

THE FLORIDA STATE UNIVERSITY

COLLEGE OF COMMUNICATION

EVALUATING COMPUTER-MEDIATED COMMUNICATION ON THE  
UNIVERSITY CAMPUS: THE IMPACT OF FACEBOOK.COM ON THE  
DEVELOPMENT OF ROMANTIC RELATIONSHIPS

By

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The following is dedicated to Dad and Mom, Stacey and Rich, Libby and James, Jamie, Findlay, Timmy, and Emily. Thank you for your unconditional love and support.

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## ABSTRACT

Specifically, this study examined if students have been using Facebook.com rather than, and/or in addition to, traditional face-to-face techniques, to establish romantic relationships. A group of 440 undergraduate students were given surveys to complete during class. The survey measured the students' intensity of Facebook usage and also directed each participant to reference an instance where they had met someone socially and later checked them out on Facebook. With this in mind, students were presented with three traditional face-to-face interaction scales: the attributional confidence scale, the interpersonal attraction scale, and the perceived similarity scale. To analyze this data, correlation and independent sample t-tests were run to determine whether students with high intensity Facebook usage were more likely to score higher on these respective scales.

Results showed that there were moderate to large correlations between scores on the Facebook Intensity Scale and the attributional confidence scale ( $r = .480, p < .001$ ), the interpersonal attraction scale ( $r = .330, p < .001$ ), and the perceived similarity scale ( $r = .268, p < .001$ ), at levels of significance. Furthermore, the results showed that higher scores on the Facebook Intensity scale were also correlated to higher scores on the physical attraction portion of the interpersonal attraction scale ( $r = .350, p < .001$ ). Finally, results also showed there was a significant correlation between students in Greek societies and scores on the interpersonal ( $r = .252, p < .001$ ) and perceived similarity scales ( $r = .218, p < .05$ ). Therefore, positive correlations existed between those who use Facebook more intensely and those who are confident of attributes of, interpersonally attracted to, and perceptive of similarity to fellow Facebook members.

# 1. INTRODUCTION

The innovations brought about by communication technology permeate our society at every level. More specifically, in the past decade we have seen an explosion of communication technology that spans media, reaching consumers in many new ways. Initially, access to technologies such as the Internet and cell phones was limited to certain segments of the population – early adopters, businesses, the affluent, and so on. However strange or inaccessible these technologies were at the start, our society has now fully embraced them. Cell phones are carried on our person, used in every possible public venue where conversations are broadcast in such previously hallowed grounds of silence as the darkened movie theater and the college classroom. The Internet has also emerged from the minds of DARPA to the desktops and laptops of consumers across the globe.

No generation has been as impacted by this wave of technological innovation as the current one. Today's 18-24 demographic has access to technology at increasingly greater levels. College students today go without grounded phone lines and rely on cell phone technology to keep them up to date with friends, news, and entertainment. The use of the Internet among college students has also greatly increased. Virtually all college students have access to the World Wide Web and the majority of those students are accessing web sites from home, work, and in the classroom. The large amounts of free time, ease of access, and as this paper will show, the need to communicate among each other have ensured that college students will continue to use the Internet as a vital tool.

It is at this technology-infused juncture that scholars of communication must investigate the lasting social impacts of such powerful media. Most notably, we must ask questions about how Internet technology is affecting the way we live, but especially how we communicate and establish relationships with each other.

Earlier generations of Internet users scanned newsgroups, message boards, and multi-user dimensions for romantic connections (Parks & Floyd, 1996). While intriguing, these early Internet technologies limited the traditional means of interpersonal interaction. By the late 1990s, web sites such as Match.com and eHarmony.com were introduced, providing romantic relationship pairing for a price. These second-generation

dating web sites were more interactive and provided much more background-content than a simple avatar or user name. However, such sites were slow to gain popularity due to questions about the truthfulness of user self-disclosure and a general stigma (at the time) attached to “meeting someone online.”

Not a dating service website, Facebook.com thereafter referred to simply as “Facebook,” has recently seized the opportunity to match college students and their need to assimilate both on and offline. Established in February 2004 among a group of Harvard University sophomores, Facebook was initially intended as an online profile directory of Harvard students. However, its popularity among the student body there quickly led founder Mark Zuckerberg to open the site to the rest of the Ivy League. By December of the same year, the website had granted access to more and more students at universities across the nation, with a registered population of one million.

One year later, Facebook had spread to more than 2,000 colleges internationally and could boast a registered population of more than 11 million users. On campuses across the globe, students became more and more enamored with Zuckerberg’s (at first) humble creation.

Facebook’s reputation was spreading word of mouth around college campuses to the extent that the question “Are you on Facebook?” became synonymous with asking for someone’s cell phone number or e-mail address. In fact, in September 2005, the Internet web site *TechCrunch.com* performed a study of the increasing popularity of the web site. They found that about 85% of American college students had a profile on Facebook. The study also uncovered staggering login rates for the web site: up to 60% of college students log in daily, with 85% logging in once per week, and 93% logging in at least once per month.

Furthermore, according to a September 2006 *Wall Street Journal* article, Facebook has become “one of the ten most viewed sites on the web” (Warren, et. al, B1), with more than 6.1 billion page views in July 2006. Not surprisingly, these sorts of penetration rates have caught the attention of the corporate world to the tune of \$750 million. That is the amount of the offer that was made in late March 2006 to buy the two-year-old web site. Facebook’s creators calmly rejected that initial offer and rumor has it

known through various financial channels that they were seeking a bid in the neighborhood of \$2 billion (Rosenbush, 2006).

According to leading tech blog, *TechCrunch*, “the biggest use of the site appears to be dating.” (Arrington, 2006) That is no secret among college students. Many individuals have professed to scanning the website for hours, probing the various personality profiles of potential mates. In terms of interpersonal relationships, Facebook can be used for a variety of information-gathering purposes because of the nature of a user’s profile. Located within this page is a range of information from full name, academic major, birthday, residence, extra-curricular activities, and even phone numbers and e-mail addresses. Furthermore, users can post information about their likes and dislikes, offer paragraphs defining their personality, as well as provide information on their dating status. Finally, users can post an unlimited number of pictures of themselves and others. This onslaught of information provides a browsing user with a virtual biography or extensive background check of any fellow student.

Consider having access to this surplus of information when developing a personal relationship. According to initial relationship development research, the beginnings of personal relationships are defined by great uncertainty (Berger and Calabrese, 1975). Simply said, we begin personal relationships with little information about the other person. However, we are driven to reduce the uncertainty and to learn more information about the other person if one of the following conditions is present: first, we would need to have some sort of incentive to find out more about the other person. Second, we need to anticipate meeting this person (again) at some point in the future.

Clearly, college students do have a motivation to learn more about one another because most seek romantic relationships, however brief or intimate these relationships may be. These relationships may last as long as months or as short as one date. In addition, because the college environment is closely connected in a physical sense, students believe it is possible to meet face to face with someone who they have “checked out” on Facebook.

Whether the motivation to learn more about another user is to seek a romantic relationship or envision a future meeting, Facebook is able to assist with either condition.

The web site, through the information provided by its users, can guide the initiation of a relationship by offering access to information that reduces uncertainty.

This leads to the key questions that this study will examine. How are students using Facebook to develop romantic relationships? Because the process of information gathering and consequently uncertainty reduction can take place via Facebook, how are students turning to this technology to develop romantic relationships?

## 2. LITERATURE REVIEW

Before this literature review commences, it is important to understand the format in which it has been constructed. Initially, I will review two theoretical perspectives on relationship formation found in the communication literature. Next, because information about computer-mediated-communication (CMC) has evolved with the technology, I will investigate how critical thought has changed or added to the body of communication research as technology has advanced over time.

### THE UNCERTAINTY REDUCTION THEORY

The current study will build on the initial research in relationship formation conducted by Charles Berger and Richard Calabrese in 1975. The two Northwestern University scholars developed the uncertainty reduction theory (URT) in their published piece “Some Explorations in Initial Interaction and Beyond: Toward a Developmental Theory of Interpersonal Communication.” In this piece, Berger and Calabrese first explore the steps (called “phases”) in the development of interpersonal relationships. The initial phase consists of communication that is focused on demographics. Information is shared symmetrically at a very basic level. Overall the depth of the conversation is limited, but the two interactants have an idea as to whether or not the relationship will pass this initial phase.

In the second phase of development, labeled by Berger and Calabrese as the “personal phase,” the interactants exchange more personal information as a way to get to know each other better. Conversations revolving around attitudes, basic values, and personal issues are central to this phase.

Deciding whether or not to meet in the future is the final phase of relationship development and is aptly named the “exit phase.” In summary, Berger and Calabrese do admit that there are scenarios in which there is rapid movement amongst these three phases.

Beyond the description of the three phases of interpersonal communication, Berger and Calabrese developed seven axioms and twenty-one theorems to explain the depth of the uncertainty reduction theory (URT). The first two axioms address the inverse relationships between strangers’ verbal communication and affiliative

expressiveness in contrast to uncertainty levels. While important, their direct impact is marginal when considering how Facebook is being used to form relationships.

The third axiom states that, because of the high levels of uncertainty present at the onset of the entry phase, individuals are expected to gather information about the other interactant in order to reduce uncertainty. Starting in the entry phase, Berger and Calabrese expect the interactants to participate in a series of question asking. These questions can usually be answered briefly. Berger and Calabrese offer examples such as inquiring about one's occupation, hometown, etc. During this concise question-and-answer session, several different attributes can be ascertained in a relatively short amount of time. Therefore, the axiom reads, "High levels of uncertainty cause increases in information seeking behavior. As uncertainty levels decline, information seeking behavior decreases" (p. 103).

The next axiom that Berger and Calabrese address is one that deals with uncertainty and intimacy level. In this discussion, they asserted that the characteristics ascertained during an entry phase question-and-answer period may expose not only similarities and dissimilarities in background but may also lead to predictions about similarities and dissimilarities about more crucial attitudinal issues. Therefore, if two persons predict that they will clash on intimate issues, it is likely they will choose to avoid those issues in conversation. Overall, the axiom assumes that "high levels of uncertainty in a relationship can cause decreases in the intimacy level of communication content" (p. 103).

Furthermore, it is widely theorized that similarities in attitudes, beliefs, and interests produce interpersonal attraction. The sixth axiom therefore asserts that an inverse relationship exists between similarities and uncertainty.

The final axiom proposes that a decrease in uncertainty levels produces increases in liking. Thus, as similarity increases, uncertainty levels decrease and liking increases. For the current study then, it follows that if Facebook is being used to gain a sense of similarity between two individuals, then it is possible that liking is also being increased.

To summarize, Berger and Calabrese offered the initial and most important study of uncertainty reduction. While their findings were developed solely with face-to-face

(FtF) interactions, this study will look to apply their research to CMC interactions only. Their axioms and subsequent theorems will offer much to this study of Facebook as both a starting point and a reference for the definition of the uncertainty reduction theory. It is their initial findings that have spurred this study's central concept, that Facebook is being used to reduce uncertainty, determine interpersonal attraction, and perceive similarity, and therefore is facilitating the development of romantic relationships.

### THE PREDICTED OUTCOME VALUE THEORY

Additional research done in the field of the uncertainty reduction theory has been provided by a range of scholars since Berger and Calabrese's initial 1975 study. Michael Sunnafrank of Arizona State University provided a reformulation of the URT in a 1986 article that details the value of the interactants' predicted outcome in initial interactions. This article introduced the importance of predicted outcome values (POV) in initial interactions, which serves as a major extension of Berger and Calabrese's primary URT research.

First, Sunnafrank posits, "individuals should be more attracted to partners and relationships when greater predicted outcome values are expected in the relational future" (p. 10) and second, "increasingly positive predicted outcomes will produce more communicative attempts to extend initial interactions and establish future contact" (p. 10). These two propositions can lend insight into the study of the college student and Facebook. For example, if college students believe that, for example, sexual interaction is a predicted outcome value in a relationship, individuals should be more attracted to each other in a college setting than elsewhere.

Along the same lines of logic, Sunnafrank also proposes "individuals will attempt to guide conversation toward topics expected to result in the most positive predicted outcomes" (p. 11). Guided conversations fueled by information gathered on Facebook can establish a notion of similarity and therefore reduce uncertainty, and possibly increase liking, which Sunnafrank would propose is a positive predicted outcome (i.e., the intent of the guided conversations in the first place).

Because of an individual's desire to maximize relational outcomes, he or she determines early in a relationship what the likely outcome-value alternatives will be for

that relationship. This, in turn, leads to a determination of the most positive course of action to abort the interaction or to intensify, or accelerate, the interaction. Either way, the individual seeks to introduce conversations and behaviors that would produce positive outcomes.

Sunnafrank modifies the axioms provided by Berger and Calabrese with regard to the cause of high uncertainty and increased information seeking by arguing that the number of interrogative questions being asked is less important than the amount of information that is sought. Therefore, while demographic questions may provide brief answers, deeper pockets of knowledge are sought in order to reduce uncertainty. For this study, this differentiation from Berger and Calabrese fits well into the structure of Facebook. While an initial meeting or a brief meeting could provide surface level of information, examining a user's Facebook profile offers significantly greater amounts of knowledge. Furthermore, Sunnafrank postulates that this deep information seeking starts immediately in a relationship. Because more detailed information is available, it should provide students with a further reduction of uncertainty and therefore, the ability to make more accurate predictions of future behavior.

Sunnafrank further argues that the expectation of positive outcome values drive up the level of intimate communication content. It is clear that once positive future outcomes are predicted, more intimate conversation will take place. Facebook, however, offers individuals the opportunity to skip this process. Users are able to gather intimate information from other users' profiles and, thus, more quickly allow users to assume positive future outcomes. With this process streamlined, future interactions can possibly guarantee a positive outcome rather than continue uncertainty. Either way, Facebook may provide interpersonal interaction techniques in an instantaneous online environment that traditionally would have to be executed in face-to-face interactions.

Finally, Sunnafrank rearticulates Berger and Calabrese's claim that increases in liking are directly affected by decreases in uncertainty. Based on the positive predicted outcome theory, Sunnafrank asserts "that higher forecasted outcome values will produce higher levels of attraction" (p. 25). If one can assume more positive outcome out of future interactions, then liking and attraction will increase.

In sum, Sunnafrank argues that his predicted outcome value theory was able to fill some theoretical holes in Berger and Calabrese's uncertainty reduction theory. According to URT, the interactant's goal is to achieve an understanding and predictability of actions of a target. According to POV, uncertainty reduction in initial interactions is driven by the interactant's desire to achieve a positive relationship outcome.

Applying these theoretical models to Facebook showcases its potential use by students to determine and predict the possibility of positive future outcomes in a relationship. Information provided on user profiles can lend insight into attitudinal tendencies and future behavior, thus potentially reducing uncertainty and influencing levels of attraction.

That is, URT proposes a negative relationship between uncertainty and communication amount, nonverbal affiliation, content intimacy, and liking. As uncertainty is reduced, each of these variables is increased. When it comes to information seeking, URT reveals a positive relationship with uncertainty: when uncertainty is high, the level of information seeking will also be high. According to URT, regard for the goal of the relationship outcome is not considered. However, POV reasons that positive and negative outcome value of an initial interaction will determine the relationship between uncertainty and each of these variables.

Therefore, when the predicted outcome value is positive – stressing a desire for continuing interaction in the future – there is a negative relationship between uncertainty and communication amount, nonverbal affiliation, content intimacy, and liking. If a future relationship is deemed to be a positive future outcome, then uncertainty decreases as these four variables increase. On the other hand, if the predicted outcome value is negative – stressing a desire to terminate any future interaction – there will be no association between uncertainty and the four aforementioned variables.

Further, according to URT, when initial uncertainty is at a high level, information seeking will also be at a high level. For example, when interactants meet for the first time, they are uncertain and will seek information to reduce their uncertainty. Consequently, once uncertainty is reduced, there is less of a need to seek information. POV theory, however, states that if predicted outcome values are positive, then

individuals would increase their information seeking. Such information seeking allows individuals to further test their predictions and possibly aids them in securing the positive outcomes they project. Consequently, when predicted outcome values are negative, individuals are expected to decrease their information seeking as a result of their desire to terminate the interaction.

In sum, the current study will look to these two communication interaction theories as the framework for the development of relationships among strangers. The FtF processes they describe will be analyzed in comparison to the potential actions taking place via CMC on Facebook.

### PRIMITIVE COMPUTER MEDIATED COMMUNICATION

Because this study will later argue that students are fusing offline and online interaction theories when using Facebook, both interpersonal interaction theories as well as computer-mediated communication theories must be evaluated. Furthermore, it is important to single out the impact of the Parks and Floyd (1996) study in the early research of relationship building and CMC as a way to compare how much has changed in the ten years since its publication. Even more important is how Facebook has evolved to overcome the traditional limitations inherent in romantic relationship development using CMC, an issue that will be addressed later.

In “Making Friends in Cyberspace,” Parks and Floyd (1996) address the development of personal relationships in online settings. Their study was primarily focused on the then-popular Internet newsgroups. In these forums, individuals could discuss a range of topics without the bevy of communicative cues normally produced by face-to-face (FtF) communication.

Parks and Floyd maintain that because these social cues are eliminated in on-line settings, computer-mediated-communication (CMC) is “judged to have a narrower bandwidth and less information richness.” This is mostly in part to the reduction of contextual, visual, and aural cues that are present in FtF communication and absent in CMC. Because users must manage their uncertainty, Parks and Floyd contend that users will adapt the available CMC cues to meet their needs when devoid of FtF cues. If given time, however, users will be able to gather information, although this process will be

much slower than in FtF settings due to the asynchronous nature of the CMC technologies used at the time. As the authors noted, the transfer of personal information can take place, but “it may take longer to do so.”

Parks and Floyd (1996) highlight more of the limitations of CMC in the development of romantic relationships. Traditionally, newsgroups and basic e-mail correspondence did not offer the ability to provide any descriptors with regard to physical appearance. Furthermore, CMC also lacks the relationship development factors of “physical proximity, frequent interaction...cues about group membership, and information about the broader social context.” Absence of these cues in CMC settings served as a major impedance to romantic relationship development online.

The features present in today’s World Wide Web, however, and especially in Facebook, can strike down some of the last decade’s reported CMC limitations. Facebook is a visually-stimulating meeting place, with a bevy of photographs posted in online profiles, and it is also an in-depth meeting place, complete with a multitude of background information. Users of Facebook can know and see more of other users than any previous CMC meeting place ever before. Yet, even if one were to ignore the increased amount of personality and physical cues present in Facebook, Walther (1992) has stipulated that users devise methods of relationship initiation and impression formation in CMC based on whatever cues, no matter how limited, are available.

In his landmark study Walther (1992) examined primarily e-mail correspondences and found that “Although CMC may not be as efficient, however, there is less reason to think it may not be as effective when time is not of the essence” (p. 80). The argument centered on the idea that while information exchange in CMC may take longer than FtF interactions, individuals are able to create ways in which affection and metacommunicative cues are present and effective. Users of CMC, therefore, employ “textually conveyed information” to form simple impressions of others (p. 72). These may include the use of “relational icons...intentional misspelling, lexical surrogates for vocal segregates, spatial arrays, grammatical markers, absence of corrections, and capitalization” (p. 79). These cues allowed users to form meaningful relationships with others via CMC as long as time was not restricted in the experimental studies.

Essentially, given CMC as a means of initial interaction, users have found ways to send and decode textual-based information, the likes of which are located at length on Facebook profile pages.

## CMC AND THE HYPERPERSONAL PERSPECTIVE

In addition to the idea that CMC can, in fact, be used in impression formation, Walther (1996) introduced a new hyperpersonal communication perspective that established “several instances in which CMC has surpassed the level of affection and emotion of parallel FtF interaction” (p. 17). In breaking down the new perspective, Walther explained its impact on traditional communication process factors such as receiver, sender, and channel.

With regards to the receiver, Walther noted that there is a heightened impact of traditional cues in hyperpersonal interaction. “In the absence of FtF cues and prior personal knowledge...social context cues or personality cues [that] appear in CMC take on particularly great value” (1996, p. 18). Continuing, this concept explained how CMC partners over-attribute the impressions they form of others when considering the miniscule amount of information they have been given about these individuals. In sum, senders of CMC find means to express personal cues through textual information and, in doing so, they also perceive a higher amount of cues than FtF interactants.

Investigating the sender in hyperpersonal interaction, Walther (1996) explained that individuals are likely to present themselves in a “socially favorable” light. Users are more likely to both deploy and select more favorable impressions in CMC, because they are able to selectively self-present (p. 19). Two elements of hyperpersonal interaction make this possible: first, communication cues are reduced, and second, communication in CMC is potentially asynchronous. As explained above, as certain communication cues are reduced, others are formed, and what little cues are available become intensified and highly valued. In addition, the sender in CMC has complete self-control over which cues are available (verbal and linguistic, although in Facebook’s case, photographic cues are available). Information about oneself, thus, is much “more selective, malleable, and subject to self-censorship” (p. 20).

Drastically altering the traditional communication channel, the asynchronous nature of CMC reduces the restrictions for the exchange of communication online as opposed to FtF interactions. While FtF interactions require the physical presence of both interactants, CMC allows individuals to take part at their own convenience. In addition, Walther (1996) cites that asynchronous interaction allows “the user almost unlimited time for editing, composing, sending, and receiving messages” (p. 24). This characteristic allows the sender to provide a more positive self-presentation through their means of communication by planning their discourse instead of adapting their discourse spontaneously in FtF. As a result, there are people who are more comfortable communicating and forming relationships online than they are offline.

### EXAMINING CMC AND FTF RELATIONSHIPS

In 2000, an article published in *Family Relations* by Merkle and Richardson examined the difference between computer mediated and face-to-face relationships. They evaluated this difference in four basic dimensions: “the process of relationship formation and dissolution, the nature of self-disclosure, methods of conflict management, and the meaning of infidelity” (p. 188). With regard to the current study, only the first two dimensions need be examined. Like Sunnafrank’s 1986 article, Merkle and Richardson (2000) assert that the initiation of a relationship, whether FtF or computer-mediated, depends on the prediction that outcome values will be high, that individuals seek positive rewards in relationships.

Also, like Parks and Floyd (1996) before them, Merkle and Richardson (2000) illuminate the differences in, and the requirements of, CMC and FtF relationship development. The first necessity for relationship development in FtF relationships is spatial proximity. There are a host of other factors that are present, but “the absence of any face-to-face interaction guarantees that two people can never come to know one another” (p. 189)”

Beyond spatial interaction, the second part of FtF relationship development is physical attractiveness and attitudinal similarity. “Eventually, should attitudinal similarity and physical attractiveness be discovered in one individual, the likelihood that a successful and intimate relationship will develop substantially increases” (p. 189). Both

attitudinal similarity and physical attractiveness are elements that can be provided on a Facebook user profile and their impact will be surveyed later in this study. Finally, Merkle and Richardson noted that self-disclosure is the third component of FtF relationship formation. Self-disclosure (the act of revealing personal information to others) provides a sense of connection as well as initiates emotional, romantic, and sexual attraction. Although Merkle and Richardson specified that these three steps are attainable only through FtF relationship building, new online communication sites like Facebook are providing (at least in theory) the necessary information to develop relationships without FtF communication.

In order to contrast FtF relationship building, Merkle and Richardson outlined how computer-mediated relationships begin. In these instances, the contact – whether via chat rooms, message boards, or e-mails – is initiated fairly randomly, and in time if the individuals determine an interest in one another, the topic of their text conversations can become personal and intimate. Physical appearance, because of its complete absence, becomes insignificant while personality and worldview compatibility become salient. The likelihood of the two individuals actually meeting is unknown, as research is inconclusive on how often computer-communicated relationships become off-line relationships.

In terms of self-disclosure, Merkle and Richardson cite recent studies that have shown self-disclosure at higher levels in computer-communicated relationships than in FtF interactions (Wysocki, 1996, 1998 and Montgomery, 1994). The main reason for this somewhat surprising assumption, according to the authors, can be attributed to the relative anonymity and, therefore, safety afforded by computer-communicated relationships. In FtF interactions, there is a sense of self-suppression of information since individuals are hesitant to disclose themselves until they feel safe. In this way, CMC serves as a safe harbor to many individuals. It provides users an opportunity to say whatever they want about themselves without any fear of reproach or any of the discomfort of FtF interactions. It follows that in many ways a glimpse into a Facebook profile may provide a greater look into someone's true self than a physical interaction

with them. It must be stated, however, that this same property of CMC also makes it easy to lie and be dishonest when it comes to self-disclosure and Internet communication.

Tidwell and Walther (2002) also examined the exchange of personal information among individuals in a CMC context and how impressions are formed based on that exchange relative to FtF interaction. The authors were quick to note that until this point, the theory of uncertainty reduction has not been directly applied to the study of CMC. This theory does, however, present itself as the foremost theory in impression formation and initial FtF relationship development. With the uncertainty reduction theory serving as the framework, Tidwell and Walther cite that information gathered in initial stages is what leads individuals to create impressions of others and in general, reduce their uncertainty. In CMC, however, the methods by which that information is accumulated are different than in FtF interactions. The article means to decipher these methods by exploring the passive, active, and interactive strategies that the uncertainty reduction theory presents as means to reducing uncertainty.

In the passive strategies, an “information seeker collects information about the target without affecting the target’s or other actors’ behavior” (p. 321). By watching how a target interacts with and reacts to others, an individual is participating in the first type of passive strategy. The second type of passive strategy involves the observation of the target’s interaction with individuals who are known to the individual. The final type of passive strategy is a process of identifying situations where a target is in the process of reducing their inhibitions.

The two active strategies involve asking others about the target and intentionally structuring an environment to view the reaction of the target in a manipulated situation. In both of these strategies, it is important to be mindful that the target is not engaged face-to-face. Finally, the three interactive strategies involve directly confronting the target by detecting deception, asking questions, and communicating at a level of self-disclosure.

Tidwell and Walther’s impetus for explaining these strategies is predominantly a result of their desire to compare how and if these strategies can be used in both FtF and

CMC interactions. It is determined that all of these strategies can be applied in FtF situations, however, the implementation of these strategies in CMC is left in doubt.

The active strategies deployed in uncertainty reduction situations also are difficult to utilize in CMC environments. The latter of the two active strategies, environment restructuring is practically impossible in CMC situations. When considering asking third parties for information, CMC would also be somewhat restricted. Finally, when it comes to interactive strategies, Tidwell and Walther argued that there is a possibility for application in both FtF and CMC. This, however, does not include deception detection, a characteristic that is difficult to identify in CMC because the non-verbal cues identifiable in FtF interactions are not present.

However, newer sites such as Facebook may be overcoming this limitation. Questions used to detect deception directly, but because of the information that Facebook provides, such basic questions are already answered. The information provided allows a user to gather a large amount of information about a target without having to ask direct questions. In this sense, there is a direct passive nature to the expedited process of information gathering that Facebook provides as CMC, as opposed to the direct interrogation provided in FtF situations. Because self-disclosure can control impression formation, Facebook may serve to offer a raised level of intimacy in the representation of the “real me” and the self-presentation of information available on user homepages.

The results of Tidwell and Walther’s research experiment exhibited some interesting findings. By using an experiment testing both CMC and FtF interactants the authors determined that CMC interactants use more interactive reduction strategies than FtF interactants. Deception, detection and self-disclosure strategies, therefore, are strong components of reducing uncertainty. The study also found that CMC interactants were generally seeking and distributing more intimate questions and answers than FtF interactants. This finding may lead to the assumption that it is increasingly more easy to gather in-depth information from a CMC source, like a Facebook profile, than in an FtF interaction.

The researchers conclude, “CMC interactants appeared to employ a greater proportion of more direct, interactive uncertainty reduction strategies – intermediate

questioning and disclosure – than did their FtF counterparts” (p. 339). This result fits directly into the Facebook information providing and self-disclosing paradigm, further explaining how Facebook could be potentially employed as an means of uncertainty reduction, intimacy building, and relationship development.

Also examining the new methods of information-seeking and impression formation on the Internet is a 2002 study conducted by Ramirez, Walther, Burgoon, and Sunnafrank. This study employed the POV theoretical framework established by Sunnafrank. This article provided the first opportunity for his POV theory to be applied to computer-mediated communication. Specifically focused on presenting a conceptual model for the process of information seeking in CMC, the authors defined information seeking as “the pursuit of desired information about a target” (p. 217). In their case, the definition of uncertainty reduction was slightly altered. Instead of its widely recognized theoretical definition, uncertainty reduction was used as a measuring stick to analyze the effectiveness of information seeking. It served as a measurement to contrast the information desired and the quality of that information.

The article’s general framework was bound by three major assumptions. First, information seeking is goal driven. Information seeking is not an end in itself but the means of achieving a combination of goals whether social, emotional, or perhaps physical. The purpose, then, of information is simply to aid in goal achievement, while bound by goal salience. The second major assumption stated that the more important the goal of information seeking, the “greater number of strategies a communicator will employ utilizing CMC” (p. 218). If the goal salience is high, a communicator is more likely to use a web site to seek information, make predictions, and develop impressions and attractions. The final assumption proposed that CMC is able to provide information that is accessible in new and unique ways. CMC offers avenues of communication that are unavailable in FtF contexts and does so in a relatively safe and free environment.

Much like the Tidwell and Walther (2002) article, Ramirez et al. (2002) also used the various strategies of the uncertainty reduction theory to explain how CMC can be compared to FtF communication. In their examination of interactive strategies, direct interrogation and self-disclosure, they posit that the restrictions of traditional FtF cues in

CMC can potentially “intensify the use of these strategies” (p. 219). Citing Tidwell and Walther’s research findings, the authors come to the conclusion that because of the lack of verbal and visual cues in CMC, individuals have evolved traditional strategies to fit their pursuit of effective information seeking.

In the exploration of active strategies, Ramirez et al. (2002) acknowledge that third-party information sources can be difficult to find in CMC because of the smaller nature of social networks available online in comparison to offline. The authors, however, propose that new types of information technology have impacted interactive strategies in CMC. The article specifically mentions how search engines can be used to locate a home page created by or mentioning the target and how users can search electronic postings submitted by the target on message boards. This new technological advances are dubbed “extractive strategies” (p. 219). They represent a type of information seeking that is completely absent from FtF interactions. More importantly, this type of information can become especially valuable because it is retrieved “covertly, and without the target’s knowledge” (220).

As a result, Ramirez et al. (2002) formulated a new CMC paradigm to offset both the growth of technology and the increased amount of users online. In such a paradigm, the authors contest that types of information-seeking behavior are determined by a set of factors and possible outcomes. It is important to note that these factors are neither causal nor procedural. One factor may influence one stage of information seeking, multiple factors may influence at different stages, and factors may even be skipped during the information seeking process.

The first factors defined by this study are communicator-related factors. These factors are defined solely by the characteristics of the communicator. The characteristics may encourage or discourage a communicator to follow a specific pattern of information seeking during each information-seeking process. The authors note that the skills of an individual may steer him/her to a particular strategy not necessarily because that strategy will be the most effective, but that the strategy is most familiar and has been personally the most successful strategy for that individual. Because of this individualization, communicator-related factors are completely intrinsic.

Oppositely, external influences are what affect the set of factors known as situation/context factors. Situation factors include amount of available time to seek information and the location of available information-seeking resources.

The third type of factors is goal-related factors. Differences in the types of goals may produce differences in the approach to information seeking. Certain goals can be defined by the concept of time. Long-term goals, such as the development of prolonged romantic relationship, would require a different strategy than the goal to initiate a short-term relationship. The immediacy of the goal also belongs to this set of factors.

Information-related factors are designated in order to give insight into the quality, quantity, and type of information that is required. In some cases, the amount of information required is extremely high while in other instances, the information required can be very small and very narrowly defined.

The final factors are technology-related. These factors are directly impacted by the available communication and information technology. Does a user believe that a particular technology is an effective and efficient information-seeking tool?

These five factors comprise the conceptual model of information seeking in CMC as defined by Ramirez et al., (2002). They are identified as the factors that influence the initial process of information seeking.

In a 2002 article from McKenna, Green, and Gleason, the development of relationships online is further discussed, especially with regard to self-disclosure. They investigate the notion that greater intimacy and closeness can be achieved through Internet communication. Citing that users are able to leapfrog the usual obstacles that obstruct traditional FtF interactions, the authors propose that several of the features of the Internet are able to facilitate relationship development.

The article lists three facilitators that are critical to this development. The first facilitator is the intimacy and anonymity of Internet communication. The Internet reduces the risk of disclosure because there are no fears of disapproval or sanction. The second facilitator is a reduction of the “gating features” that characterize interpersonal communication. To this end, the authors describe such elements as physical appearance, stuttering, shyness, or any other social anxiety as barriers to the establishment of a

relationship. These interpersonal gates will often prevent a relationship from getting off the ground, but if intimacy is disclosed via computer-mediated communication, relationships have a strong chance of development. This phenomenon especially aids those lacking in the social skills necessary to produce strong first impressions and guarantee future interaction.

The third facilitator noted in the article is the user's ability to utilize the Internet to find similar others. "The unique structure of the Internet allows individuals to easily find others who share specialized interests" (p. 11). They cite that similarity among individuals produces greater attraction and increases compatibility as relationships grow. However, it may become difficult to find others who share similarities in offline environments. The limitations of FtF interactions may hinder the ability to establish if and to what extent commonalities exist among individuals. If users, in the case of newsgroups, are able to focus on a specific interest, it "may provide a headstart to relationships" (p. 11).

The authors further discussed the nature of self-disclosure. A distinction is made to highlight what is the "real me" that is presented in relationship development in order to build intimacy. This "real me" does not represent an individual's "public persona...but the identity-important yet usually unexpressed aspects of oneself" (p. 11). This "real me" is the truest version of self, but yet incapable of being presented socially. The conclusion is that Internet communication is able to present this true self, where FtF interaction can only display a version of self that is potentially repressed or at least, "unexpressed" in initial meetings. It is assumed that the non-threatening nature of the Internet is the primary cause.

## EXPLORING STUDENT USAGE OF THE INTERNET FOR RELATIONSHIP FORMATION

Another 2002 article exploring the formation of romantic relationships on the Internet was written by Donn and Sherman, this time specifically examining young adults attitudes about using the Internet for relationship development. In the article, Donn and Sherman sought to find the ways that people were using to form impressions via CMC,

since these ways seem to be dissimilar to the ways that impressions are formed via FtF interactions.

The first means is through the language used in CMC. Because the researchers primarily focused on how the absence of non-verbal cues inhibits impression formation, they subsequently emphasized the importance of language in CMC situations. Because CMC lacks an auditory channel, a stronger emphasis is placed upon language. They cited that “linguistically-borne cues are highly capable of conveying personality and attitude characteristics” (p. 109). For the purposes of this study, Facebook provides this characteristic not only in user profiles under categories such as interests, favorite quotes, and an “About Me” section, but also in the ability to post a blog and other “Notes” in a user profile. This availability of written text is arguably enough to offer impressions to an interested observer. This textually conveyed information can be quite telling through the use of diction, style, punctuation, misspellings, capitalizations, and exclamations.

In addition to language, the study cites disinhibition as a second means of forming impressions through CMC. According to the authors, studies have shown people to be more willing to share personal information online than in FtF interactions. This, in turn, allows for deeper and more intimate connections online than in person. By not withholding a user’s true self, the potential of relationship building using CMC channels increases.

Overall, the study sought to accomplish an in-depth exploration of the attitudes and behaviors of CMC and relationship formation among undergraduate and graduate students via survey. The results determined several interesting findings. First, many (62% of graduate students and 42% of undergraduate students) of the students reported to know someone who began or developed a relationship online. Second, after guiding participants through the web sites Match.com and Matchmaker.com, research showed that ratings of the sites were mostly negative. The researchers attributed this result to the absence of being able to judge physical appearance and the concern by participants that users would mislead others on these sites. With regard to the current project, Facebook eliminates the worry of physical appearance and also, because it is only open to college students and recent college graduates, it maintains a (presumed) level of honesty.

Because a user must be a student at the university to which he/she is joining on the Facebook network, a stipulation that is verified through a valid university e-mail, there is very little opportunity to present falsehoods in identification. Also, because the web site is perceived as a social networking tool, users are more than willing to post their true selves in order to find and attract future relationship partners.

Bonebrake put forth her own study in 2002 to examine how college students are forming relationships online. While previous research has concluded that individuals who did form relationships online were significantly different from those who did not form relationships online, this study found that there were no differences. Prior studies had shown that loneliness and anxiety were predictors of individuals who formed relationships online, but this study showed that those who formed online relationships were not socially inept. The findings point to a larger trend that developing relationships online is becoming a more and more credible means of meeting people, nearing the level of those who meet and develop relationships online. Especially among college students, the dividing line between online and offline relationship formation is possibly being erased.

## RESEARCH QUESTIONS

This review has covered the initial research of how romantic relationships are initiated and developed via interpersonal communication, measuring the impact of the uncertainty reduction and predicted outcome value theories. As time progressed and computers and the Internet were introduced into society, computer-mediated-communication altered the way these theories were applied. The first attempts at CMC provided little context for developing relationships, because they were text-based in nature. Uncertainty reduction could only take place actively by typing questions to other users. The answers that one consequently received were the only determinants for perceived similarity and attraction.

After examining this early form of CMC interaction, the next step for scholarly research made comparisons between CMC and relationship formation with the traditional face-to-face interactions. In the process, researchers discovered many disadvantages with relationship formation in CMC, citing such elements as false self-disclosure and citing, as

above, the limits of text-based conversation. Most notably, the work of Parks and Floyd (1996) was seminal in identifying the many limits of relationships formation across CMC. Contrastingly, Walther (1992 and 1996) was able to contradict many of the traditional stereotypes of CMC and introduce a new means of interaction (hyperpersonal) that must be considered when analyzing how Facebook is being used. Because I will assume that Facebook is already being used to develop relationships, it is important to tackle the issues that cloud the effectiveness of Facebook and detail how the web site has adapted to those traditional limitations.

First and foremost, Parks and Floyd (1996) make reference to the modicum of personal information and overall information richness in CMC settings. This is no issue for Facebook, which is full of personal information such as birth date, address, interests, hobbies, occupation, and more. Even if this bevy of information was not enough, Walther (1992) stipulated that users draw clues from whatever textual means are available as a way to gather information and form impressions about each other. Further mitigating the argument, Walther (1996) also stated that whatever social context or personality clues are present are highly valued and potentially over-attributed. The point being that the presentation of this information, even if it is only textual, is important because it can be utilized for impression formation in CMC settings.



Figure 1. Facebook profile page

Furthermore, critical to the development of interpersonal relationships is physical attraction. With the ability to host more than one thousand photographs per user, users of Facebook are able to evaluate this multitude and determine physical attractiveness quite easily. Self-disclosure regularly occurs on Facebook with many users posting a range of photographs that depict anything from beach and Spring Break activities to parties around campus to football tailgates. Users are eager to place photographs that their represent their most positive self. The dearth of photographs in both number and scope in some ways eliminate the need for traditional visual cues in FtF interaction. Once an initial meeting has occurred, or even if one has not, students may be able to use Facebook to determine the physical attractiveness necessary for relationship development.

Second, Parks and Floyd (1996) target physical proximity as a critical element of relationship development. Facebook also virtually eliminates this CMC challenge. The

nature of Facebook allows for the networking of students at the same university, which by definition involves a finite physical area. While the network does allow for friends to be created at other universities, the web site's primary goal is to allow for interaction among users within the same university network. In other words, the network to which a student belongs is open to more information about every student member that attends that university, in comparison to the type and amount of information available for students at other universities. This allows for the possibility of future interaction considering the network is located within a confined physical space: the college campus and surrounding area.

Furthermore, the features of Facebook allow for more specificity when it comes to physical location and possible interaction. Information located in a user's profile can lend particular details to future interpersonal meetings. For instance, some profiles will include information about where a user works, lives, and where classes are located. Knowledge of this information can greatly reduce the uncertainty of future interaction. Finally, Facebook also allows for users and groups to schedule events on and off campus. Using this feature, invited individuals can identify who will be attending this event and, therefore, gain another avenue with which to potentially interact.

A third limitation of CMC noted in the literature is the absence of group membership cues. Facebook potentially provides a solution to this issue as well. The web site provides users with the ability to join as many online groups as desired.



Figure 2. Group listing on Facebook profile page

Users also have the ability to create their own groups and invite whomever they choose to join them. Most students are members of many groups, which offer clues about their personality, their interests, and their attitudes. These groups are mainly social and, although they may never meet in a FtF setting, membership itself offers some definition to the user. The groups may relate to sports, culture, music, individuals, or can simply be declarative personal statements such as “I Will Wear Flip-Flops All Year Long No Matter How Cold It Gets.” Group membership of this variety can provide definite clues into personality and attitude, diminishing the previous limitations of CMC.

While Parks and Floyd (1996) focused primarily on CMC interactions, Merkle and Richardson (2002) attempted to compare CMC with initial FtF interactions. In examining the differences and commonalities between the two types of communication, they cited several critical elements of FtF interaction that were lacking in CMC. Most

importantly, they purported that CMC is bereft of developing physical attraction and establishing physical accessibility. While physical attraction relates directly to our second research question below, physical accessibility is most certainly available for Facebook users. Because a user will often provide details about their locations and because the university network is open among all students, a user needs very basic information to begin searching for a potential interest on Facebook to determine if a future meeting is possible. Some users will even browse their university network randomly in an attempt to see new faces and possibly initiate new relationships outside of their normal circle. Therefore, students can know that individuals located within the FSU network are candidates for a relationship that is local and not long-distance.

In addition to the Parks and Floyd (1996) study, Tidwell and Walther (2002) examined how FtF uncertainty reduction strategies could or could not be utilized in CMC. With regard to passive strategies, Facebook could be adapted to traditional FtF avenues. As a reminder, Tidwell and Walther (2002) identified passive strategies as those in which an information seeker gathers information about a target in an unobtrusive and solely observational manner. Thus, Facebook could be used to gauge the behavior of an individual with others, identified by Tidwell and Walther (2002) as the first type of passive strategy. The second passive strategy, observing the target's interaction with individuals who are known to the information-seeker, can also be accomplished using Facebook. Through the presentation of group photographs and the user's message board directly located on their profile page, an individual can track the user's conversations (albeit brief) and evaluate their interaction with others through photographs.

The other passive strategy that may make sense in the Facebook setting is the observation of user's candid behaviors where their inhibitions may be reduced. This strategy could only be used in specific contexts, because of the nature of what is posted and disclosed on user's profiles. However, some users are unafraid to post photos of inebriation, public crudeness, and general behavior that could be defined as presenting situations where social norms are disinhibited. While these strategies would certainly be less universal than observation in a FtF setting, there still remains the possibility for their execution with Facebook.

When it comes to active strategies, Facebook could be considered similar to FtF interactions if examined in the proper light. The primary active strategy in this study involves asking others about the target and can be applied because Facebook allows for viewing across the entire university network. Therefore, an observer would easily be able to contact third parties to weigh in with their opinions of the target. Often, observers will inform these acquaintances about the target and comprise their input on the target when seeking approbation regarding their attraction to the target. More directly, Facebook allows users to identify intermediaries that may exist between two non-related users.

One of Facebook's most prized features is the appearance of a friends' list that is linked from the user's profile page. Users can select other users to be friends with and this grouping of friends will appear in an alphabetized list on the linked page. The feature that is critical to the identification of intermediaries is that when examining a target's user profile, Facebook will display the friends who two non-related users may have in common. Therefore, a user could potentially ask those shared friends for information regarding the target.

A final interpersonal strategy specifically designed for CMC, introduced by Ramirez et al., (2002) and dubbed "extractive" (p. 219) can also be implemented through Facebook. By offering a home page where information can be recovered without any knowledge to the target, Facebook provides the opportunity for observers to search for valuable insights without the concern of being identified. Moreover, Facebook is able to track the usage patterns of individuals in their profiles. The Facebook home page is littered with up to date information as part of a "News Feed."

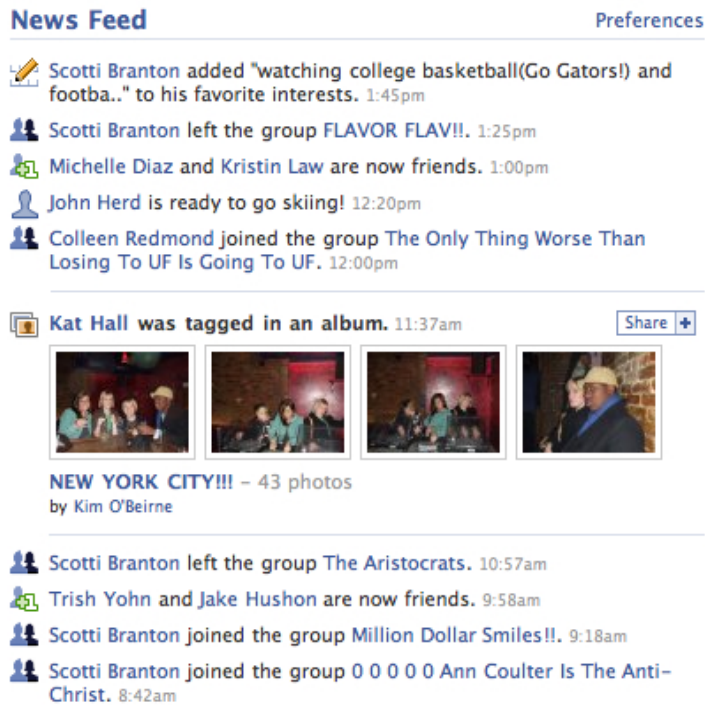


Figure 3. Facebook News Feed

This feed provides information on the activities of every friend located within your personal network. In addition, a mini-board of information dubbed the “mini-feed” is located on each and every profile, tracking recent profile updates, group memberships, comments, and relationships.



Figure 4. Facebook Mini-Feed

Therefore, for all of these reasons we will posit that relationship formation is already happening on Facebook because of the features it has adapted for that purpose. Not only has Facebook been able to overcome many of the limitations of early CMC and incorporate the unique aspects of FtF interactions, but the introduction of Facebook also was able to incorporate a majority portion of the college community with the purpose of online social networking. Newsgroups, message boards, and other primitive means of CMC are out of touch with today's generation of college Internet users. Even web sites such as eHarmony.com and Match.com, introduced before Facebook, rarely reached the college demographic because membership to those sites cost money and was seen as a desperate move for the average college student.

It stands to reason that the most popular web site for social networking among college students, Facebook can serve as a means for reducing uncertainty fellow university students. The bevy of information available asynchronously would seemingly be ideal for a user who wishes to learn more about a specific target. Therefore, I assume that people are using Facebook to develop relationships. The purpose of this study is to explore how they are doing so. I expect to see a relationship between heavy Facebook usage and the need for confident attributions that are a result of the communication that occurs in relational development. The term "confident attributions" is defined as part of a way to operationalize the uncertainty construct of Berger and Calabrese (1975). In a FtF interaction, individuals communicate and are later able to make attributions about one another. These attributions attempt to explain both past and predict future behavior. Therefore, I will use this operationalization to examine how confident Facebook users are about the future behavior of potential relationship targets. High levels of attributional confidence – that is, high levels of confidence when predicting a target's future behavior – should logically be attached to high levels of Facebook usage. However, because no previous research has confirmed this assumption, I pose the following research question.

RQ<sub>1</sub>: Is there a positive correlation between Facebook usage and confident attributions of communication that signify the reduction of uncertainty in interpersonal interactions?

I will expect to see a positive relationship between these Facebook and attributional confidence in our study.

The second research question will deal directly with the formulation of interpersonal attraction using Facebook. Berger and Calabrese (1975) argued individuals who seek to reduce uncertainty are expected to ask a series of questions about the target. Obviously this procedure is most effective during interpersonal attraction, but Facebook offers another means of providing the same amount of knowledge. Facebook, in its very nature, serves as an encyclopedic entry of fellow students. Given the initial meeting of two individuals, no matter how brief, Facebook offers a plethora of basic information from which a person can be judged. Just as Berger and Calabrese (1975) assumed that a short question and answer period would introduce certain attributes, Facebook can serve the same purpose for someone who a user may have briefly met.

As this process takes place and uncertainty is reduced, Berger and Calabrese (1975) postulate that liking and attraction will increase. I will assume for this study that Facebook is already being used to determine physical attraction because of the characteristics listed above. Furthermore, I might expect that those who are heavy users of Facebook will report higher levels of attraction to someone they have targeted for a potential relationship on the web site. However, because no previous research directly supports such a claim, I offer the second research question:

RQ<sub>2</sub>: Is there a positive correlation between Facebook usage and reported levels of social and physical attraction towards a relational target?

Berger and Calabrese (1975) further stated that as perceived similarity increases, uncertainty decreases and vice versa. The question arises, can similarity be perceived through Facebook? That is, using the wide array of information posted by a user, including photographs, group membership, etc, is a sense of similarity attainable? Merkle and Richardson (2002) presumed that discovering similarities was a difficult task in CMC. Yet by using Facebook, users may be able to perceive physical and attitudinal

similarities as well as similarities in hobbies, interests, and tastes. I might expect to see from heavy users of Facebook that they report higher levels of perceived similarity.

RQ<sub>3</sub>: Is there a positive correlation between Facebook usage and levels of perceived similarity towards a relational target?

The final research question will seek remaining correlations that may arise from demographical data. Does gender, age, membership in a fraternity or sorority, or any other factor impact how Facebook is being used to formulate relationships? Therefore, my final research questions reads as follows.

RQ<sub>4</sub>: Is there a positive correlation between demographic factors and uncertainty reduction, attraction formation, or similarity perception towards a relational target?

These four questions will help us discover how Facebook is being used for relationship development.

### 3. METHODOLOGY

A non-random sample of 440 Florida State University participants was recruited from three undergraduate courses. Two of these classes are mandatory classes for certain communication undergraduates, while the third is a requirement for all FSU students. All students were given an incentive for participation with extra credit or credit towards class participation. The four-page survey was distributed in these classes in November 2006. Before the survey was distributed, students were given brief instructions and information about confidentiality (see Appendix A and B). In one of the three classes, students completed the survey before class began. In a second class, students were handed the survey at the beginning of an exam and asked to return it at the conclusion of class. Finally, students in a third class returned the survey to the next class period, two days later, as a means of homework participation. Before any of these procedures took place, approximately fifteen random individuals were selected at convenience to pretest the survey, completing it and offering input on its construction qualitatively.

#### MEASURES

##### *INDEPENDENT MEASURE*

The instrument (see Appendix C) included four major survey scales as well as a brief section of demographic and attitudinal questions. The first question served as a screening for membership in Facebook; only current users of Facebook were surveyed. After this opening question, a scale to measure Facebook usage was introduced. The three remaining scales were measures that have been designed primarily for face-to-face interaction and relationships, each based on a 5-point Likert scale. They examined how Facebook is enabling uncertainty to be reduced, attraction to be formed, and similarity to be perceived.

The first measurement was the *Facebook intensity scale* (reported previous Cronbach's  $\alpha=.83$ ) developed by Ellison, Steinfeld and Lampe (2006). The importance of this scale is that it seeks to understand usage of Facebook beyond amount of usage. The scale begins with self-reported inquiries of total Facebook friends at Florida State University and how many minutes per day are spent on Facebook as nine and six-point scales, respectively. The scale concludes with six attitudinal questions that

seek to extrude a deeper connection to Facebook. Participants used a 5-point Likert scale to gauge their level of agreement with an array of statements ranging from “Facebook is part of my everyday activity” to “I would be sorry if Facebook shut down.” As Ellison, Steinfeld, and Lampe (2006) explained, these questions were “designed to tap into the extent to which the participant was emotionally connected to Facebook and the extent to which Facebook was integrated into one’s daily activities” (p. 13).

The *Facebook intensity scale* is what serves as the independent variable in this study, being used to gauge overall Facebook intensity of usage and compare with responses on the three other scales, all of which will serve as dependent variables.

### ***DEPENDENT MEASURES***

After the *Facebook intensity scale*, I introduced a short paragraph detailing a particular situation in order to prime the participants for the *attributional confidence scale* (CL7). The paragraph read as follows:

Often people meet socially and then they go and check people out on Facebook afterwards, especially if they might be interested in a romantic or sexual relationship. If you’ve ever done this or know someone who has, we want to know what you think of the information you find there.

The point of using this paragraph before the next scale was to give the participants a framework and a probable real-world scenario that could assist them in responding to the items. Furthermore, this introduction was constructed as a means to specifically target the type of scenario and responses this study is seeking to investigate. Random browsing on Facebook would not necessarily provoke the same type of feelings and opinion-formations as a targeted profile that corresponds to someone the participant may have met socially. Additionally, this survey is examining romantic and/or sexual relationships, therefore, the wording is designed specifically to avoid responses regarding platonic relationships.

After the introduction of those directions, the *attributional confidence scale* was implemented to examine the certainty of confident attributions developed through uncertainty reduction on Facebook. Using this scale allowed the survey to examine how users of Facebook are developing perceptions of a target’s values, attitudes, emotions,

and potential future behaviors. Developed by Clatterbuck (1979) as a means of operationalizing the uncertainty reduction theory first proposed by Berger and Calabrese (1975), the *attributional confidence scale* has been deemed reliable over time in a variety of formats. Clatterbuck (1979) reported previous Cronbach's alphas for the CL7 between .76 and .95 (p. 152). Because instruments ranging from 4- to 9-point Likert scales have been used without any reduction in reliability, a 5-point Likert scale was used for this survey with poles from "Strongly Disagree" to "Strongly Agree."

Furthermore, in order to adapt this scale to Facebook, several modifications were made. While traditionally a seven-question scale, this version included just six items by eliminating "How much can you empathize with the way he/she feels about himself/herself?" Pretests showed that participants were unsure about how to answer this question, finding it generally confusing and unrelated to Facebook usage. The other major modification to the scale was the formatting of the questions. The original wording of the question, "How confident are you of your general ability to predict how he/she will behave?" was slightly altered to read, "Information on Facebook makes me confident of how other people will react and behave." Generally, the restructuring of the other items followed the same kind of alteration. "How accurate are you at predicting the values he/she holds?" was changed to read "Information on Facebook helps me accurately predict the values other people have," and so on.

The second dependent variable in this study was the *interpersonal attraction scale*. This scale was also preceded by an introductory paragraph used to set a framework for participant responses. The paragraph was constructed and presented as follows:

After people check others out on Facebook, they start to form opinions about the other person, especially if they might be interested in a romantic or sexual relationship. For the next set of questions, think about the times when you have done this. If you've never done this, try to imagine yourself doing so and answering the following questions.

This paragraph, similarly worded as the first instructional paragraph, seeks to highlight the opinions that one has formed about a target they have met socially. These opinions are to be explored in a series of items that interrogate social and physical attraction

through McCroskey's (1974) conceptualized interpersonal attraction construct. In addition to this paragraph, there was a sentence before the scale items began that instructed participants to consider the *last* time they reviewed a Facebook profile of someone they might be interested in, as opposed to a consideration of their general experience in using Facebook for this sort of task. This distinction was designed to avoid more general responses accounting for months and years of Facebook usage, instead concentrating on a specific instance.

The *interpersonal attraction scale* is divided into three factors of five items each: social attraction, physical attraction, and task attraction. For the purposes of this study, the task attraction portion of the Scale was omitted. In many studies when task attraction was used, participants were meeting face-to-face to discuss or complete a specific task. Therefore, it is irrelevant to the purposes of this survey. Focus was placed upon social attraction (reported previous Cronbach's alpha of .84) and physical attraction (reported previous Cronbach's alpha of .86). Overall, both factors were implemented using a 5-point Likert scale with poles from "Strongly Disagree" to "Strongly Agree."

Furthermore, among the ten items were five reverse-coded components designed to identify participants who had not read the statements to which they were asked to respond. Statements in the social attraction portion of the scale such as "It would be difficult to meet and talk with him/her" and "I would like to have a friendly chat with her" were analyzed for potential inconsistencies and reverse coded for evaluation to be discussed in the results portion of this study.

The third dependent variable implemented in this study was the *perceived homophily measure* introduced by McCroskey, Richmond, and Daly (1975) and hereby referred to as perceived similarity scale. The scale used in the survey specifically targeted attitude and background similarity, both determined as reliable with reported previous Cronbach's alphas of .88 and .71, respectively (Rubin et al., 1994). McCroskey posited that people's perceptions of others is a strong determinant of whether there is a communication attempt made between two individuals and that perceived similarity or dissimilarity will have a major impact on the results of an encounter (McCroskey et al., 1975). For the purposes of this study, perceived similarity will act as a predictor for

attraction, liking, and potential future relationship development, to be further discussed in the following sections.

The attitude and background similarity scales, listed under the paragraph preceding the *interpersonal attraction scale* portion of the survey, were also prefaced with the same sentence emphasizing the frame of the participant's reference should be to the *last* time they reviewed a Facebook profile of someone they might be interested in, as opposed to an overall sense of their experiences. The eight items, four reverse-coded, were then presented with corresponding 5-point Likert scales with poles from "Strongly Disagree" to "Strongly Agree." Reverse-coded items were recoded for later evaluation. Inconsistencies in answers for contrasting statements such as "He/she is similar to me" and "He/she is unlike me," were analyzed and attributed to participant error.

Finally, the survey included several attitudinal questions designed to understand general Facebook usage in connection with relationship formation. The first question sought to examine user attitudes about the ideal relationship initiated using Facebook. Students were given a four-item response set that ranged from acquaintance to friend to close friend to romantic partner. The purpose of the question was to determine what relationship usage is best suited to Facebook and to analyze potential connections between their attitudes on the subject and Facebook intensity.

The second attitudinal question explored the pace at which Facebook relationships develop in contrast to face-to-face only relationships. Participants were asked to gauge if Facebook-initiated relationships developed at a slower, same, or faster speed than face-to-face only relationships. This question would also be analyzed with Facebook Intensity for a possible association.

The third and fourth questions used 5-point Likert scales to inquire how often participants had used Facebook to learn more about someone they had already met face-to-face and how often they communicated offline with people they have met or gotten to know better using Facebook. Participants were given the opportunity of answering the following: "Never," "Barely," "Often," "Very Often," or "Always." These two questions were designed to examine a possible process of initial interaction, Facebook interaction, and then subsequential face-to-face interaction.

Finally, a question was posed asking participants to estimate the valence of their experiences checking out people they might be interested in romantically or sexually using Facebook. This was measured using a 5-point Likert scale ranging from “Negative” to “Positive.” The purpose of this item’s inclusion in the survey was to garner an overall sense of the experiences that users are having with the process of using Facebook to check others out and to see if it mitigates, at all, their responses to the earlier scales.

Concluding the survey was a basic set of demographic items in place to investigate any possible affiliations with confident attributions, physical and social attraction, and perceived similarity. Items such as race, sex, age, Internet usage, and relationship status were evaluated as potential independent variables. Furthermore, I have included an item asking about membership in a fraternity or sorority as a possible independent variable as well.

## 4. RESULTS

The data retrieved from the surveys were submitted to SPSS for analysis, specifically investigating Pearson's correlation coefficient and following up with independent sample t-tests for possible relationships between the independent and dependent variables. The scores of the responses on the independent variable scale, Facebook intensity, were summed and averaged to form a single score for the scale (with observed Cronbach's alpha for the score of .85). Scores from the *attributional confidence* (observed Cronbach's alpha .75), *interpersonal attraction* (observed Cronbach's alpha .75), and *perceived similarity* (observed Cronbach's alpha .59) scales were also summed and averaged to form a single score for each scale. The surveys of those participants who had failed the screenings were eliminated when analyzing the data.

With 440 valid surveys returned from the participant pool, I found a startling membership rate to Facebook that is consistent with research being done at other universities (Ellison, et. al 2006). Nearly 96% (95.9) of participants were members of Facebook. However, in order to accurately report these findings, surveys that failed the screening question of Facebook membership were discarded in addition to those discarded for failing screenings located on the interpersonal attraction scale and the perceived similarity scale. Therefore, out of 440 total surveys, 252 were deemed valid.

### ***RESEARCH QUESTION 1***

The first research question asked if there was a positive correlation between Facebook usage (Facebook intensity) and confident attributions (CL7) about the last user they reviewed that signify the reduction of uncertainty in interpersonal interactions. At a significance level of  $p < .001$ , there was a positive correlation between these two variables (see Table 1).

		Facebook Intensity Scale	Attributional Confidence Scale
Facebook Intensity Scale	Pearson Correlation	1	.477**
	Sig. (2-tailed)		.000
	N	250	248
Attributional Confidence Scale	Pearson Correlation	.477**	1
	Sig. (2-tailed)	.000	
	N	248	251

\*\* . Correlation is significant at the 0.01 level (2-tailed).

With an r-value of .477, there is a somewhat strong positive correlation between Facebook Intensity and the process of uncertainty reduction. That is, the more individuals were dependent on Facebook, the more they reported being confident of the attributes of other users. As Facebook users lean more heavily on the technology to meet and interact with others and as it becomes a more acceptable means of reducing uncertainty, users will report feeling more comfortable with establishing attributes and other opinions of the profiles they are examining. Furthermore, heavier users suggest that they can use the information located within profile pages to get a good grasp of how the target will react, behave, and feel. This is a far cry from the early research done on CMC and relationships in which individuals had at least some level of doubt about the sincerity of the target with whom they were communicating.

In order to further test the first research question, an independent samples t-test was conducted with the CL7 scores serving as the test variable and Facebook intensity, divided into high and low groups based upon the arithmetic mean (low  $\leq$  3.52, high  $\geq$  3.52), serving as the grouping variable. In this test, a statistically significant difference was observed between scores on the attributional confidence scale for the high and low Facebook intensity groupings:  $t(246) = 6.859, p < .001$ , with the CL7  $M_{HI} = 3.24, SD = .63$

and the CL7  $M_{LO} = 2.69$ ,  $SD = .63$  (see Table 2). Therefore, heavy users of Facebook reported significantly more confidence in their attributions of others than light users.

**Table 2. T-test between Facebook Intensity Groupings and Attributional Confidence**

		Facebook Intensity Scale	N	Mean	Std. Deviation	Std. Error Mean
Attributional Confidence Scale	High		109	3.2385	.63236	.06057
	Low		139	2.6859	.62782	.05325

<b>Independent Samples Test</b>										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Attributional Confidence Scale	Equal variances assumed	.814	.368	6.9	246	.000	.55268	.08058	.39397	.71139
	Equal variances not assumed			6.9	231.3	.000	.55268	.08065	.39378	.71158

### **RESEARCH QUESTION 2**

In the second research question, I asked if there was a positive correlation between Facebook usage (Facebook intensity) and reported levels of social and physical attraction towards a relational target. Results showed that there was correlation between the two variables at a significance level of  $p < .001$  (see Table 3). The reported r-value for the analysis was  $r = .297$ , showing a slightly positive correlation between Facebook intensity and physical and social attraction. This correlation suggests that users report a tendency to possibly derive interpersonal attraction from the examination of Facebook profiles, through a combination of the textual information provided in the profiles as well as the photos that are posted on the web site. That is, the more a person uses Facebook, the more he or she reports being likely to perceive social and physical attraction.

**Table 3. Correlation between Facebook Intensity and Interpersonal Attraction**

		Facebook Intensity Scale	Attraction Scale
Facebook Intensity Scale	Pearson Correlation	1	.297**
	Sig. (2-tailed)		.000
	N	250	244
Interpersonal Attraction Scale	Pearson Correlation	.297**	1
	Sig. (2-tailed)	.000	
	N	244	248

\*\* . Correlation is significant at the 0.01 level (2-tailed).

In a follow up to this finding, an independent samples t-test was performed using the interpersonal attraction scale scores as a test variable and Facebook intensity as the grouping level (grouping into high and low described above). The results of the t-test showed that there was a significant difference between scores on the interpersonal attraction scale and the high and low groupings of Facebook intensity:  $t(242) = 3.355$ ,  $p < .005$ , interpersonal attraction scale  $M_{HI} = 3.69$ ,  $SD = .39$  and  $M_{LO} = 3.53$ ,  $SD = .39$  (see Table 4). Therefore, heavy users report that they are significantly more able to develop interpersonal attraction via Facebook than light users.

**Table 4. T-test between Facebook Intensity Groupings and Interpersonal Attraction**

	Facebook Intensity Scale	N	Mean	Std. Deviation	Std. Error Mean
Interpersonal Attraction Scale	High	106	3.6934	.38700	.03759
	Low	138	3.5261	.38537	.03281

**Independent Samples Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Interpersonal Attraction Scale	Equal variances assumed	.666	.415	3.36	242	.001	.16731	.04986	.0691	.2655
	Equal variances not assumed			3.35	226	.001	.16731	.04989	.0690	.2656

Because the interpersonal attraction scale measures both social and physical attraction, further examination was necessary to determine if there was a major difference in the scores for each factor of the scale. The analysis showed that there was a stronger correlation between Facebook intensity and physical attraction (observed Cronbach's alpha .80) than the entire interpersonal attraction scale. With an r-value = .350 at a significance level of  $p < .001$  (see Table 5), participants who were more intense users of Facebook indicated that they perceived higher levels of physical attraction towards relationship targets found in Facebook.

**Table 5. Correlation between Facebook Intensity and Physical Attraction**

		Facebook Intensity Scale	Physical Attraction Scale
Facebook Intensity Scale	Pearson Correlation	1	.350**
	Sig. (2-tailed)		.000
	N	230	226
Physical Attraction Scale	Pearson Correlation	.350**	1
	Sig. (2-tailed)	.000	
	N	226	230

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Because Facebook includes many posted photographs, with many users uploading hundreds of pictures, the user profiles are apparently becoming more fertile grounds for developing physical attraction. A t-test was executed to supplement the correlation finding. The results determined that heavy users of Facebook reported a higher physical attraction to others on Facebook than light users. At a level of significance  $p < .001$ , the t-test showed that there was a difference between scores on the physical attraction scale and the high and low groupings of Facebook intensity:  $t(224) = 4.382$ ,  $M_{HI} = 3.84$ ,  $SD = .50$ , and  $M_{LO} = 3.55$ ,  $SD = .49$  (see Table 6).

**Table 6. T-test between Facebook Intensity Groupings and Physical Attraction**

	Facebook Intensity Scale	N	Mean	Std. Deviation	Std. Error Mean
Physical Attraction Scale	High	94	3.8447	.49527	.05108
	Low	132	3.5530	.49168	.04280

<b>Independent Samples Test</b>										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Physical Attraction Scale	Equal variances assumed	.778	.379	4.382	224	.000	.29165	.06656	.16049	.42281
	Equal variances not assumed			4.376	200	.000	.29165	.06664	.16024	.42306

Further analysis also examined the potential correlation between Facebook intensity and scores reported for social attraction. The results showed that there was a weak correlation between Facebook intensity and social attraction (observed Cronbach's alpha .60), especially when considering the correlations of Facebook intensity and the physical attraction and interpersonal attraction scale. The social attraction and Facebook intensity correlation had an r-value = .192 and was significant at a level of  $p < .01$  (see Table 7).

**Table 7. Correlation between Facebook Intensity and Social Attraction**

		Facebook Intensity Scale	Social Attraction Scale
Facebook Intensity Scale	Pearson Correlation	1	.192**
	Sig. (2-tailed)		.004
	N	230	229
Social Attraction Scale	Pearson Correlation	.192**	1
	Sig. (2-tailed)	.004	
	N	229	233

\*\* . Correlation is significant at the 0.01 level (2-tailed).

A t-test was performed in order to more completely analyze the relationship between Facebook Intensity and social attraction. The results displayed no significant ( $p > .05$ ) difference in the means of scores on the social attraction scale between high and low intensity Facebook users.

**Table 8. T-test between Facebook Intensity Groupings and Social Attraction**

	Facebook Intensity Scale	N	Mean	Std. Deviation	Std. Error Mean
Social Attraction Scale	High	96	3.6000	.46249	.04720
	Low	133	3.4842	.44190	.03832

**Independent Samples Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Social Attraction Scale	Equal variances assumed	.639	.425	1.919	227	.056	.11579	.06035	-.003	.2347
	Equal variances not assumed			1.905	199	.058	.11579	.06080	-.004	.2357

### RESEARCH QUESTION 3

The third research question asked whether there was a positive correlation between Facebook usage and levels of perceived similarity, using the perceived homophily scale, towards a target. The analysis showed that there was indeed a significant relationship between the two variables. At a significance level of  $p < .001$ , the  $r$ -value for the correlation was  $r = .268$ , showing a positive correlation between Facebook Intensity and perceived similarity (see Table 9). Participants who use Facebook with more intensity designated higher perceived similarity among the profiles they reviewed. According to URT (Berger and Calabrese, 1975), not only does perceived similarity affect whether a communication attempt is made, but it also can be a sign of uncertainty reduction and a predictor of liking.

Table 9. Correlation between Facebook Intensity and Perceived Similarity

		Facebook Intensity Scale	Perceived Similarity Scale
Facebook Intensity Scale	Pearson Correlation	1	.268**
	Sig. (2-tailed)		.000
	N	230	225
Perceived Similarity Scale	Pearson Correlation	.268**	1
	Sig. (2-tailed)	.000	
	N	225	229

\*\* . Correlation is significant at the 0.01 level (2-tailed).

To further test this association, an independent samples t-test was executed to determine if there were any major differences between the test variable of scores on the perceived similarity scale and the grouping variable of high and low level Facebook Intensity. In that analysis, it was determined that there was a significant difference between the two groups:  $t(223) = 4.013$  and  $p < .001$ , the perceived similarity  $M_{HI} = 3.41$ ,  $SD = .38$  while the  $M_{LO} = 3.20$ ,  $SD = .39$  (see Table 10). Therefore, the t-test shows that heavy users of Facebook reported that they are significantly more able to perceive similarity to others on Facebook than light users.

**Table 10. T-test between Facebook Intensity Groupings and Perceived Similarity**

	Facebook Intensity Scale	N	Mean	Std. Deviation	Std. Error Mean
Perceived Similarity Scale	High	92	3.4117	.37639	.03924
	Low	133	3.2039	.38542	.03342

<b>Independent Samples Test</b>										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Perceived Similarity Scale	Equal variances assumed	.708	.401	4.0	223	.000	.20774	.05177	.10572	.30975
	Equal variances not assumed			4.0	199	.000	.20774	.05154	.10609	.30938

**RESEARCH QUESTION 4**

The final research question asked if there were any positive correlations between demographic factors and uncertainty reduction, attraction formation, or similarity perception towards a target. Factors such as age, sex, relationship status, Internet produced no significant results when considering possible associations to the previously mentioned scales. However, both race and Greek membership were found to indicate some relationships (see Table 11).

Table 11. Correlation between Race, Greek Membership and Attributional Confidence, Attraction, Perceived Similarity

Correlations						
		Attributional Confidence Scale	Attraction Scale	Perceived Similarity Scale	Are you a member of a fraternity or sorority?	Race
Attributional Confidence Scale	Pearson Correlation	1	.258**	.195**	-.158*	-.138*
	Sig. (2-tailed)		.000	.003	.016	.038
	N	232	228	228	231	228
Attraction Scale	Pearson Correlation	.258**	1	.345**	-.252**	-.125
	Sig. (2-tailed)	.000		.000	.000	.061
	N	228	229	226	228	226
Perceived Similarity Scale	Pearson Correlation	.195**	.345**	1	-.218**	-.145*
	Sig. (2-tailed)	.003	.000		.001	.029
	N	228	226	229	228	226
Are you a member of a fraternity or sorority?	Pearson Correlation	-.158*	-.252**	-.218**	1	.123
	Sig. (2-tailed)	.016	.000	.001		.053
	N	231	228	228	251	248
Race	Pearson Correlation	-.138*	-.125	-.145*	.123	1
	Sig. (2-tailed)	.038	.061	.029	.053	
	N	228	226	226	248	248

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

For each of the correlations of significance, the r-value is negative because it indicates that as one factor increases, the other decreases, or vice-versa. In this instance, race was coded into two groups, White, receiving a value of 1, and non-White, receiving a value of 2. Furthermore, Greek membership was coded as a value of 1 for “Yes” and a value of 2 for “No.” The negative values, then, mean as the value of race decreased or headed towards 1 (White), the value of the respective scale increased. The same holds true for Greek membership, as the value decreased or headed towards 1 (membership), the value of the respective scale increased.

In this instance, there were negative correlations on a level of significance between race and two of the three scales: the attributional confidence scale ( $r = -.138$ ,  $p < .05$ ) and the perceived similarity scale ( $r = -.145$ ,  $p < .05$ ). That is, Whites were more likely than non-Whites to report higher levels of attributional confidence and perceived

similarity. These correlations were mostly weak associations and were not supported by the results of independent samples t-tests. Perhaps the overall lack of diversity from the sample – about a quarter (25.2%) of all respondents from the participant pool were non-White – served to mitigate the impact of these correlations and further detailed study would be needed to explore the potential impact of race on Facebook and relationship development.

As for Greek membership, there were significant negative correlations between membership and all three measurement scales. The negative correlation between Greek membership and attributional confidence had an r-value =  $-.158$  with significance  $p < .05$ , while the negative correlation between Greek membership and interpersonal attraction had an r-value =  $-.252$  with  $p < .001$ , and finally, the negative correlation between Greek membership and perceived similarity had an r-value =  $-.218$  with a significance of  $p < .01$ . Therefore, Greeks were more likely than non-Greeks to report high levels of attributional confidence, interpersonal attraction, and perceived similarity. All three of these findings were supported by significant findings in independent samples t-tests.

Finally, the attitudinal-based questions placed at the end of the survey provided no significant results and will need to be developed further in order to provide insightful research.

## 5. DISCUSSION

The overall aim of this study was to determine how college students were using Facebook.com to develop attributional confidence, interpersonal attraction, and perceived similarity thereby laying the grounds for potential relationship development. Because of its tremendous penetration rates and word-of-mouth around the college campus, Facebook's role has changed from its introductory purpose as a virtual face book. Unlike the paper and ink version of college face books distributed to generations of college students before the Mark Zuckerberg invention, this Facebook can and has changed since its 2004 introduction. As the word "Facebook" becomes a verb, as in, "I will Facebook him," or "I spent an hour Facebooking last night," its influence on the development of relationships certainly must be examined.

This study specifically sought to find results that would clarify how, college students are using Facebook for these purposes. In order to buttress the results with data that could quantify this intangible social change, from face-to-face to Facebook relationship development, several measurement scales were implemented. Overall, the results of this survey indicate that heavy users of Facebook report being more inclined to develop relationship foundations of confident attributes, attraction, and perceived similarity.

More specifically, in order to gauge these possible associations, the Facebook intensity scale was implemented as an indicator of true Facebook involvement and usage. Participants with higher scores on this scale were first significantly correlated to higher scores on the attributional confidence scale. Uncertainty reduction was more likely to take place with heavy users of Facebook than light users. As Berger and Calabrese (1975) instituted in their original axioms, initial interaction theory purports that individuals are expected to gather information about the other interactant in order to reduce uncertainty. This is, apparently, a process that is being performed on Facebook by heavier users. Additionally, when uncertainty is reduced, liking and attraction is increased. This certainly opens the door for the potential development of liking and attraction through the use of Facebook.

However, as Sunnafrank posited, the process of uncertainty reduction also allows for individuals to decrease liking, especially if users do not perceive they can reach a positive relationship outcome with the interactant. In these instances, ending the interaction becomes the positive relationship outcome. Facebook allows for this to happen before an interaction truly begins. If a member meets someone in public, then uses Facebook to reduce uncertainty about that target, they might decide not to pursue any further interaction. This process may have mitigated the results of this study since I only sought positive correlations, yet it is worth noting and considering in future research endeavors.

The development of interpersonal attraction and especially, physical attraction, through Facebook is understandable. In many social settings, digital pictures are taken and uploaded onto Facebook, providing both a large number of photographs as well as very recent photographs. Facebook members are apparently using their profile pictures and photographs as representations of their physical attractiveness. Members are highlighting their best pictures on their profile pages in an obvious attempt to provide the best self-representation for potential visitors to their profile page. With such an emphasis on physical attractiveness, it is easy to understand how students are able to perceive attraction among each other because of the relative easiness of using Facebook for this purpose. Photographs can be instant barometers of physical attraction. With thousands of profiles and, consequently, photographs on Facebook, users are able to sift through thousands of fellow students in just a few minutes.

As attraction develops beyond physicality, the information located on Facebook profile pages enables users to identify personality traits and characteristics that either increase or decrease overall interpersonal attraction. Because virtually all of the information on Facebook profiles is linked and searchable, it is easy to locate any user on the Florida State University network who, for example, has The Beatles listed under favorite music. Thus, members are able to establish unique frameworks for evaluating other members. In addition to information about music, film, dorm or residence, age, classes, major, group membership, Facebook also highlights friends a user has in common with the target. Furthermore, by listing the total number of friends at Florida

State University that a target has, users can search those profiles to get a sense of what a target's friends may be like as a means of bolstering or undermining interpersonal attraction.

Furthermore, information such as the number of friends may indicate popularity and influence attraction. A user with a great number of friends may seem more interpersonally attractive than a user with few friends. Also, when considering interpersonal attraction, it is important to note that the overall correlations to social attraction were much lower than the correlations to physical attraction. This trend must be considered a consequence of the absence of non-verbal clues that are present in interpersonal communication in CMC contexts. For instance, Facebook profiles do not provide information regarding a user's behavior in traditional (interpersonal) social settings. Continuing, critical interpersonal elements such as hygiene are also missing from Facebook user profiles. These elements may serve to mitigate social attraction (as results in this survey showed) when compared to physical attraction's instantaneous evaluation in CMC settings.

When examining perceived similarity's significant correlation to Facebook intensity, heavier users are once again more likely to report that they perceive higher levels of similarity among the targets they check out on Facebook. This, in all regards, might be attributed to the rather homogeneous mix of students at any university, even a large public institution like Florida State University. Therefore, a certain level of perceived similarity should already exist among all students regardless of Facebook membership.

Yet as was stated above, more intense users of Facebook indicated that they were able to perceive a greater amount of similarity to others on Facebook. This contradicts the supposition made by Merkle and Richardson (2002) who presumed that discovering similarities was a difficult task in CMC. They also posited that spatial interaction was the first determinant to analyze when considering relationship development. As was noted in the previous sections, Facebook provides a limited geographic network by grouping students according to universities. This spatial interaction is at least possible when users are grouped into specific networks as such.

After spatial interaction, Merkle and Richardson (2002) argued that if attitudinal similarity and physical attraction could be “discovered in one individual, the likelihood that a successful and intimate relationship will develop substantially increases” (p. 189). Applying this thought to my results, one might assume that heavier users of Facebook would be headed towards potentially developing relationships with those they interact with on the web site. This proposition is beyond the scope of this project; so it is nothing more than an assumption at this time. Further studies will be needed to clarify the offline relationship development process that may take place with the heavy use of Facebook.

Data resulting from the fourth research question showed some correlations between race and Greek membership and our measurement devices. Race exhibited small correlations to attributional confidence and perceived similarity. Overall, more research needs to be completed in this area to understand what, if any, impact race has on Facebook usage. Perhaps it is simply the statistical majority of Whites to non-Whites at this university that grants an increased confidence or comfortableness in Facebook.

Greek membership, however, provided stronger correlations to attributional confidence, interpersonal attraction, and perceived similarity. As a social networking institution itself, the Greek system represents a small proportion of both this study and Florida State University in general (less than 25%). However, because Facebook has been designed as a means for meeting and interacting with others similar to one’s self, it is interesting to examine whether fraternity and sorority members are using Facebook to accomplish social networking on a larger scale or not at all. The research collected seems to point to the notion that Greek members are using Facebook more for interaction and are therefore scoring higher on the respective scales than non-Greek members. Even so, further research should look to investigate this social group and track the differences in its behavior and attitude when compared to the remaining members of the University population.

Overall, the higher levels of interpersonal attraction, attributional confidence, and perceived similarity for heavier users of Facebook suggests that some of the traditional purposes of face-to-face communication are being achieved via Facebook. The likelihood is not that face-to-face communication is being replaced by computer-mediate-

communication, at least not just yet. Facebook is apparently being used in conjunction with interpersonal interaction, but its ease of access, use, and wealth of searchable information all have granted more power to this form of CMC than any web site to come before it. An incredibly high number of students (almost 96%) are members of Facebook and the heavier users of that group are finding ways to develop the foundations of romantic relationships on the web site. Thus, the question must be asked: What is the impact of this change? Not only in its ease of use, but in its asynchronous nature, Facebook might be eclipsing some of the traditionally face-to-face methods of uncertainty reduction, interpersonal attraction development, and similarity perception. And why? Simply, if for no other reason, than because it is so simple. With none of the possible negatives of public interaction, such as rejection, and with the extent of information located on the web site, it is becoming quick and easy to use this CMC channel and interact hyperpersonally instead of face-to-face.

This is not to argue that eventually all romantic relationship development will someday be a completely computer-mediated experience, for there is nothing like the chemistry between two individuals that can only develop face-to-face. However, the presence of Facebook allows for an easy targeting of potential relationship partners and also, because of the uncertainty reduction that has already taken place, a potentially faster developing relationship. However, even if it is not allowing relationship formation to take place faster, one can certainly see that Facebook has enabled heavy users to begin to develop the indicators of relationship formation online. And as students continue to use Facebook at high levels, it will be critical to understand how they are combining traditional face-to-face relationship development techniques with the constantly evolving CMC arena of Facebook.

## 6. CONCLUSION

The findings of this study can be characterized as preliminary as the era of social networking study dawns. While some research has begun, we are just starting to understand how and in what ways individuals are implementing the new technology at their disposal. The research history of computer-mediated communication is still fairly young and, thanks to the constantly evolving medium of the Internet, dynamic. There are many avenues of research yet undiscovered and many findings of previous studies to review, revise, and refocus.

Therefore, it is imperative that studies such as these, as well as research on social networking sites in general, continue. Specifically, future research must consider the impact that new Internet sites and computer programs have on traditionally studied CMC. How are new web sites such as Facebook opening up traditional pathways of communication? Are users of Facebook establishing new means of communicating and interacting with each other? Because of the current college generation's easy and widespread access to the Internet, researchers must try to understand how this generation incorporates that kind of access with their socializing and interacting behavior.

In addition, research must continue in the field of romantic relationship development and new media. First, we must know what kind of relationships are being developed using online web sites such as Facebook. Are these primarily short-term or long-term relationships that are being developed? Are they sexual or non-sexual? Second, it is imperative to be able to measure the rate at which relationships develop using the web. Third, researchers should attempt to identify which individuals are using web sites such as Facebook to interact with each other. For instance, are communication-apprehensive individuals leaning more heavily on Facebook CMC interaction than FtF interaction?

Finally, the phenomenon of Facebook needs further study as well. Future research should examine what features students are using to report factors such as confident attributes, interpersonal attraction, and perceived similarity. In general, much more detailed research can be performed on how Facebook is being used by college students. Specifically, how are students interacting with each other on the web site? Is it

simple observation or do they attempt to communicate with each other when they seek a relationship? Does information gathered online make its way into offline communication with a relationship target? As long as Facebook continues to dominate the lifestyle of college students, researchers must attempt to answer these questions.

As with most studies, this project has several limitations. First, the sample recruited from the University was not random and, therefore, cannot be used to generalize to the entire college population. Second, the attributional confidence scale was reduced to a 6-item measure and, therefore, its results must be considered in context of this modification. The survey instrument used in this study also asked students to reference their “last” experience, which may be different from their typical or average experience using Facebook. Fourth, students are submitting entirely self-reported data. The anonymity of the study did not allow for this study to compare their reported levels of Facebook intensity, attributional confidence, interpersonal attraction, and perceived similarity to their actual levels. Fifth, there is no way of knowing whether high levels of attributional confidence, interpersonal attraction, or perceived similarity, foundations of relationship development, actually lead to relationship development. Students were not asked if interactions that used Facebook eventually lead to relationship formation, only if Facebook interaction produced these relationship-development factors.

Finally, students had varying amounts of time to complete the survey. Some students were given the survey at the beginning of class and told to finish as soon as possible, others were given until the end of an exam time period to finish, and a third group was able to bring home the survey and return it to class two days later. This variation in execution and collection could have led students to offer different responses.

The implications for CMC and FtF theory brought about by this study are vital as society enters a new age of technological convergence. First, traditional CMC theory must be reconsidered as the way we interact with computers changes on a (almost) daily basis. Facebook users can now receive updates via their cellular phones and users of Mozilla’s Firefox can have Facebook information in a sidebar of their Internet browsers. In a grander scale, cell phones can now browse web pages and wireless access points are more numerous than ever before. How does the ubiquity of technology and man’s

subsequent adaptation to that ubiquity change the way our society lives? That is the question that further CMC theory development must seek to answer. CMC theory, therefore, must be re-examined almost as continuously as the technology it studies changes. As greater web access breeds with higher-evolved web sites, CMC theory will continue to need adaptation.

In particular, this study has shown that students indicate a link between heavy Facebook usage and reported attributional confidence, interpersonal attraction, perceived similarity. Has CMC been fundamentally accepted by this generation as an acceptable means of romantic relationship development? Recent research (Gibbs, et al. 2006) suggests that this development has been supported by empirical studies. Overall, this study supports the notion that CMC is an acceptable and appropriate means of potential relationship development. As researchers, we will need to be aware of the new outlets for CMC, such as Facebook, that continue to uphold CMC as a viable means of establishing meaningful relationships. Furthermore, it is critical we understand what makes these outlets different than the multi-user dimensions (MUDs), newsgroups, instant messages, chat rooms, and e-mail correspondences that research a decade ago deemed less suitable for the development of meaningful relationships.

Face-to-face interaction theory will also need to adapt to the many ways that interaction is possible in our technology-laden society. Can a brief FtF interaction, supported by CMC interaction, be compared to solely FtF interactions? Uncertainty reduction theory has been continually revised, most notably by Sunnafrank (1986), who asserted the importance of predicted relationship outcome on the impact of uncertainty reduction. This study has shown that heavy users of Facebook have reported more attributional confidence than light users. What about using Facebook in this instance allows heavy users to report such high numbers? Perhaps FtF interaction is less and less valuable when a bevy of information is available online 24 hours a day, 7 days a week. Perhaps the presence of this information, accessible at any time, allows for a user to be more confident of the attributes about a target on Facebook. By reviewing the information several times, over the period of several days, as well as monitoring the

activities the target is a part of on Facebook, a user might become more confident of who that target really is.

In addition, does knowing that a target is on Facebook place less or more importance on initial interactions? Perhaps initial interactions do not need to last as long FtF when Facebook is waiting to be utilized as soon as the Internet can be accessed. Either way, FtF interaction theory must look to include CMC as it continues to formulate ideas about relationship development. Moreover, perhaps self-disclosure in offline settings is taking a back seat to self-disclosure in the online environment. Using Facebook, having someone's name is all that is necessary to search the database of users, examine a member's profile page, and analyze their self-disclosure. As stipulated by Walther (1996), online self-presentation is "more selective, malleable, and subject to self-censorship in CMC than it is in FtF interaction" (p. 20). This allows for users of Facebook to put a more selective self-presentation forward than in traditional FtF settings. This study has shown that heavy users indicate that they are responding to these profiles, thus limiting the impact, potentially, of FtF interaction.

Technology has the potential to change our world drastically and dramatically in a short period of time. Once a new technology is adapted in the United States, it often quickly spreads. In a short period of time, society was flooded with video cell phones, wireless broadband Internet connections, and pocket-sized and smaller mp3 players. The Internet itself is a constantly evolving medium – with web sites being created and dissolved daily – providing users with every possible interest, from news to shopping to online gaming. Web sites such as Facebook and Myspace.com are some of the most visited web sites on the Internet and they, along with various social dating sites, have revolutionized the way we meet other people. If for no other reason than their widespread usage, these sites make it critical that research continues to examine their influence.

In the early days of computer-mediated communication, it was newsgroups and e-mail serving as the focus of research. As the Internet continued to grow and increase in its functionality, chat rooms became the dominant sphere of research focus. In the late 1990s the introduction of AOL and Instant Messenger became a cultural phenomenon much the way that Facebook has on college campuses today in 2006. Therefore, as I

glance into the future, I can only imagine what kinds of communication technology the next generation of college students will use to interact. Perhaps the handheld device, in all of its convergence – cell phone, video, photographs, Internet access, mp3s, GPS – will set the standard for communication.

Web sites such as Facebook and Myspace will have to adapt, better than chat rooms or Instant Messenger and AOL ever did, to keep up with the consumers' use of new technology. In the era of on-demand access to media, web, music, news, movies, television, consumers will define the pathways that industry will have to adapt to in order to survive. For example, the broadcast television giants, stuck in a 60-year-old business model, have had to undergo substantial changes to accommodate the on-demand generation. Programs are now online for instant download, to purchase and even play on that previously mentioned pocket-sized mp3 player.

A distinct advantage is granted to the Internet and its web sites, who can offer the unique ability to adapt as rapidly as their consumers. In the early fall of 2006, Facebook introduced a series of features that faced immediately backlash from their users. Some users discontinued their membership, others simply did not log on for several days, but the majority of users spoke out. How? By creating groups on Facebook that provided negative feedback to the corporate offices of Facebook. Hundreds of thousands of users joined these groups in protest to the new features. Within days, Facebook founder Mark Zuckerberg had sent out an open letter to all Facebook users, scaling back the new features, implementing new controls to those features, and in general acquiescing to the groups' lists of demands. This uproar and subsequent response by Facebook created a stir among many media outlets observing the communication process from outside the network, specifically noting the unique process of feedback and response that simply cannot be attained through traditional media markets, no matter how sophisticated Nielsen ratings become.

Simple processes such as these substantially alter how consumers communicate and interact using the Internet. In this study, the nature of interpersonal communication and specifically, relationship development were investigated. As the Internet continues

to adapt, it will be necessary to continue researching the path this dynamic fusion of technology and communication takes.

# APPENDIX A



Office of the Vice President For Research  
Human Subjects Committee  
Tallahassee, Florida 32306-2742  
(850) 644-8673 · FAX (850) 644-4392

## APPROVAL MEMORANDUM

Date: 10/18/2006

To:  
**Stephen Andon**  
MC 1531

Dept.: **COMMUNICATION**

From: **Thomas L. Jacobson, Chair**

A handwritten signature in blue ink, appearing to read "Thomas L. Jacobson".

Re: **Use of Human Subjects in Research**  
**Evaluating Computer-Mediated Communication on the University Campus: The Impact of the Facebook on the Development of Romantic Relationships**

The forms that you submitted to this office in regard to the use of human subjects in the proposal referenced above have been reviewed by the Secretary, the Chair, and two members of the Human Subjects Committee. Your project is determined to be Exempt per 45 CFR § 46.(b) and has been approved by an accelerated review process.

**The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval does not replace any departmental or other approvals, which may be required.**

If the project has not been completed by **10/17/2007** you must request renewed approval for continuation of the project.

You are advised that any change in protocol in this project must be approved by resubmission of the project to the Committee for approval. Also, the principal investigator must promptly report, in writing, any unexpected problems causing risks to research subjects or others.

By copy of this memorandum, the chairman of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols of such investigations as often as needed to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Protection from Research Risks. The Assurance Number is IRB00000446.

Cc: Arthur Raney  
HSC# 2006.0865

## APPENDIX B

### THE FLORIDA STATE UNIVERSITY Department of Communication

#### Uses of Facebook Study

Student researcher: Stephen P. Andon  
410.937.6536           spa04@fsu.edu

Major professor: Dr. Arthur Raney  
850.644.9485           araney@mailier.fsu.edu

This research project centers on the uses of Facebook in a social setting. You are asked to complete a short survey on Facebook. Your participation is voluntary. If you choose not to participate or wish to withdraw from the study at any time, you may do so without penalty.

This research study is being conducted to fulfill part of the requirements for the completion of a Masters degree in the Department of Communication. The results of the research study may be published or presented at a conference, but any personal information obtained during the course of the study will remain confidential to the extent allowed by law.

There are no inherent risks or benefits associated with participating in this study; however your participation will help to increase our understanding of how Facebook is used on the college campus. Your completion of this survey will serve as your consent for participating.

If you have any questions concerning this research study, please do not hesitate to contact me at 410.937.6536 or spa04@fsu.edu. Thank you again for your participation this evening.

If you have any questions about your rights as a subject/participant in this research, or if you feel you have been placed at risk, you can contact the Chair of the Human Subjects Committee, Institutional Review Board, through the Vice President for the Office of Research at (850) 644-8633.

## APPENDIX C

# Facebook and Relationships Survey

This questionnaire is designed to gather information about how college students use Facebook to develop romantic relationships with other people. Please only participate if you currently have a Facebook account. All of the information here is confidential. Please answer truthfully and with the first thought that comes to your mind. Please circle the one answer that best represents your choice/opinion.

Do you currently have a Facebook account?                      Yes                      No

1. About how many total Facebook friends do you have at FSU as of today?

10 or less    11-50    51-100    101-150    151-200    201-250    251-300    301-400    400+

2. On average, approximately how many minutes per day do you spend on Facebook?

10 or less            10-30                      31-60                      1-2 hours            2-3 hours            3+ hours

3. Facebook is part of my everyday activity.

Strongly Disagree            Disagree            Neutral            Agree            Strongly Agree

4. I am proud to tell people I'm on Facebook.

Strongly Disagree            Disagree            Neutral            Agree            Strongly Agree

5. Facebook has become part of my daily routine.

Strongly Disagree            Disagree            Neutral            Agree            Strongly Agree

6. I feel out of touch when I haven't logged onto Facebook for a while.

Strongly Disagree            Disagree            Neutral            Agree            Strongly Agree

7. I feel I am part of the Facebook community

Strongly Disagree            Disagree            Neutral            Agree            Strongly Agree

8. I would be sorry if Facebook shut down.

Strongly Disagree            Disagree            Neutral            Agree            Strongly Agree

Often people meet socially and then they go and check people out on Facebook afterwards, especially if they might be interested in a romantic or sexual relationship. If you've ever done

this or know someone who has, we want to know what you think of the information you find there.

1. Information on Facebook makes me confident of how other people will react and behave.

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

2. Information on Facebook helps me accurately predict the values other people have.

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

3. Information on Facebook helps me accurately predict other people's attitudes.

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

4. Information on Facebook helps me accurately predict other peoples' feelings and emotions.

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

5. Information on Facebook helps me get to know other people well.

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

6. Information on Facebook helps me to be certain that other people like me.

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

After people check others out on Facebook, they start to form opinions about the other person, especially if they might be interested in a romantic or sexual relationship. For the next set of questions, think about the times when you have done this. If you've never done this, try to imagine yourself doing so and answering the following questions.

The last time I checked out a Facebook profile of someone I might be interested in, I thought:

1. He/she could be a friend of mine.

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

2. It would be difficult to meet and talk with him/her.

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

3. He/she just wouldn't fit into my circle of friends.

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

4. We could never establish a personal friendship with each other.

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

5. I would like to have a friendly chat with him/her.

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

6. He/she is quite handsome/pretty.

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

7. He/she is very sexy looking.

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

8. I find him/her very attractive physically.

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

9. I don't like the way he/she looks.

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

10. He/she is somewhat ugly.

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

The last time I checked out a Facebook profile of someone I might be interested in, I thought:

1. He/she doesn't think like me

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

2. He/she is from a social class similar to mine

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

3. He/she behaves like me

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

4. His/her economic situation is different than mine

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

5. He/she is similar to me

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

6. His/her social status is like mine

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

7. He/she is unlike me

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

8. His/her background is different from mine

Strongly Disagree      Disagree      Neutral      Agree      Strongly Agree

1. To me, the most ideal relationship initiated using Facebook is a(n):

acquaintance      friend      close friend      romantic partner

2. To me, relationships initiated on Facebook develop \_\_\_\_\_ than only face-to-face relationships?

typically slower      the same      typically faster

3. How often have you used Facebook to learn about someone that you had already met face to face?

Never      Rarely      Often      Very Often      Always

4. How often do you communicate off-line with people you have met/gotten to know better using Facebook?

Never      Rarely      Often      Very Often      Always

5. The experiences I've had checking out people who I might be interested in romantically or sexually would in general be characterized as:

Negative      Somewhat Negative      Neutral      Somewhat Positive      Positive

The following questions are used for statistical purposes only.

1. Please indicate your gender:      Male      Female

2. Please indicate the age you turned on your last birthday \_\_\_\_\_

3. Are you a member of a fraternity or sorority: Yes      No

4. \_\_\_\_\_ What is your race?

a. White      b. African-American      c. Hispanic/Latino  
d. Asian-Pacific Islander      e. Native American      f. Other \_\_\_\_\_

5. \_\_\_\_\_ Please describe your current relationship status:

a. Single      b. In a relationship      c. Married      d. Other \_\_\_\_\_

6. Please indicate the amount of hours you use the Internet on an average day \_\_\_\_\_

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## BIOGRAPHICAL SKETCH

Stephen Patrick Andon was born on April 19, 1982 in Danbury, Connecticut. For his undergraduate study, he attended Boston College and received a degree in Mass Communication. One of five siblings, he is now a graduate student at Florida State University with a concentration in Mass Communication and media effects. He plans to pursue his Ph.D. and teach at the university level.