

If you answered other to the above question, please specify where you do your homework

If you are completing this survey for research participation or extra credit please give your last name, the name of your instructor, and the name of class you are to receive the extra credit in, in the space below.

Finally, if you wish to be considered in the incentive for this survey, a drawing to win an Amazon Kindle e-reader, please provide some method for contacting you (an e-mail address or telephone number) in the space below.

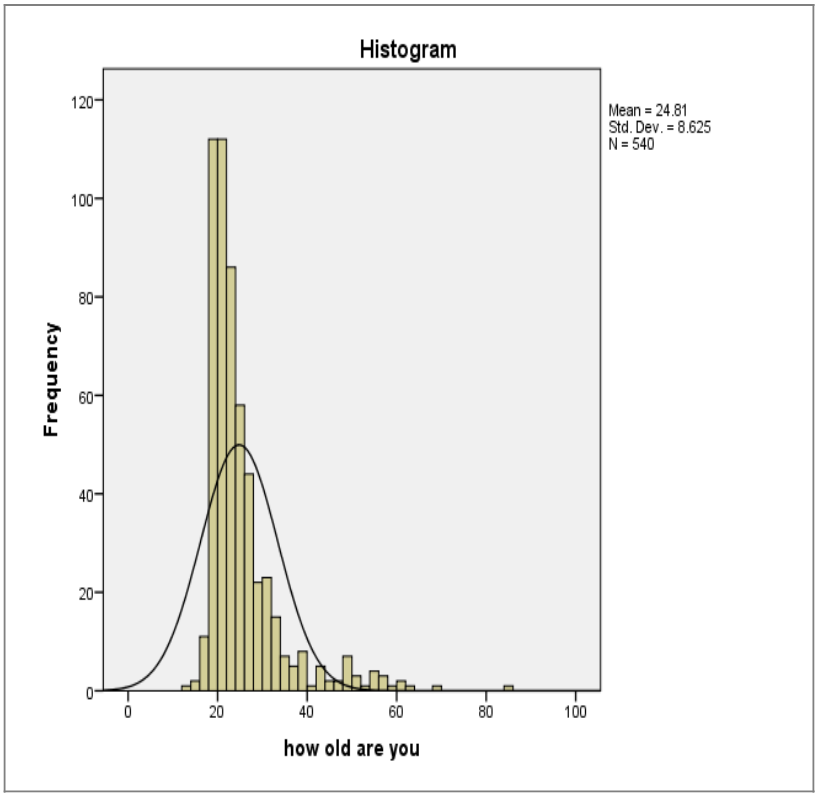
That concludes the survey. Thank you very much for participating!

If you are interested in the results of this study and/or would like to contact this study's

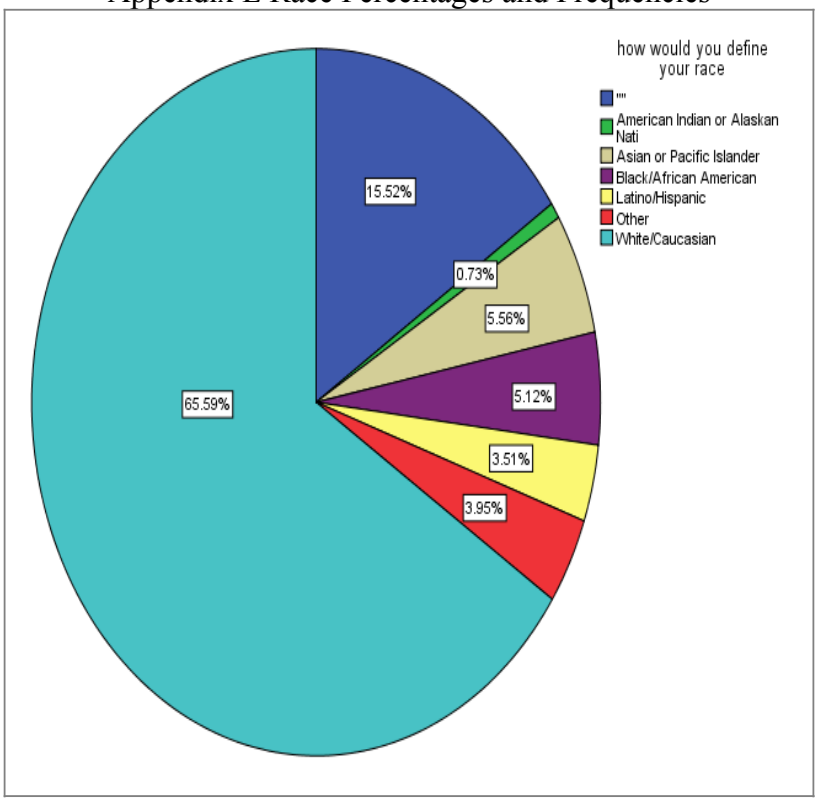
author for any other reason you may contact him at

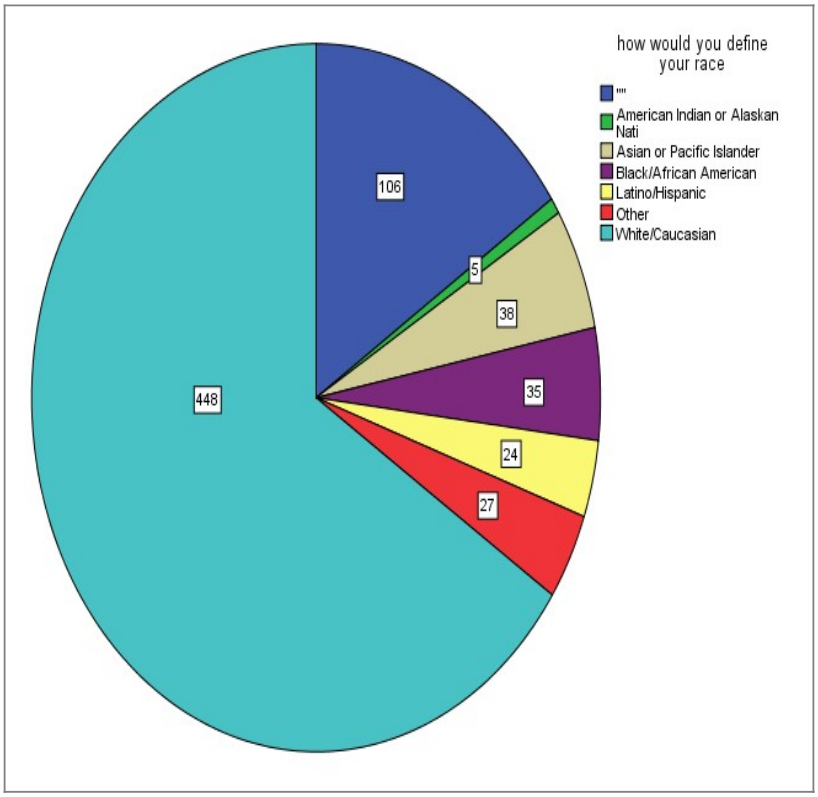
jamesdwighthayes@gmail.com

Appendix D Age Histogram

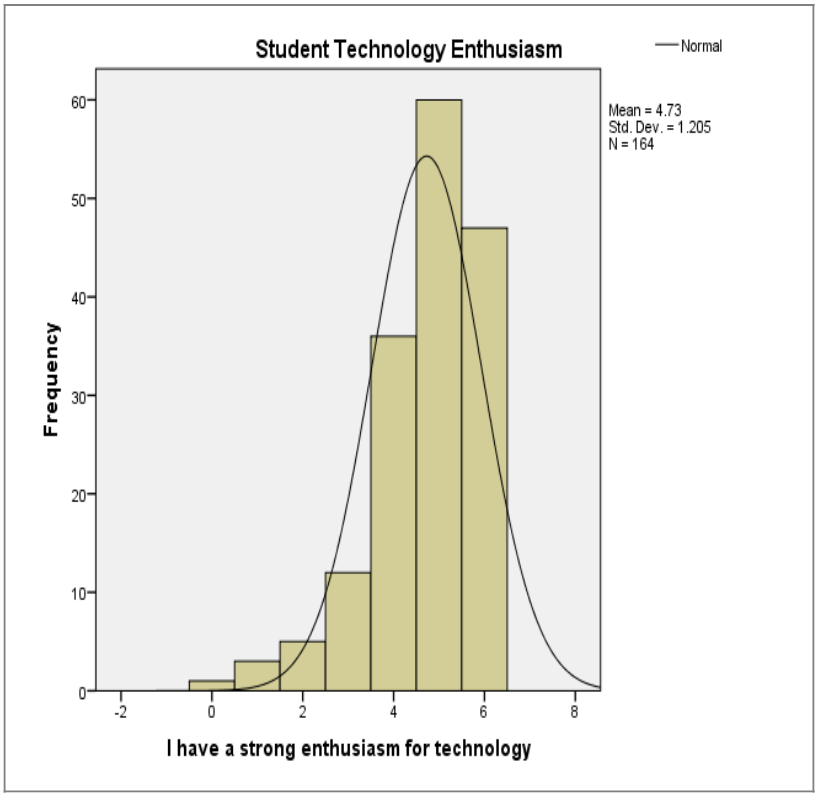


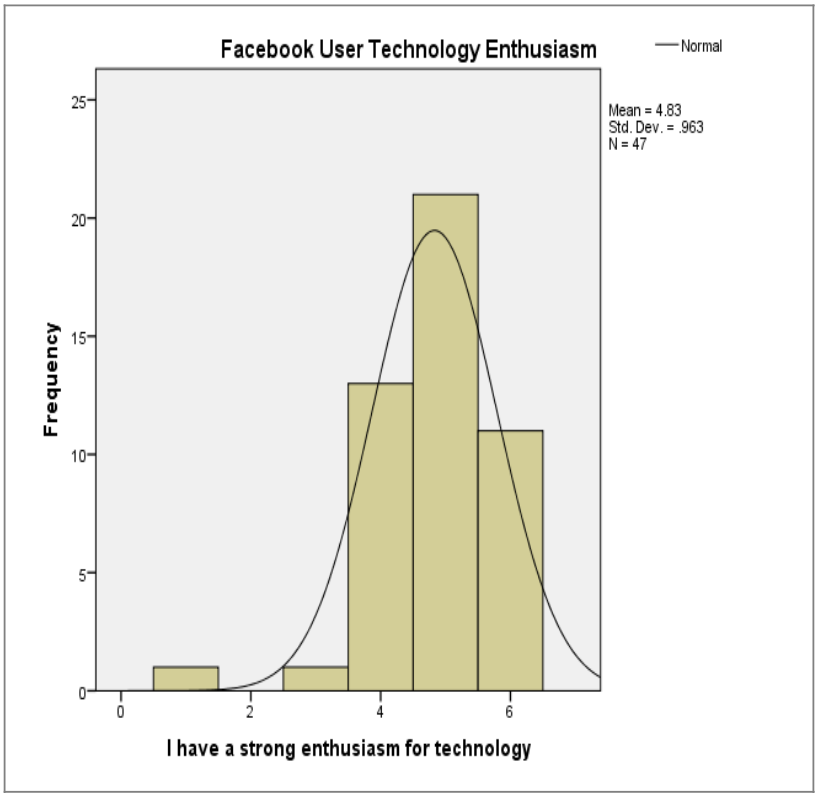
Appendix E Race Percentages and Frequencies

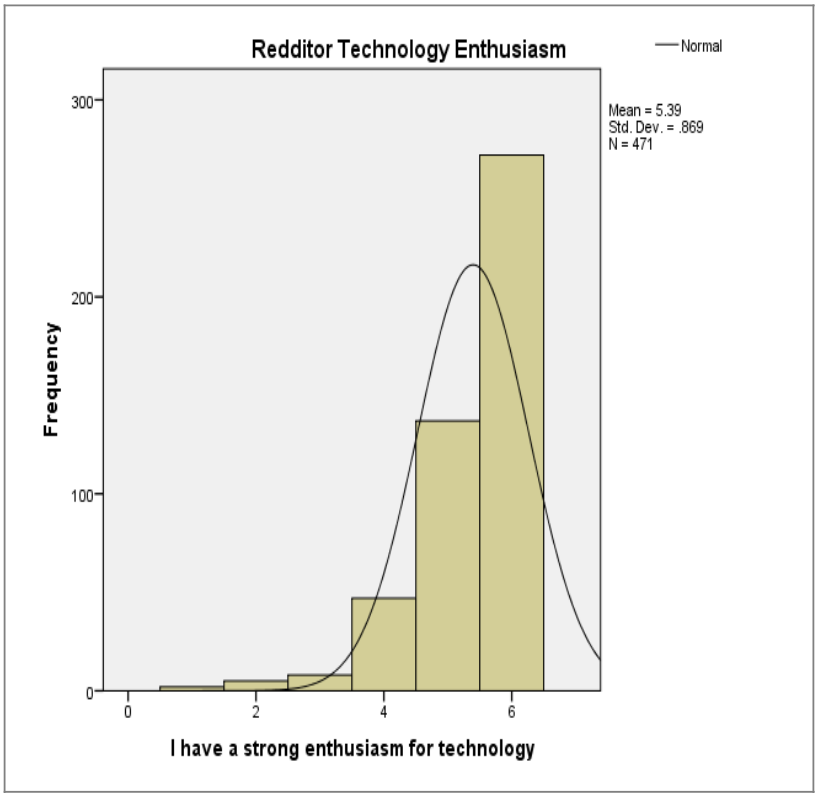



how would you define your race
""
American Indian or Alaskan Nati
Asian or Pacific Islander
Black/African American
Latino/Hispanic
Other
White/Caucasian
106
5
38
35
24
27
448

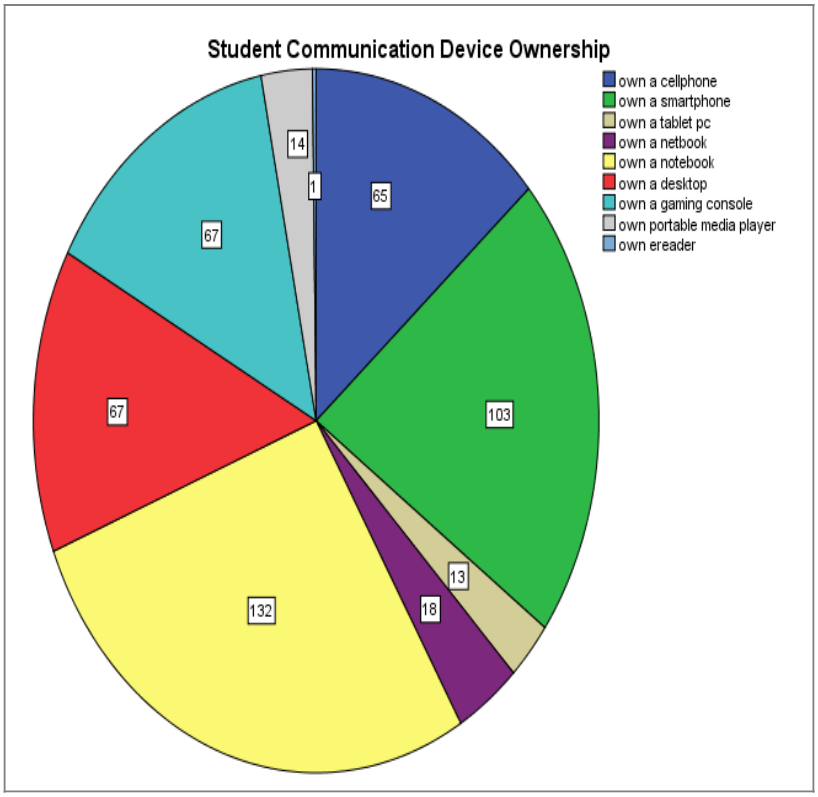
Appendix F Technology Enthusiasm Comparison

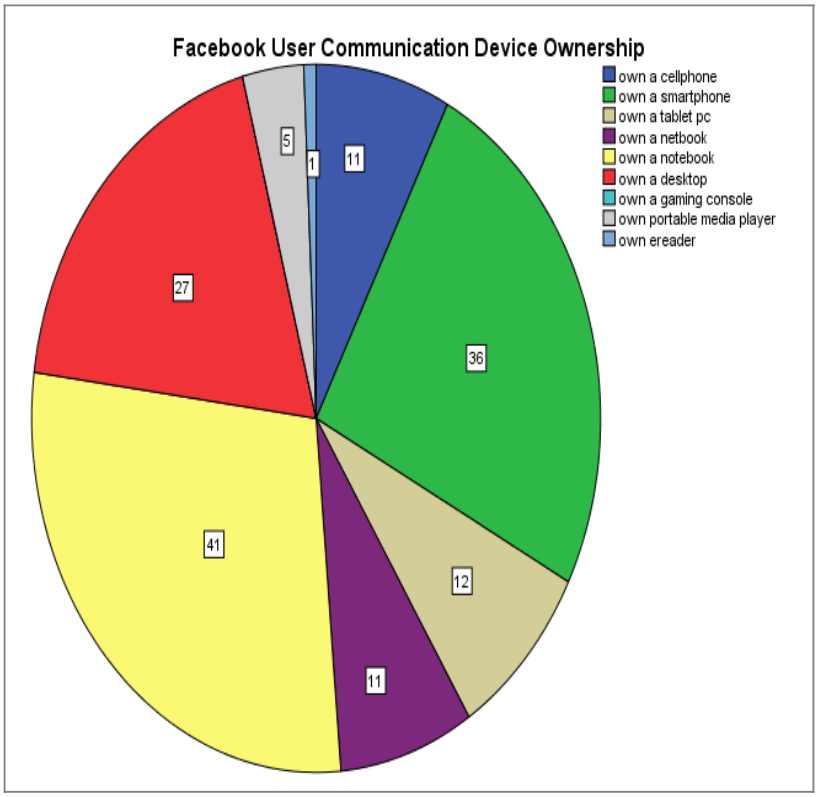


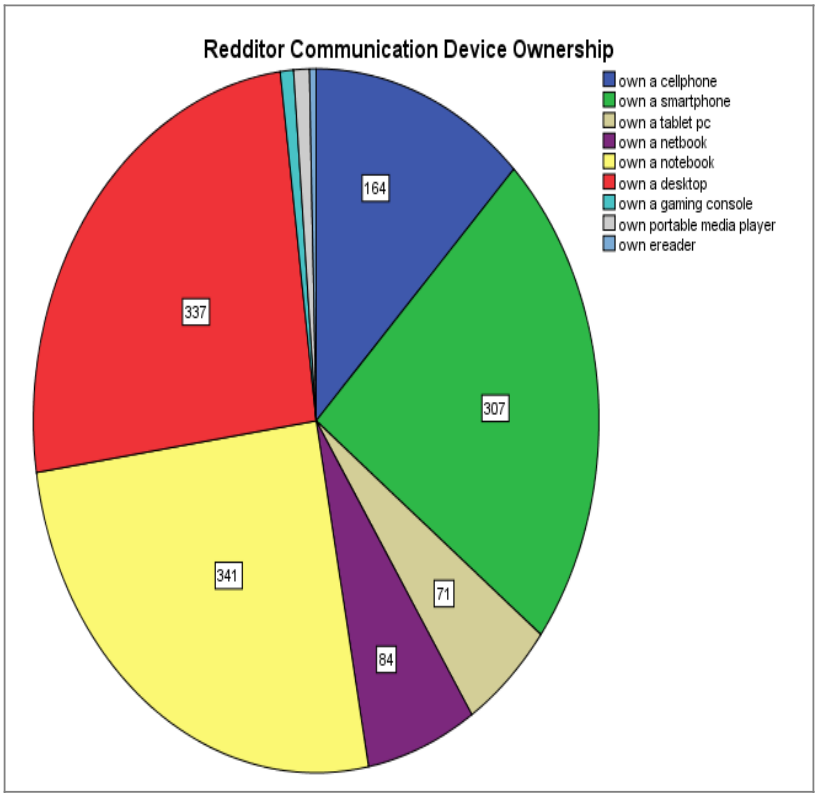

Facebook User Technology Enthusiasm
Normal
Mean = 4.83
Std. Dev. = .963
N = 47
Frequency
25
20
15
10
5
0
0
2
4
6
I have a strong enthusiasm for technology


Redditor Technology Enthusiasm
Normal
Mean = 5.39
Std. Dev. = .869
N = 471
Frequency
300
200
100
0
0
2
4
6
I have a strong enthusiasm for technology

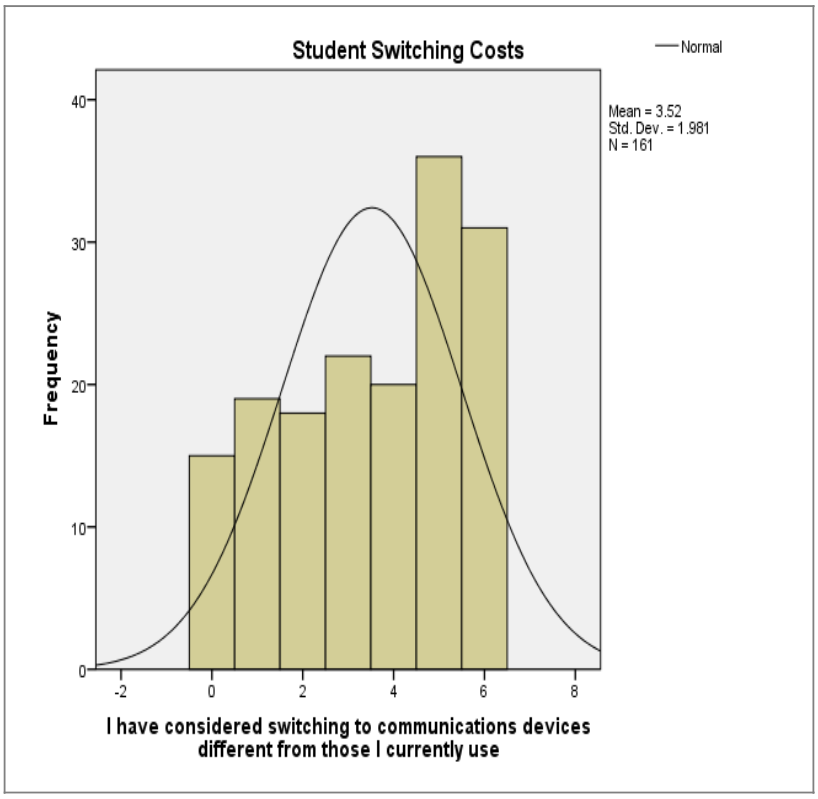
Appendix G Communication Device Ownership Comparison

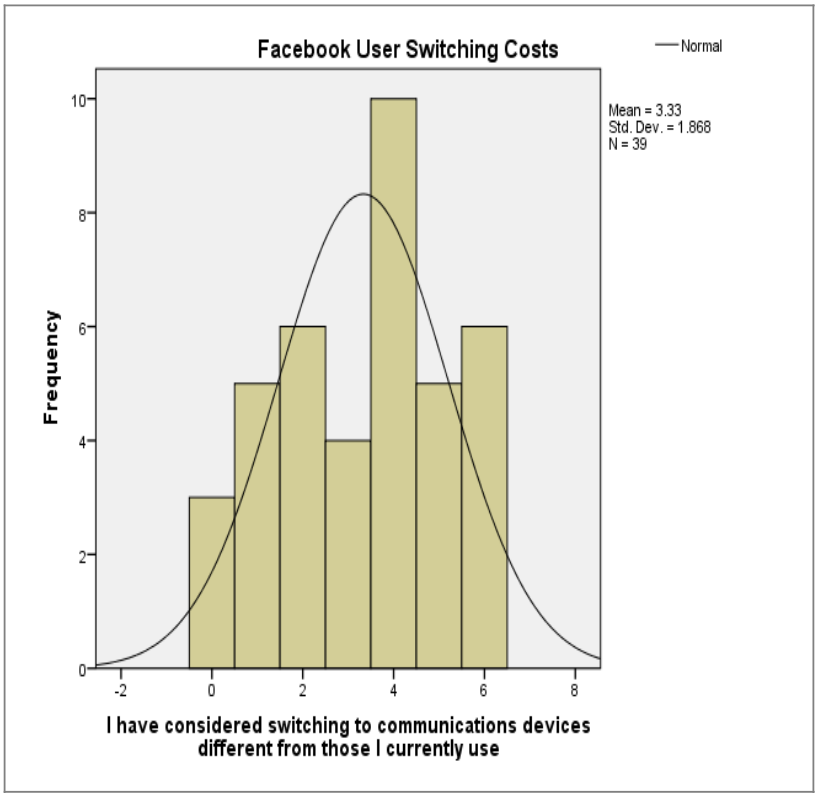


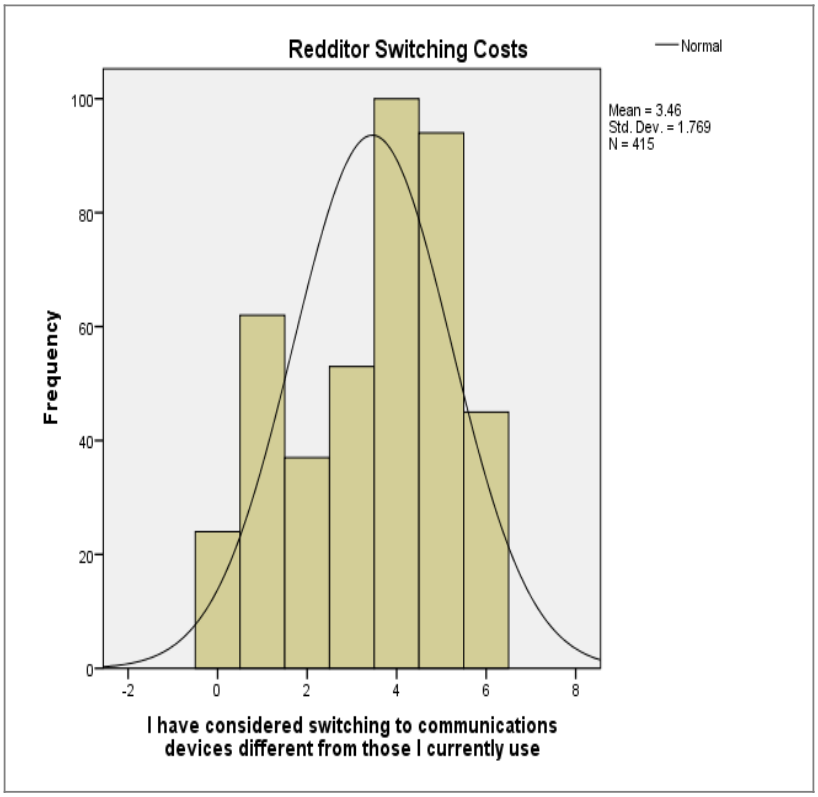

Facebook User Communication Device Ownership
own a cellphone
own a smartphone
own a tablet pc
own a netbook
own a notebook
own a desktop
own a gaming console
own portable media player
own ereader
11
36
12
11
41
27
5
1


Redditor Communication Device Ownership
own a cellphone
own a smartphone
own a tablet pc
own a netbook
own a notebook
own a desktop
own a gaming console
own portable media player
own ereader
164
307
71
84
341
337

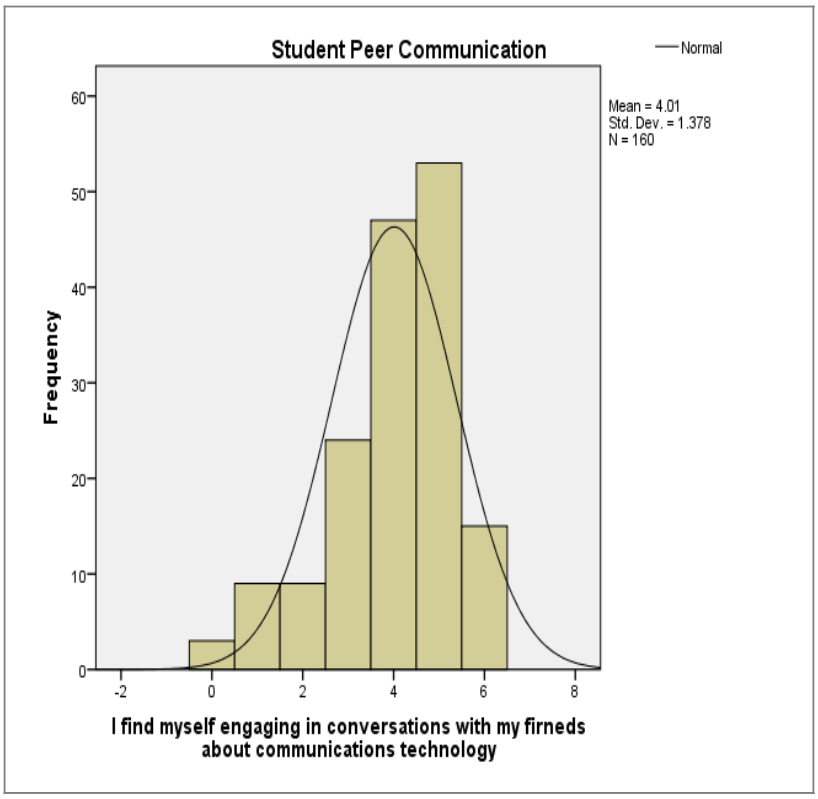
Appendix H Communication Device Satisfaction Comparison

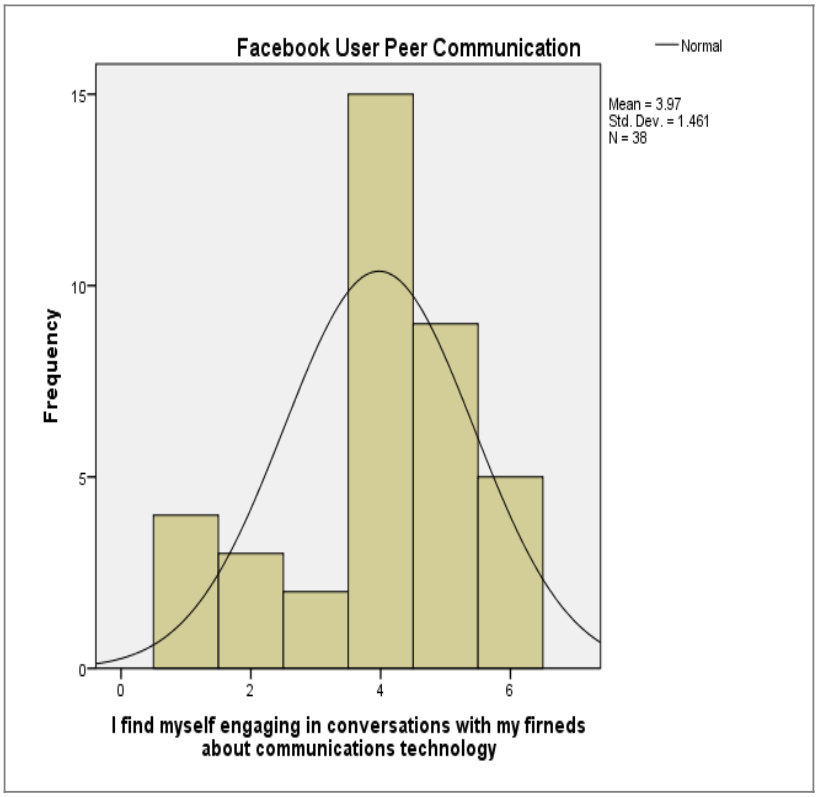


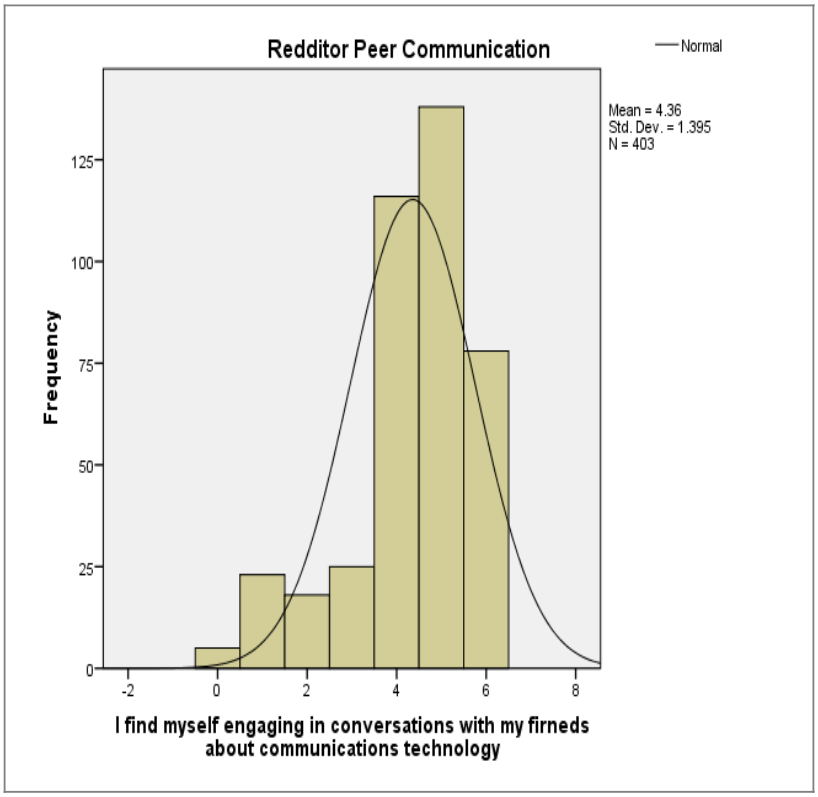

Facebook User Switching Costs
Normal
Mean = 3.33
Std. Dev. = 1.868
N = 39
Frequency
10
8
6
4
2
0
-2
0
2
4
6
8
I have considered switching to communications devices different from those I currently use


Redditor Switching Costs
Normal
Mean = 3.46
Std. Dev. = 1.769
N = 415
Frequency
100
80
60
40
20
0
-2
0
2
4
6
8
I have considered switching to communications devices different from those I currently use

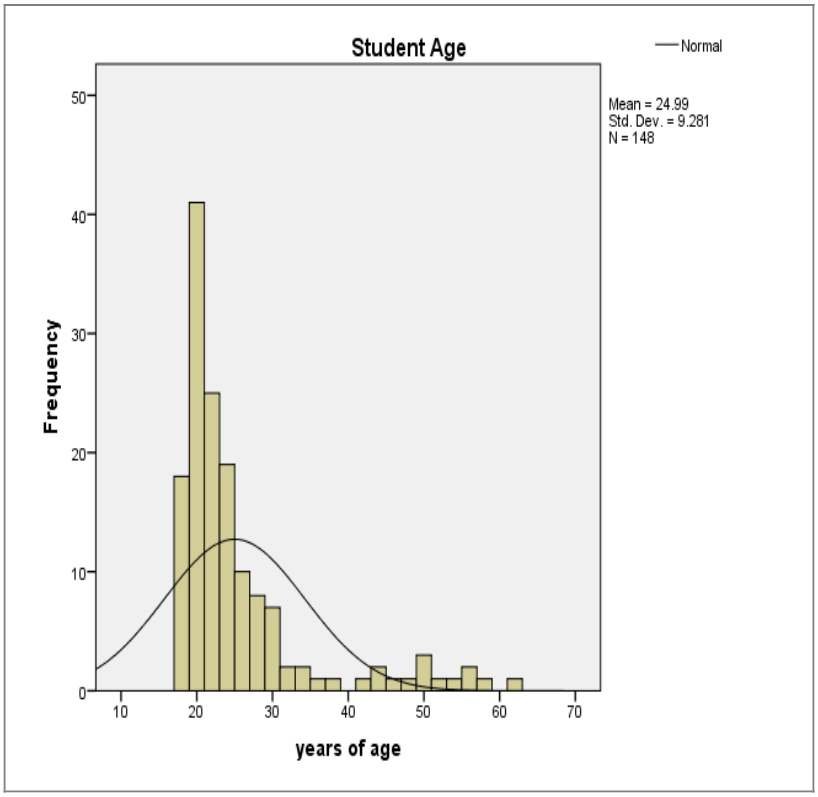
Appendix I Peer Communication Comparison

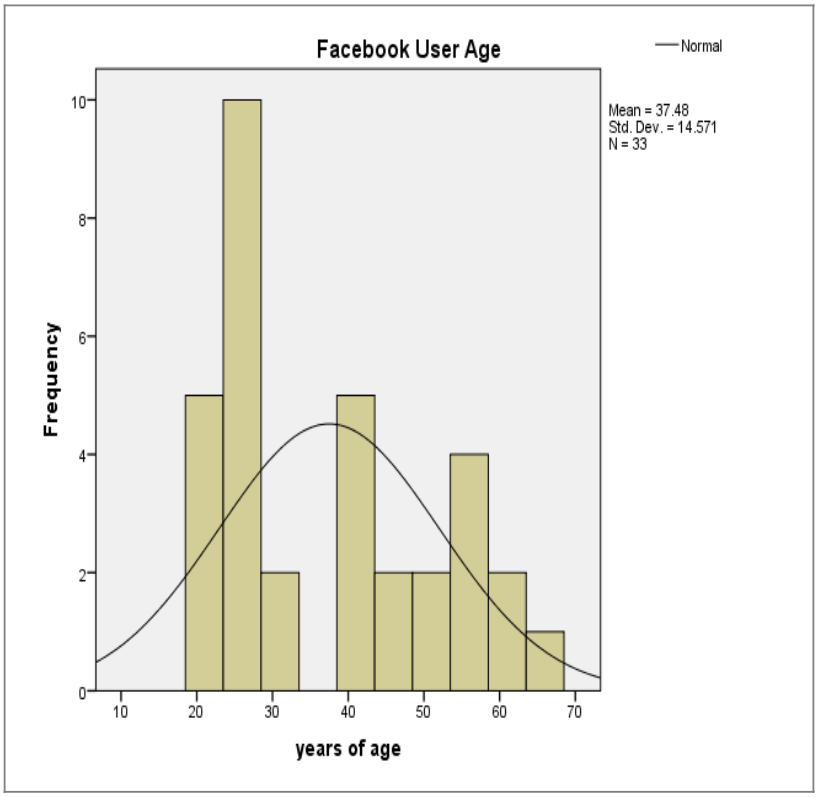


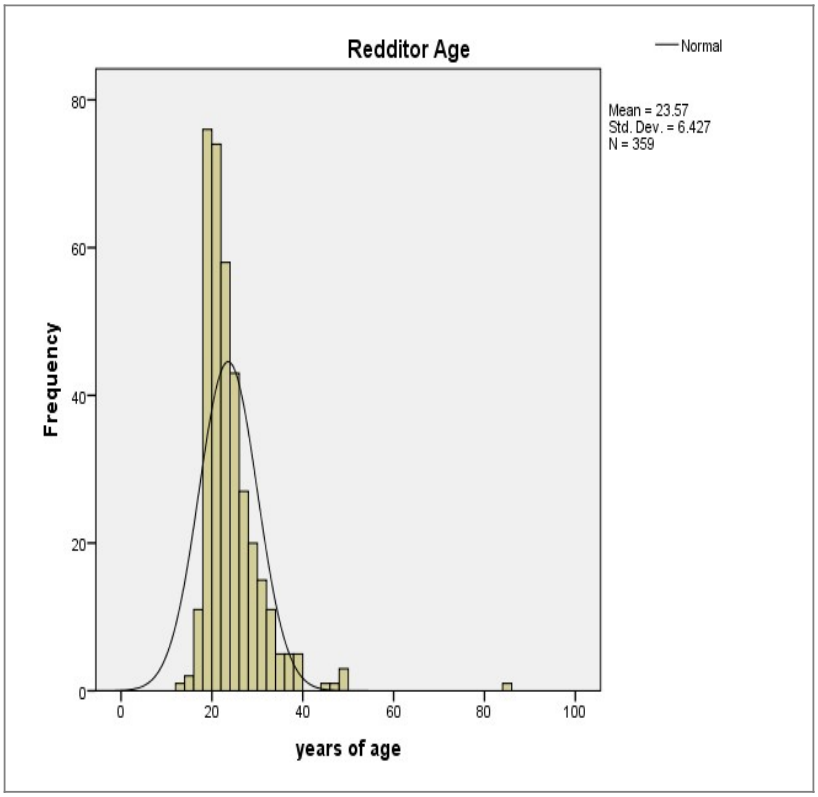

Facebook User Peer Communication
Normal
Mean = 3.97
Std. Dev. = 1.461
N = 38
Frequency
15
10
5
0
0
2
4
6
I find myself engaging in conversations with my firneds about communications technology

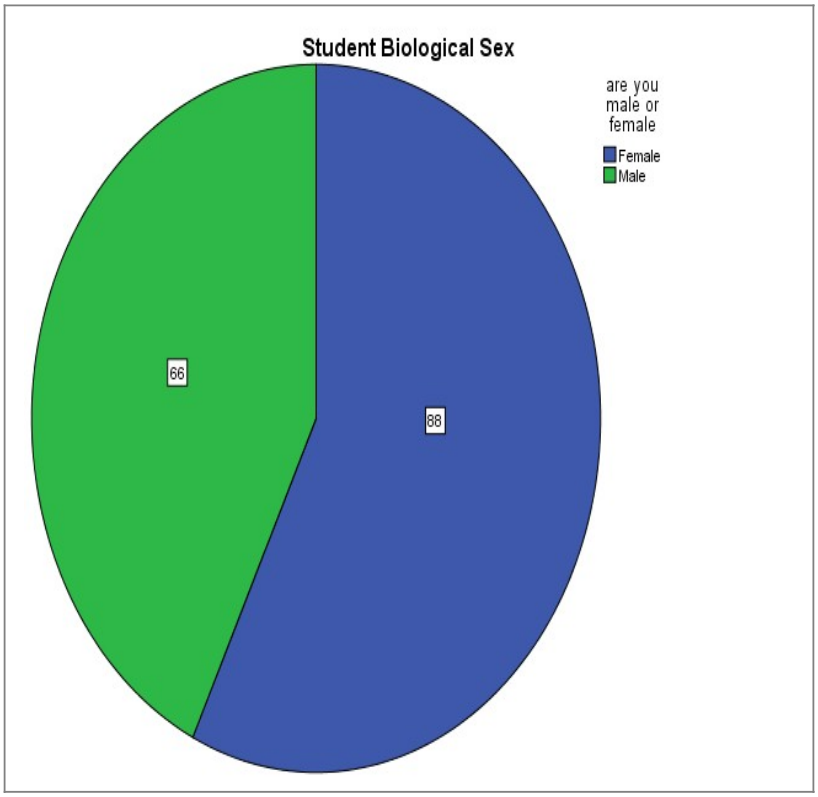

Redditor Peer Communication
Normal
Mean = 4.36
Std. Dev. = 1.395
N = 403
Frequency
125
100
75
50
25
0
-2
0
2
4
6
8
I find myself engaging in conversations with my firneds about communications technology

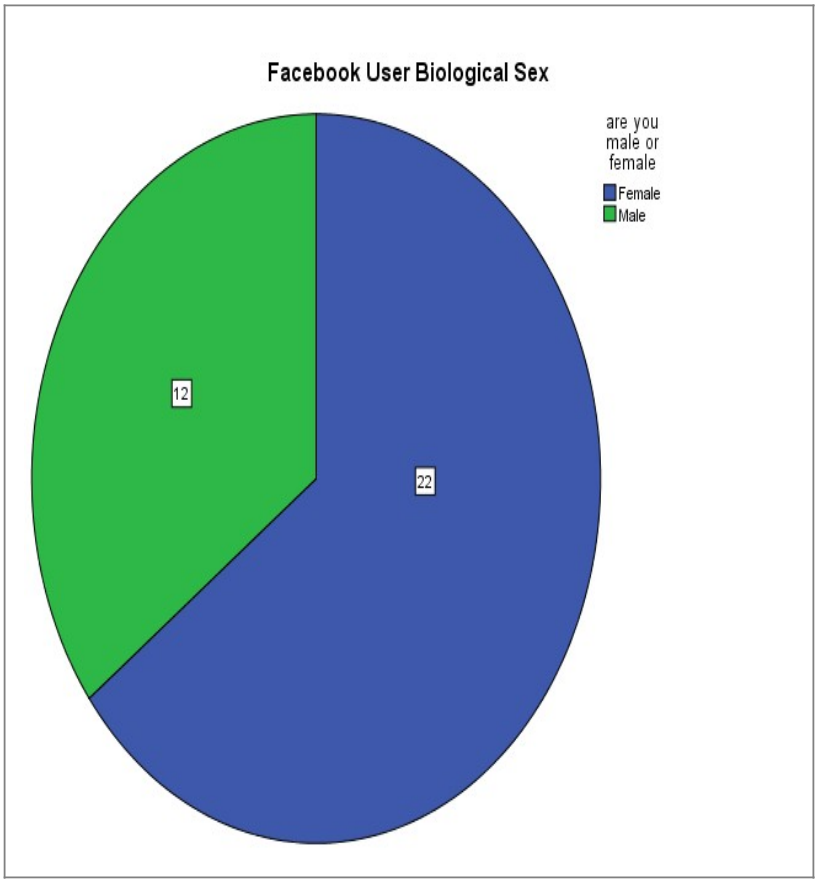
Appendix J Demographic Comparison

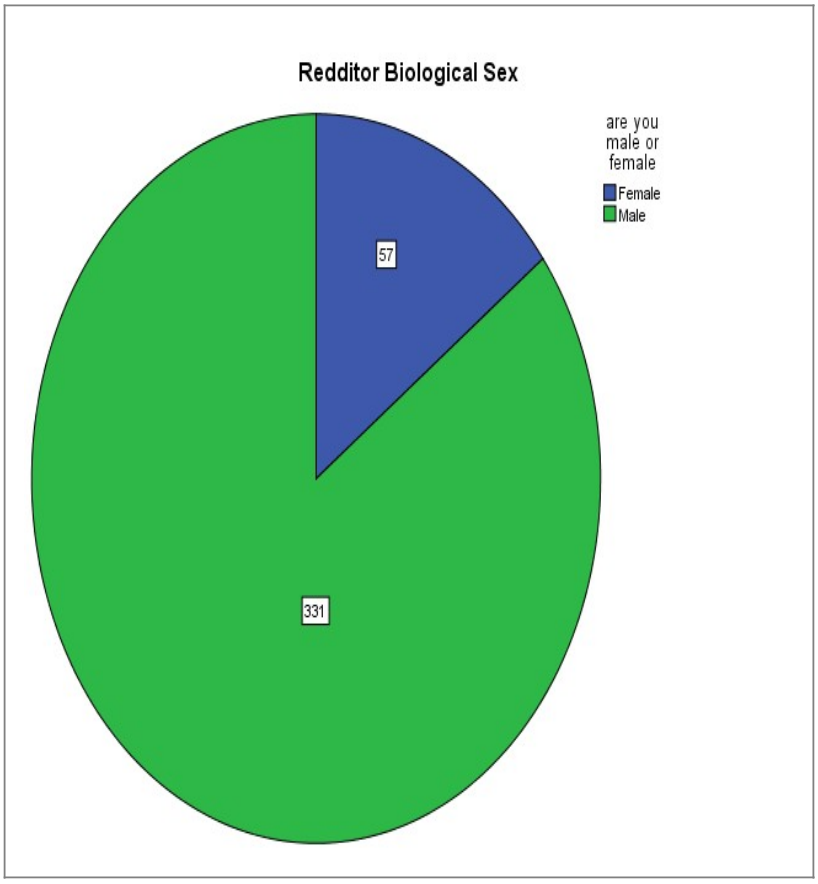


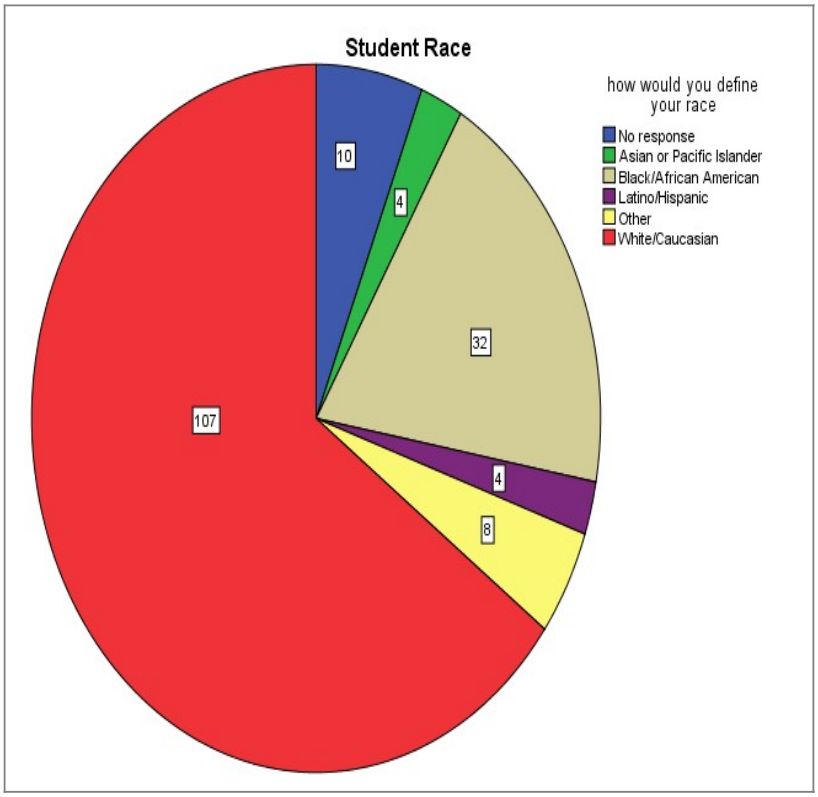

Facebook User Age
Normal
Mean = 37.48
Std. Dev. = 14.571
N = 33
Frequency
years of age
0
2
4
6
8
10
10
20
30
40
50
60
70

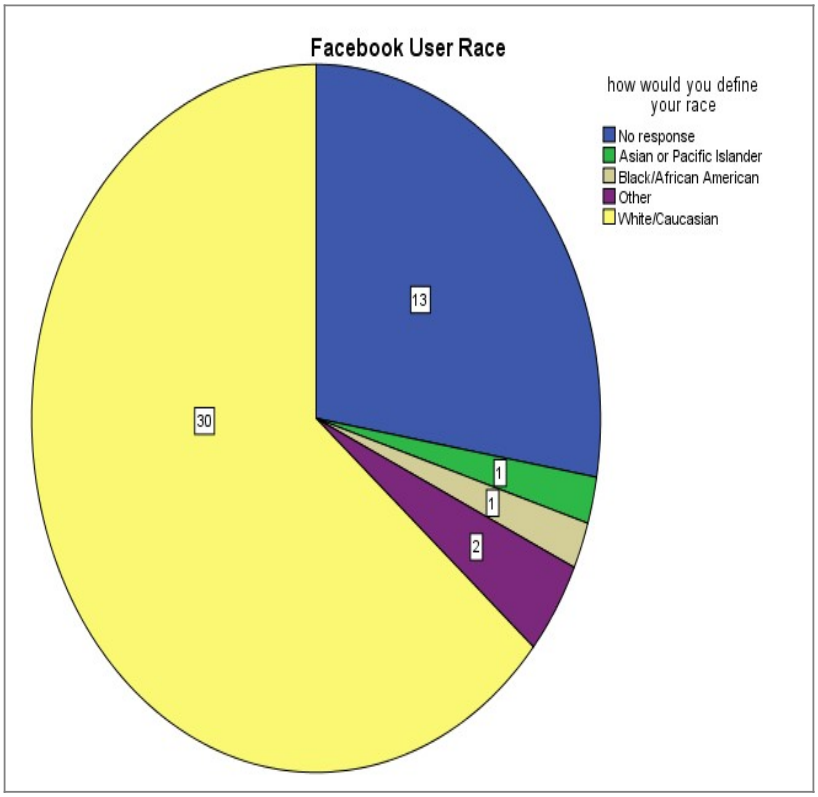

Redditor Age
Normal
Mean = 23.57
Std. Dev. = 6.427
N = 359
Frequency
0
20
40
60
80
0
20
40
60
80
100
years of age

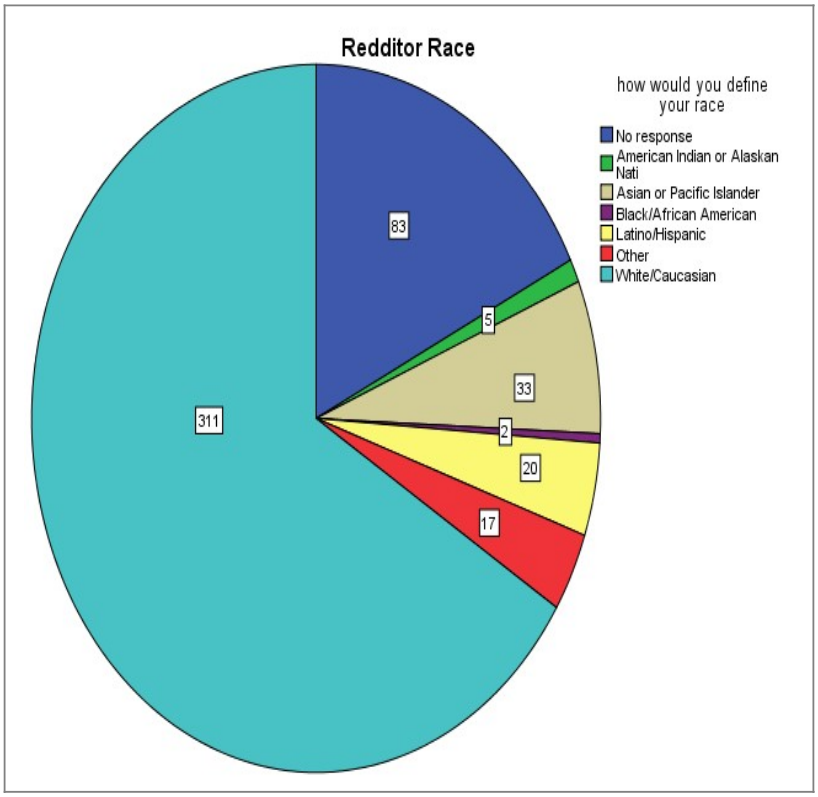

Student Biological Sex
are you male or female
Female
Male
66
88


Facebook User Biological Sex
are you male or female
Female
Male
12
22


Redditor Biological Sex
are you male or female
Female
Male
57
331


Student Race
how would you define your race
No response
Asian or Pacific Islander
Black/African American
Latino/Hispanic
Other
White/Caucasian
10
4
32
4
8
107


Facebook User Race
how would you define your race
No response
Asian or Pacific Islander
Black/African American
Other
White/Caucasian
13
1
1
2
30


Redditor Race
how would you define your race
No response
American Indian or Alaskan Nati
Asian or Pacific Islander
Black/African American
Latino/Hispanic
Other
White/Caucasian
83
5
33
2
20
17
311

Appendix K Table of Communication Device Ownership and Use

| | Cell | Smartphone | Tablet | Netbook | Notebook | Desktop | Game Console |
|---|---|---|---|---|---|---|---|
| Own | 35.1% | 65.3% | 14.1% | 16.5% | 75.3% | 63.1% | 11.3% |
| Carry | 30.2% | 64.4% | 5.3% | 5.3% | 22.3% | N/a | 0.9% |
| Work/ School | 24% | 53.3% | 6.4% | 10.1% | 49.9% | 26.4% | 0.6% |
| Would Like | 0.7% | 23% | 36% | 16.1% | 10.7% | 11.7% | 2.3% |
| Write Paper | 0.3% | 4.1% | 2.3% | 8.2% | 64.9% | 59.4% | 0% |
| Check E-mail | 1% | 54% | 9,7% | 11.9% | 66.6% | 60.3% | 0% |
| Write E-mail | 0.9% | 42% | .3% | 12.7% | 67.1% | 59.9% | 0% |
| Talk Friend | 23% | 55.8% | 5% | 8.5% | 53.7% | 47.6% | 1.8% |
| Message Friend | 22.4% | 56.8% | 6% | 10.7% | 57.8% | 51.8% | 1% |
| Social Network | 1.8% | 47.3% | 9.2% | 10.5% | 62.8% | 51.5% | 0.7% |
| Game | 3.2% | 37.6% | 8.1% | 5.7% | 46.1% | 55.1% | 18% |
| TV | 0.3% | 14.6% | 8.1% | 7.6% | 56.5% | 50.2% | 7.3% |
| News | 0.9% | 47% | 9.2% | 11.4% | 64% | 56.7% | 0.6% |
| Talk Family | 24.9% | 53.9% | 4.2% | 4.8% | 34.4% | 26.5% | 1.5% |
| Message Family | 21.1% | 54.2% | 5.0% | 8.3% | 44.1% | 36.6% | 0.7% |

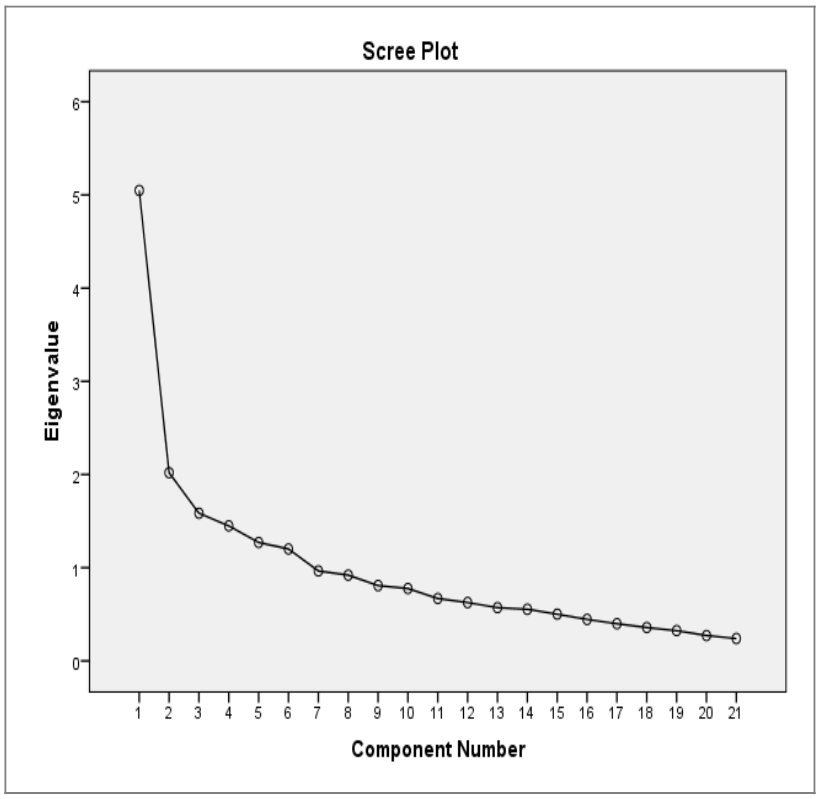
Each percentage value indicates a percentage of the 683 individuals who responded to the study's questionnaire. Additionally, 17.6% of respondents watch TV or movies using a television and 2.5% read the news from print newspapers.

Appendix K Table of Communication Device Ownership and Use (Continued)

| | Media Player | E-reader |
|---|---|---|
| Own | 4.5% | 1% |
| Carry | 4.8% | 0.6% |
| Work/ School | 3.5% | 0.6% |
| Would Like | 0.1% | 0.3% |
| Write Paper | 0% | 0% |
| Check E-mail | 2.5% | 0.4% |
| Write E-mail | 1.9% | 0.1% |
| Talk Friend | 0.6% | N/a |
| Message Friend | 1.9% | N/a |
| Social Network | 2.5% | 0.1% |
| Game | 2.9% | N/a |
| TV | 1.2% | N/a |
| News | 2.5% | N/a |
| Talk Family | 0.3% | N/a |
| Message Family | 0.9% | N/a |

Appendix L Exploratory Factor Analysis Results

EFA One, User Characteristics




**Rotated Component Matrix[a]**

| | Component | | | | | |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| The mobility of my communication devices is important to me | .711 | .203 | .112 | .073 | -.163 | .300 |
| The upgradeibility of my communication devices is important to me | .707 | .129 | .018 | .098 | .308 | -.254 |
| The longevity of my communications devices is important to me | .678 | -.052 | .078 | .165 | .070 | .034 |

| | | | | | | |
|---|---|---|---|---|---|---|
| The computing power of my communication device is important to me | .603 | .228 | .089 | .109 | .292 | -.210 |
| I like to be able to carry my communications devices with me | .579 | .366 | .072 | .063 | -.077 | .455 |
| I feel lost without internet access | -.021 | .761 | .064 | .179 | .042 | -.088 |
| I need to be able to talk to my friends online | -.109 | .612 | .074 | .526 | .156 | -.038 |
| Using media on the go is important to me | .462 | .585 | .143 | .055 | -.001 | .021 |
| A person should get a new communications device frequently | .304 | .579 | .080 | -.016 | .021 | -.077 |
| I like being able to access the internet | .360 | .523 | .029 | .034 | .281 | .201 |
| Technology helps me to better communicate with teachers/professors | .070 | -.061 | .830 | .182 | -.031 | -.034 |
| Technology helps me better communicate with my classmates | .061 | .012 | .781 | .303 | .085 | -.053 |
| Owning a piece of communication technology makes accomplishing tasks at school easier | .064 | .390 | .656 | .016 | .044 | .074 |
| I need to have some way for people to contact me in case of an emergency | .307 | .251 | .407 | -.090 | -.142 | .154 |
| Technology helps me to communicate with my family more easily | .244 | -.057 | .144 | .743 | -.129 | .081 |
| I need to be able to talk to my family online | .135 | .342 | .049 | .731 | -.097 | -.053 |
| Technology helps me to communicate with my friends more easily | .059 | .061 | .261 | .646 | .199 | .124 |

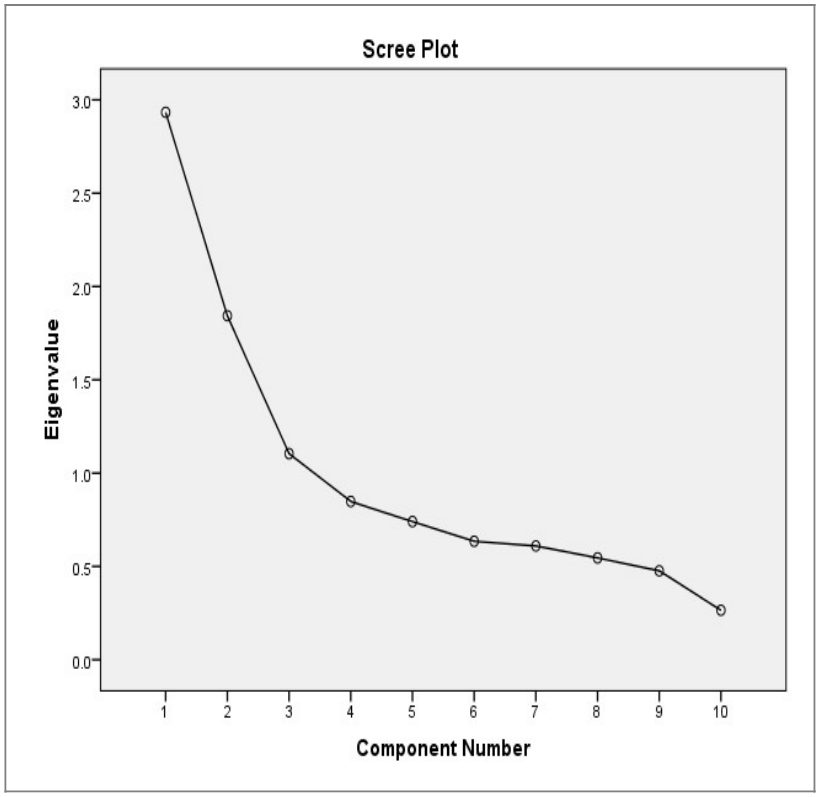
| | | | | | | |
|---|---|---|---|---|---|---|
| It is difficult for me to learn how to use a new piece of technology | -.004 | .047 | .027 | .003 | -.775 | -.181 |
| I have a strong enthusiasm for technology | .201 | .222 | .044 | -.008 | .721 | .072 |
| I feel that my current communications device is out of date | .049 | .127 | .017 | -.013 | -.098 | -.717 |
| The communications devices I use currently fulfill all of my communications needs | .050 | .030 | .031 | .072 | .133 | .675 |

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 13 iterations.

1-portable tech-ers, 2-onliners, 3-workers,4-relationshipers, 5-technophilers, 6-sated users




**Rotated Component Matrix[a]**

| | Component | | |
|---|---|---|---|
| | 1 | 2 | 3 |
| I feel that using other communication devices would make my life easier | .817 | .210 | -.018 |
| I feel that using other communication devices would require less effort | .785 | .251 | .001 |
| I have considered switching to communications devices different from those I currently use | .776 | -.059 | .030 |
| I am satisfied with the communications devices I currently use | -.599 | .089 | -.400 |

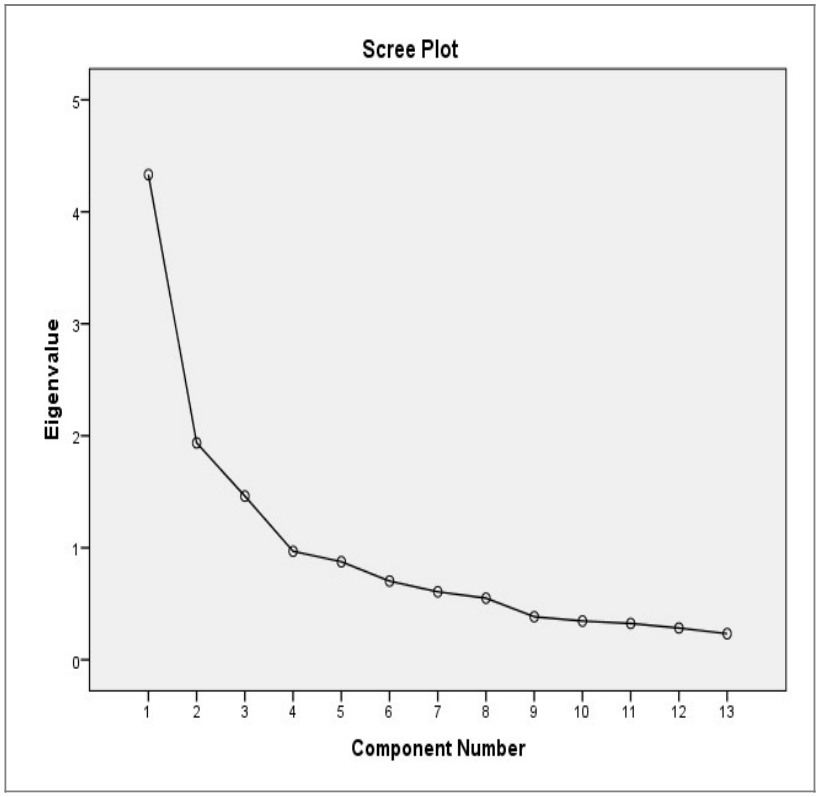
| | | | |
|---|---|---|---|
| I would only change the communication device I use if I was forced to | -.598 | .340 | .208 |
| I do not feel that other communication technologies are superior to what I already use | -.518 | .260 | -.419 |
| Switching to a new communication technology would mean having to learn a new operating system/ way of doing things | .068 | .774 | .040 |
| I feel that learning how to use a new communication device would be too much work | .003 | .758 | -.058 |
| I lose data whenever I switch to a new piece of communication technology | -.041 | .531 | .418 |
| The monetary cost of switching to a different communcation technology is too high | -.019 | .109 | .822 |

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

1-switchers, 2-retainers, 3-misers




**Rotated Component Matrix[a]**

| | Component | | |
|---|---|---|---|
| | 1 | 2 | 3 |
| I hardly ever talk to my friends about communication devices | -.770 | -.194 | -.025 |
| I find myself engaging in conversations with my firneds about communications technology | .759 | .215 | .102 |
| I talk with my family about different communications technologies | .729 | .053 | .023 |

| | | | |
|---|---|---|---|
| When I see a stranger using a piece of technology I have never seen before, I ask them about it | .602 | .047 | .216 |
| When I see other people using a communications device, I ask them how they like it | .596 | .105 | .375 |
| At times, I use my firneds communication's devices | .441 | -.075 | .397 |
| Looking at online reviews influenced me to get a communication device | .086 | .905 | .095 |
| I look at what other people have to say online about new communication devices | .164 | .869 | .049 |
| Looking at online forums and support groups influenced my decision to purchase a communications device | .148 | .857 | .185 |
| Talkig with friends influenced my decision to purchase a communications device | .213 | .141 | .780 |
| I have decided to purchase communicatio devices after getting the opportunity to use those of friends | .309 | .051 | .757 |
| I consult my friends before buying a new communications device | .115 | .056 | .749 |
| I made the decision to purchase a communications device after handling one at a store | -.037 | .117 | .552 |

Extraction Method: Principal Component Analysis.

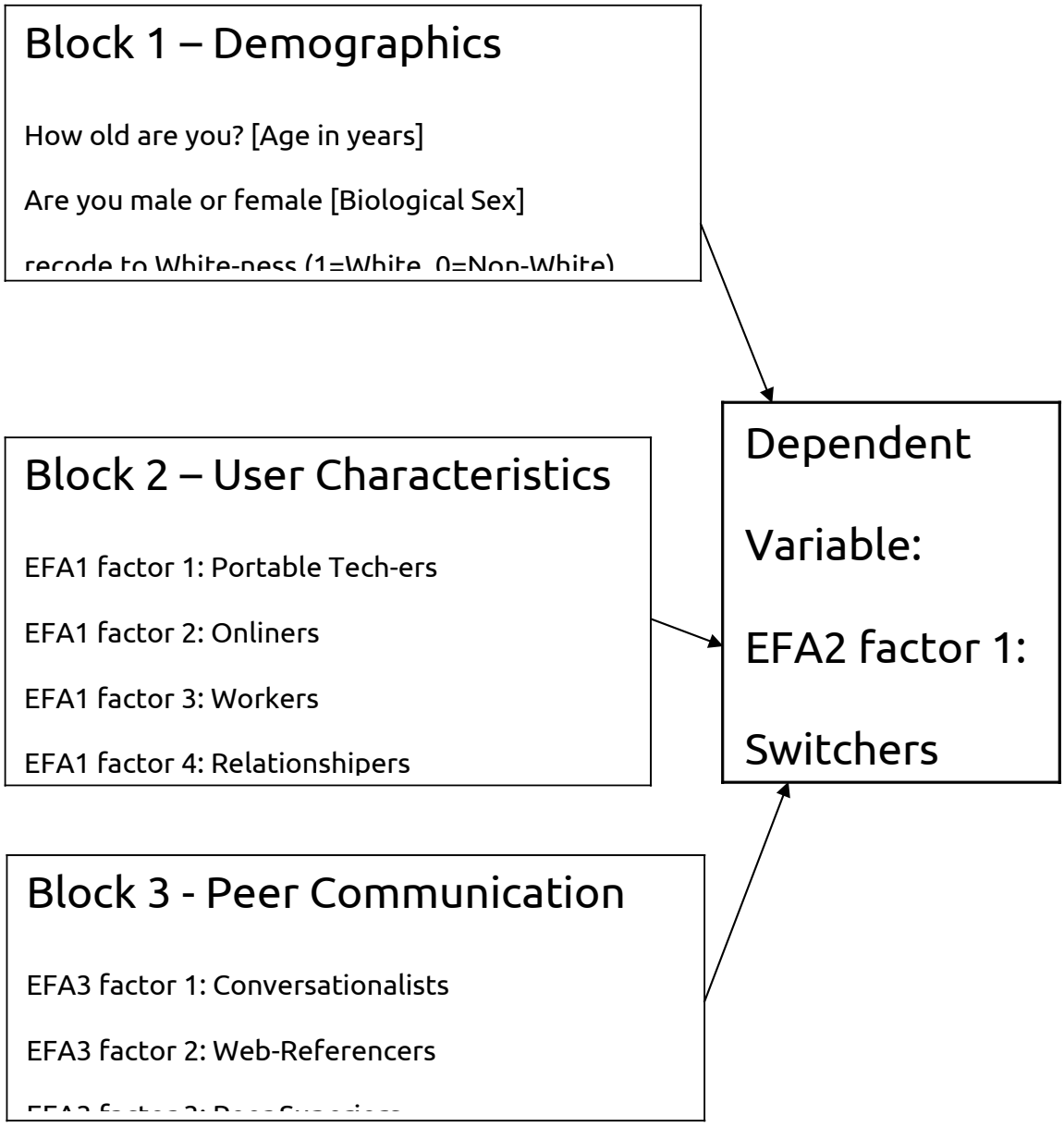
Rotation Method: Varimax with Kaiser Normalization.

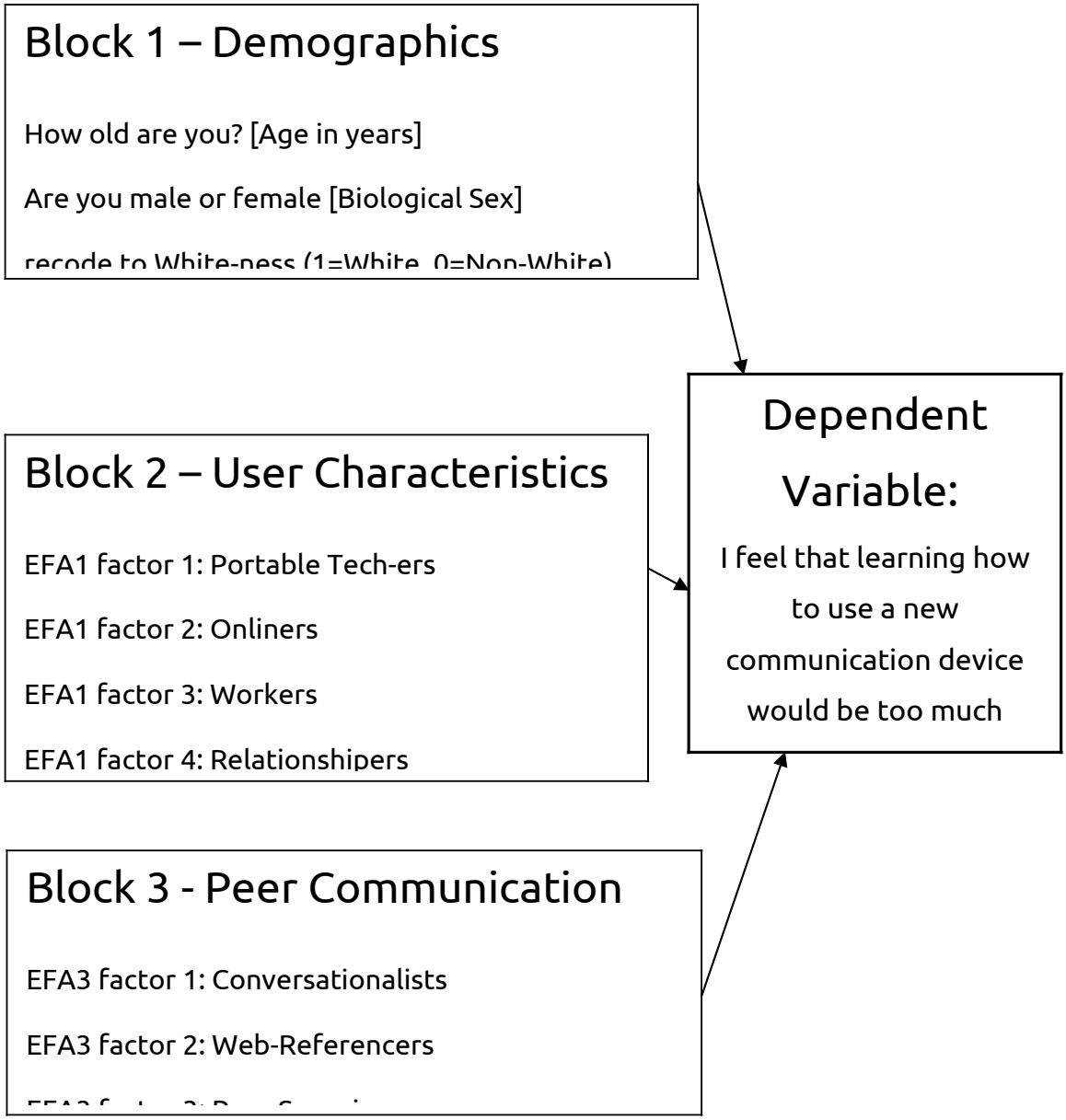
a. Rotation converged in 5 iterations.

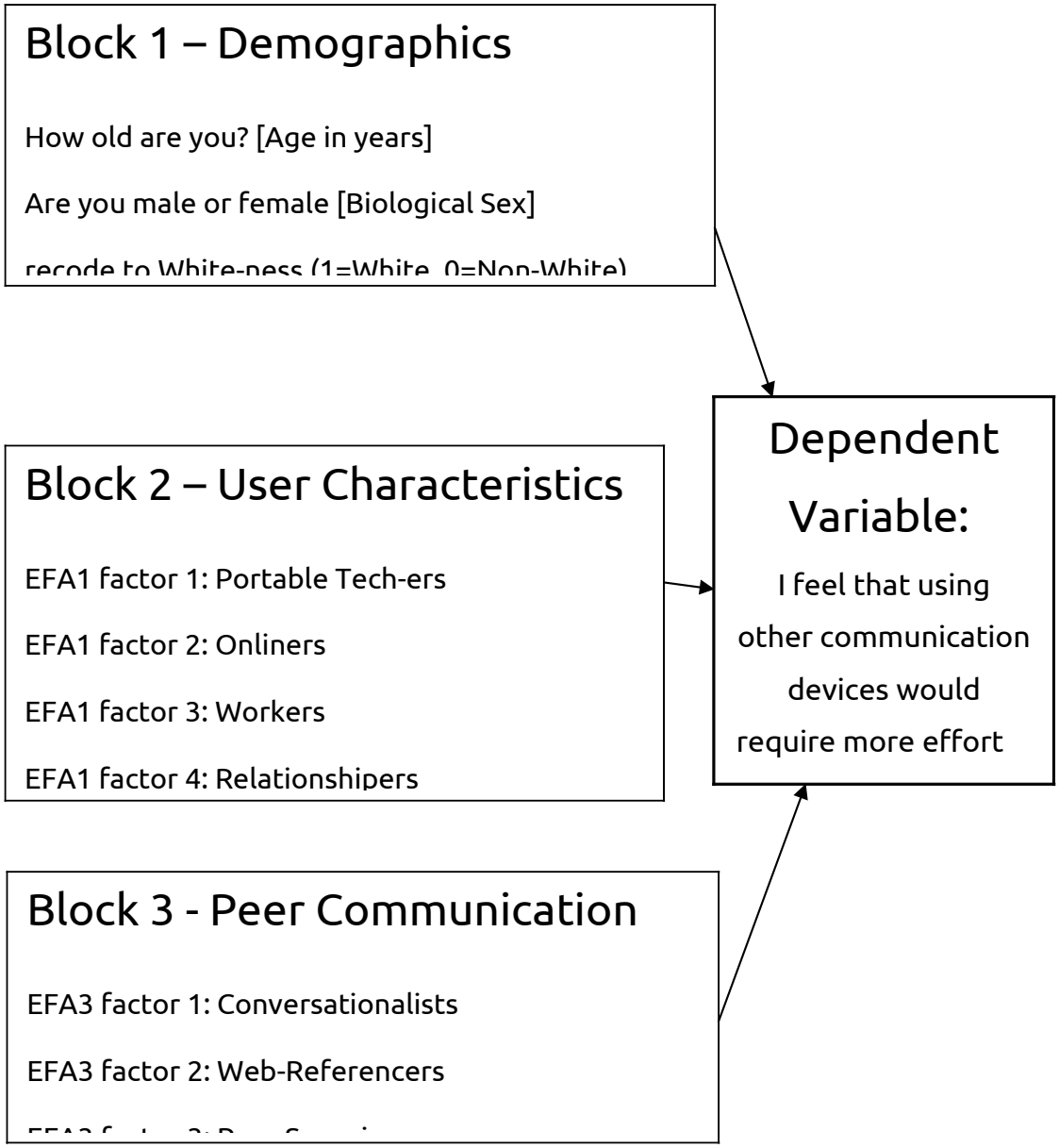
1-conversationalists, 2-web referencers, 3-peer superiors

Appendix M Multiple Regression Graphic Representations

Multiple Regression One




Block 1 – Demographics
How old are you? [Age in years]
Are you male or female [Biological Sex]
recode to White-ness (1=White, 0=Non-White)
Block 2 – User Characteristics
EFA1 factor 1: Portable Tech-ers
EFA1 factor 2: Onliners
EFA1 factor 3: Workers
EFA1 factor 4: Relationshipers
Block 3 - Peer Communication
EFA3 factor 1: Conversationalists
EFA3 factor 2: Web-Referencers
Dependent Variable:
I feel that learning how to use a new communication device would be too much


Block 1 – Demographics
How old are you? [Age in years]
Are you male or female [Biological Sex]
recode to White-ness (1=White, 0=Non-White)
Block 2 – User Characteristics
EFA1 factor 1: Portable Tech-ers
EFA1 factor 2: Onliners
EFA1 factor 3: Workers
EFA1 factor 4: Relationshipers
Block 3 - Peer Communication
EFA3 factor 1: Conversationalists
EFA3 factor 2: Web-Referencers
Dependent Variable:
I feel that using other communication devices would require more effort

Appendix N Multiple Regression Tabled Results

Hierarchical Multiple Regression One, Switchers

| Block # | Predictor Variable | r | Final β | $R^2$ change |
|---|---|---|---|---|
| 1 | | | | 0.003 |
| | Age | 0.025 | 0.005 | |
| | Sex (male-ness) | -0.005 | 0.071 | |
| | Race (white-ness) | -0.049 | -0.037 | |
| 2 | | | | 0.117*** |
| | Portable Techers | 0.226*** | 0.163*** | |
| | Onliners | 0.220*** | 0.191*** | |
| | Workers | 0.110** | 0.081 | |
| | Relationshipers | 0.060 | 0.046 | |
| 3 | | | | 0.028** |
| | Conversationalists | 0.209*** | 0.099* | |
| | Web-Referencers | 0.086* | 0.031 | |
| | Peer Superiors | 0.200*** | 0.151** | |

$R^2 = 0.147$. Adjusted $R^2 = 0.129$

$F_{(10,463)} = 7.989$, $p < 0.001$.

Note: *$p < 0.05$. **$p < 0.01$. ***$p < 0.001$

Hierarchical Multiple Regression Two, Laziness, Learning Is Too Much Work

| Block # | Predictor Variable | r | Final β | $R^2$ change |
|---|---|---|---|---|
| 1 | | | | 0.039*** |
| | Age | 0.102* | 0.012 | |
| | Sex (male-ness) | -0.169*** | -0.274* | |
| | Race (white-ness) | -0.068 | -0.212 | |
| 2 | | | | 0.008 |
| | Portable Techers | -0.051 | -0.027 | |
| | Onliners | 0.010 | 0.058 | |
| | Workers | -0.041 | -0.027 | |
| | Relationshipers | 0.032 | 0.078 | |
| 3 | | | | 0.063*** |
| | Conversationalists | -0.122** | -0.158* | |
| | Web-Referencers | -0.221*** | -0.263*** | |
| | Peer Superiors | 0.118** | 0.134* | |

$R^2 = 0.110$. Adjusted $R^2 = 0.091$
$F_{(10,471)} = 5.822$, $p < 0.001$.
Note: *$p < 0.05$. **$p < 0.01$. ***$p < 0.001$

Hierarchical Multiple Regression Three, Laziness, More Effort

| Block # | Predictor Variable | r | Final β | $R^2$ change |
|---|---|---|---|---|
| 1 | | | | 0.015 |
| | Age | 0.070 | 0.014 | |
| | Sex (male-ness) | 0.053 | 0.103 | |
| | Race (white-ness) | 0.075 | 0.234 | |
| 2 | | | | 0.066*** |
| | Portable Techers | -0.147** | -0.173* | |
| | Onliners | -0.188*** | -0.245** | |
| | Workers | -0.016 | 0.035 | |
| | Relationshipers | -0.096* | -0.138* | |
| 3 | | | | 0.018* |
| | Conversationalists | -0.155*** | -0.115 | |
| | Web-Referencers | -0.053 | -0.018 | |
| | Peer Superiors | -0.157*** | -0.191** | |

$R^2 = 0.099$. Adjusted $R^2 = 0.079$
$F_{(10,444)} = 4.889$, $p < 0.001$.
Note: *$p < 0.05$. **$p < 0.01$. ***$p < 0.001$