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Wired valentines and webs of love: An examination of people's attitudes and their intentions to use the Net to form romantic relationships

by

RAIZA A. TOOHEY (REHKOFF)

Under the Direction of Cynthia Hoffner

ABSTRACT

This research explored college students' attitudes toward online romantic relationships and their intentions to develop this type of relationship. Borrowing elements from both social cognitive theory and the theory of reasoned action, this study introduced a model that combined perceptions of indirect past experiences, beliefs, attitudes and social norms and associations with people's intentions to form romantic relationships over the Internet. Under the premise that people learn through observation, this study argued that when direct experience is lacking (as was the case with this sample), other sources of indirect experiences with online romantic relationships (perceptions of significant others' past experiences and exposure to media messages about online romantic relationships) would relate to people's beliefs about these relationships and their perceptions of what significant others think (social norms). Based on the theory of reasoned action, it was hypothesized that people's beliefs about online relationships would then be related to their attitudes toward such relationships. Lastly, also under the framework of reasoned action, it was hypothesized that both attitudes and social norms would predict people's intentions to form or develop romantic relationships over the Internet. The purpose of this study was thus to examine how well predictors from social cognitive theory and the theory of reasoned action explained intentions to form online romantic relationships. A pilot study was conducted to derive beliefs and attitudes toward online romantic relationships and to test the main instrument. In the main

study, 226 college students with no prior direct experience forming online romantic relationships completed a web-based self-administered questionnaire. A structural equation modeling (SEM) approach was used to assess the relative importance and the strength among the different constructs. Results indicated that the overall model fit the data well. The final model accounted for 46% of the variance in people's intentions to form online romantic relationships. Perceptions of friends' and family's past experiences with online romantic relationships were significantly related to people's beliefs about these relationships. However, only friends' past experiences was related to social norms. Exposure to media (news stories or ads about dating sites) was not related to either beliefs or social norms. Consistent with the theory of reasoned action, beliefs were strongly correlated with attitudes about online romantic relationships, and lastly, both attitudes and social norms emerged as instrumental factors in predicting participants' intention to develop online romantic relationships. Overall, the findings confirmed the importance of integrating indirect past experiences in understanding people's attitudes and intentions to form romantic relationships over the Internet. The theoretical and methodological implications of these results for the study and understanding of online romantic relationships are discussed.

INDEX WORDS: Personal relationships, Close relationships, Romantic relationships, Social Cognitive Theory, Theory of Reasoned Action, Attitudes, Internet, Mediated Relationships.

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by

RAIZA A. TOOHEY (REHKOFF)

A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree of

Doctor of Philosophy

in the College of Arts and Sciences

Georgia State University

2007

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CHAPTER ONE

Introduction

"The proliferation of new media has given rise to new ways of meeting people (…) However, such instances are usually viewed as exceptional, anti-normative ways of getting acquainted – as last resort of the lonely or socially inadequate and at best as impoverished substitute for face-to-face interactions" (Lea & Spears, 1995, p. 207).

"So, how'd you two meet?" This is a very common question asked during social gathering whenever a new couple enters the room. While some people have no qualms about sharing the details, others whose relationship started on the Internet may feel a bit uncomfortable to go public with the information, somehow feeling it would be more "appropriate" if they had met their date just by accident, without really trying (Damn, 2006).

Recent studies suggest that the Web has become the "new normal" in the American way of life, those who do not go online constitute an ever-shrinking minority (Trafimow & Finlay, 2005). The popularity of cyberspace interactions and relationships in the U.S. has increased dramatically in recent years, and research interest in this area has increased accordingly (Dainton & Aylor, 2002). The Internet provides another context and channel for people to make new friends, fall in love, initiate meaningful and satisfying conversations, and build stable, long-term relationships, similar to face-to-face (FTF) interactions (Walther & Burgoon, 1992). Likewise, Bonebrake (2002) argues that with the Internet use growing exponentially, the development of online personal relationships, specifically those romantic in nature, may not longer be the exception, but a common way to meet romantic partners. Despite some criticism regarding the quality of online relationships, research examining electronic mail, bulletin boards, MUD's and

dating websites provides evidence that significant, strong and often enduring personal relationships are emerging within the computer medium (Lea & Spears, 1995). Recent statistics revealing the number of new subscribers to dating websites or matchmakers seem to indicate that people may be starting to rely more on online methods of mate selection and courtship than on conventional methods (i.e., bars, clubs, or family friends) (Madden & Lenhart, 2006). In fact, the data reveal that every week more than 60 thousand new subscribers join popular dating websites like Match.com or Harmony.com, and on average, the majority of the people who met their partners online have reported being engaged or married within one year (Madden, 2006).

With the proliferation of close relationships formed online, scholars have developed a special interest in examining several aspects of mediated close relationships including the type or nature of relationship (e.g., friendships, romantic, social support), unique attributes of the relationships (e.g., self-disclosure, lack of non-verbal cues, asynchronous communication), and even comparisons to offline relationships (e.g., maintenance, development and termination) (Tidwell & Walther, 2002; Underwood & Findlay, 2004; Walther & Parks, 2003). Despite differences in the focus or the direction of these studies, one aspect remains consistent across this literature: most of these studies have assumed that online relationships, especially those that are romantic in nature, are perceived negatively. In the mid 1990's, Lea and Spears (1995) already signaled the existence of a stigma attached to online relationships, just as the quote at the beginning of this chapter shows. And more than a decade later, scholars continue to assume that people react negatively to online relationships despite a lack of empirical evidence supporting this assumption (Anderson, 2005; Bonebrake, 2002; Donn & Sherman, 2002).

As history has shown many times in the past, the introduction of new technologies may bring skepticism and raise concerns among people, especially those who have limited

understanding or limited experience with the new technology (Berger & Smith, 1999). The development of personal relationships on the Web has been viewed with distrust and suspicion, and therefore, relationships emerging on the Internet have definitely been questioned or looked at with suspicion and doubt. As Bonebrake (2002) wrote, "individuals who meet new people online have often been viewed as abnormal for using unconventional means to meet others" (p. 552). However, only very few studies have examined people's attitudes and beliefs about the formation of online romantic relationships.

In addition to people's negative reactions to online romantic relationships, media reporting and coverage of these type of relationships have perhaps contributed to the negative stigma mainly because the news media often depict people who participate on online relationships as psychologically maladjusted or abnormal (Wildermuth, 2001a). In the past few decades, mainstream media have bombarded audiences with a plethora of news stories covering, more often than not, the dark side of online relationships where vulnerable youngsters are exposed to serious risks (e.g., sex predators, child molesters, etc). Examples of this coverage is found in popular magazines, such as *US News and World Report, Time Magazine or Glamour*, which have devoted many pages and special issues to expose the dangers of developing online relationships (Dormen, 1996; Smolowe, 1994; Stone, 2001). Since the news media have provided audiences with plenty of stories covering various aspects of online romantic relationships, perhaps the way news media depict online relationships has contributed, to some extent, to people's attitudes toward relationships formed on the Internet.

As shall be seen, the literature on people's attitudes toward romantic relationships formed on the Internet is limited, and thus, there is a need for empirical evidence regarding how young adults perceive, evaluate and respond to online romantic relationships. This examination

becomes more relevant if one considers that, to date, scholars continue to assume that people hold negative attitudes toward these relationships even though evidence is lacking or limited (e.g., Anderson, 2005; Nice & Katzev, 1998). Therefore, the purpose of this dissertation is to address these issues by conducting an in-depth examination of people's perceptions and attitudes toward online romantic relationships, and to examine the impact of these attitudes on their behavioral intentions to form online romantic relationships. Under the framework of social cognitive theory (Bandura, 1986), this research examines the factors that may influence people's attitudes, specifically information obtained through second-hand experiences (e.g., family members' and friends' experiences with online romantic relationships and media exposure). Additionally, under the framework of reasoned action theory, this study explores people's intentions to form romantic relationships on the Internet by considering both attitudes toward forming romantic relationships and subjective norms (i.e., what significant others think a person should do and motivation to comply to significant others' views). In brief, this research examines the extent to which people's attitudes toward forming relationships online and subjective norms may influence people's intentions to develop or form romantic relationships on the Internet.

Before introducing research questions and hypotheses, this study reviews the literature on (a) computer mediated communication, more specifically, personal relationships formed on the Internet, (b) romantic relationships formed on the Internet, (c) attitudes toward online romantic relationships, (d) factors affecting people's attitudes toward these type of relationships, and (e) factors affecting people's intent to form romantic relationships on the Internet, all under the scope of social learning theory and reasoned action theory.

Literature Review

Brief Overview of Computer Mediated Relationships (CMR)

In 1994, Netscape's browse was available for free to thousands of people who began to experience the World Wide Web in a complete new way (Trafimow & Finlay, 2005). More than a decade later, the Internet has reshaped just about every important area of people's life, including personal relationships.

According to the latest national study, most people indicated that the Internet has helped them to improve and maintain personal relationships and friendships, and to meet new people (Trafimow & Finlay, 2005). Empirical research also suggests that Internet usage for social purposes continues to grow (McKenna, Green & Gleason, 2002). In fact, online relationships are currently occurring in greater numbers than ever before and, considering the ubiquity of the Internet, this number can be expected to continue rising (Fox & Madden, 2006; Madden, 2006).

The rapid proliferation of new media into realms of personal communication and the increased usage of the Internet have given rise to new and less conventional ways of meeting people and developing personal relationships. Nowadays, more and more people are meeting others online and building meaningful close relationships in the cyberspace (Anderson, 2005). When examining college students and the internet, the Pew Research Center found that the majority of the students considered the Net to be an easy and convenient choice for developing and maintaining social relationships (Jones, 2002). In fact, it was reported that college students in that national sample used the Web more as a medium for social communication than for educational or professional purposes.

Merkle and Richardson (2000) described the Internet as a social technology which is creating a new genre of interpersonal relationships. Research examining the phenomenon of

online relationships is a growing field of study among scholars interested in further exploring and understanding these relationships. Better known as computer-mediated relationships, this concept refers to any form of close relationship formed between two individuals and initiated over the Internet. Looking at the past decade, research focusing on computer-mediated relationships has flourished, perhaps because of the new media environment continues to permeate many aspects of people's lives. For instance, a plethora of studies have confirmed that people use the Net regularly to communicate with friends or significant others (Cornwell & Lundgren, 2001; Hiller & Franz, 2004; Merkle & Richardson, 2000; Parks & Floyd, 1996; Perlis et al., 2002), for seeking social support through the development of mediated relationships (Turner, Grube & Meyers, 2001; Wright, 2000), and even in business settings (Dickson & Bowers, 1997; Fischer, Bristor & Gainer, 1996).

The ways that the new media environment, specifically the Internet, may or may not impact interpersonal communication and interactions, are still under examination. Nonetheless, scholars have already studied the nature of online relationships (Parks & Floyd, 1996), online relationships as compared to offline relationships (Cornwell & Lundgren, 2001; Underwood & Findlay, 2004), associations between people's willingness to form online romantic relationships and their romantic beliefs (Donn & Sherman, 2002; Levine, 2000), associations among type of online relationships, Internet usage and people's well-being (Kraut, Kiesler, Boneva, Cummings, Helgeson, & Crawford, 2002), and more recently, examination of online infidelity (Whitty, 2002). In many if not most ways, social interaction on the Internet resembles that in traditional, offline settings (McKenna et al., 2002). However, there are some important features that highlight the uniqueness of personal relationships formed on the Internet (e.g., lack of nonverbal cues, proximity).

Regarding romantic relationships specifically, a recent survey conducted by the Pew Research Center found that some 31% of American adults said they know someone who has used a dating website and 15% of American adults – about 30 million people – indicated knowing people who have been in a long-term relationship or married someone they met online (Madden & Lenhart, 2006). It was also indicated in that among single Net users who are looking for a romantic partner, three out of four have done at least one dating-related activity online—ranging from using dating websites, to searching for information about prospective dates, to flirting via email and instant messaging, to browsing for information about the local singles scene. Moreover, about 37% of those Internet users who are single and looking for a romantic partner said they have used dating websites. As these numbers indicate, there is little doubt that online relationships -especially those that are romantic in nature- have emerged as a distinctive group of contemporary relationships (Underwood & Findlay, 2004).

Comparing Offline and Computer Mediated Relationships

More than a decade ago, Walther (1992, 1996) introduced new perspectives and ways to better understand computer mediated communication processes. According to this author, the most common theoretical explanation for the difference between face-to-face and mediated communication is the lack of nonverbal codes and the claim that Internet relationships are impersonal, which may affect people's perceptions and interpretation of the interactions. Known as the "cues filtered out" perspective, this approach posits that because online users cannot see facial expressions, gestures or appearances or hear voice intonations, making interpretations of messages is extremely hard. Based on this premise, and acknowledging that in the new media environment social presence is low and social cues are reduced, mediated interactions have been described as less personal and intimate. However, later research suggested that anonymity on the

Internet allows people to disclose more than they would in a face-to-face interaction (McKenna et al., 2002; Whitty & Gavin, 2001). Moreover, it has been found that "those who are socially anxious and lonely are somewhat more likely to feel that they can better express their real selves with others on the Internet than they can with those they know offline" (McKenna et al., 2002, p. 28). But self-disclosing more information does not necessarily means the information is always trustworthy, because some people may use the Internet as a playground where they "try on" different personalities, providing a description of themselves that differs from reality (Whitty, 2002).

Although relationships developed in a mediated environment rely heavily on information voluntarily disclosed during people's interactions, relational development still takes place (Walther, 1992). For instance, people developing relationships in a computer-mediated environment have learned to accommodate relational cues and to express missing nonverbal cues in written ways (e.g., emoticons, smile faces, and punctuation). In addition, given the unique characteristics of the new media environment, users have learned to substitute verbal for nonverbal indicators and to overcome proximity with frequency of messages, substitutions that have made mediated interactions much more similar over time to the experience of face-to face interactions.

A related approach in mediated communication, the hyperpersonal perspective, states that the Internet allows for communication that is more intimate and sociable than that found in offline interactions (Rabby & Walther, 2003; Walther, 1996). Hyperpersonal communication argues that it is precisely the absence of nonverbal cues, editing capabilities and identity elements that may prompt CMC users to engage in selective self-presentation and partner idealization, which at the same time may trigger more intimate exchanges than those of face-to

face interactions (Tidwell & Walther, 2002). Evidence in this area suggests that online users can and will develop personalized intimate relationships, and that the limitations of the medium prompt them to overcompensate. Likewise, Hancock and Dunham (2001) found that people who developed online relationships formed deeper, but not broader, impressions of their partners than those in face-to-face interactions. In brief, the internet seems to open a new social space for communication and results suggests that relationships developed online are healthy and a complement to face-to-face relationships (Perlis et al., 2002).

Despite existing research, the effects of the new media environment on the formation of social and personal relationships appear inconsistent and contradictory. Views of relational development in the mediated environment have changed over the past few years, and modern relationships may have outgrown the existing theories about them. For example, recent studies found that real, deep and meaningful relationships do form on the Internet, and that these relationships are stable over time (McKenna et al., 2002). Moreover, findings seem to indicate that individuals use the Internet not only to maintain existing ties with family and friends, but also to form close and meaningful new relationships in an environment they consider relatively non-threatening. Therefore, contemporary questions in computer mediated communication have to do more with the unique properties of this medium to enhance, diminish or alter the dynamics of relationships. Some scholars are talking of mixed-mode relationships, where people meet online, but then migrate their relationships to offline settings (Walther & Parks, 2003). These new social arrangements then provide new opportunities for research development.

To summarize, past research examining online romantic relationships suggested two schools of thoughts. One side views online romantic relationships as shallow, impersonal and hostile. But, while some people argue that the Internet promotes emotionally disconnected or

superficial interactions, the other view argues that online relationships can facilitate positive connections and create opportunities for new, genuine personal relationships, including healthy romantic relationships (Cooper & Sportolari, 1997; Parks & Floyd, 1996). In fact, research on people's use of electronic mail, computer conferences, bulleting boards and MUDs suggests that significant, strong and often enduring personal relationships could also emerge over the Internet (Cooper & Sportolari, 1997). The current available information about personal relationships formed online stems primarily from a small body of scholarly articles (McKenna, 1999; Parks & Floyd, 1996, Walther, 1992, 1996; Walther & Parks, 2003), and most of these studies compared several aspects of offline and online close personal relationships.

Romantic Relationships Formed on the Internet

For generations, western culture has followed courtship rituals that progressively lead to romantic relationships (e.g., men would call women, ask them for a date, meet the father and eventually, go steady). More specifically, in Western society, friends and family expect individuals to marry and have families. Yet many people seem to be losing faith and moving away from conventional methods for mate selection, such as bar scenes, friends or singles gathering. The idea of meeting a person in a coffee shop or restaurant within a context that includes impressions based on face-to-face interaction, physical gestures, appearance and voice is now being replaced with an online profile advertising people's qualifications. Before reviewing the literature on romantic relationships formed on the Internet, this section provides a very brief overview of romantic relationships and the relevance of examining many aspects of this type of relationship.

Romantic Relationships: Overview and Importance of Examining Relationships

Relationships are an essential part of our daily lives. People spend a lot of their lifetime either in the company of others or developing and maintaining relationships (Cann, 2004). Among the most unique and significant type of interpersonal relationship is that of a romantic nature (Miller, Olson & Fazio, 2004). Romantic relationships are an important part of people's lives because of what individuals expect from these interactions and the significance of developing this type of connection to their lives. As this literature review will next reveal, romantic relationships are also important sources of acceptance, self-evaluation, identity, affection and social support.

One significant aspect of romantic relationships is the quest for a marriage partner, which is an important part of entering adulthood (Bouchey & Furman, 2001; Brown, Feiring & Furman, 1999). Preconceived myths and ideals about love and romance are abundant in our society. Consider, for instance, how we grow older with the expectation of finding a 'soul-mate', which refers to the notion of our 'other-half' or that other individual who completes us, who is compatible in disposition, point of view, or sensitivity (Houran & Lange, 2004). Evidence indicates that a soul-mate view of romance and marriage is particularly strong among young adults (Popenoe & Whitehead, 2001, cited in Houran & Lange, 2004). More specifically, one of the enduring myths of Western civilization is that each individual has a life partner somewhere in the world who was made just for him or her (Sprecher & Metts, 1999; Sunnafrank & Ramirez, 2004).

In general, romantic relationships have emerged as an important factor related to people's well-being, emotional states and self-evaluation. Among young adolescents, specifically, romantic relationships represent a new and exciting arena. Research in this area suggests that

romance and romantic issues are at the forefront of adolescents' minds (McDaniel, 1969). One study found that girls attributed 34% of their strong emotions to real or fantasized heterosexual relationships (Brown et al., 1999). Romantic relationships are also relevant for identity development because they have been suggested as a major vehicle to work through issues of identity and other components of self-concept as well as a major source for learning relational patterns (for details see Brown et al., 1999). In the context of romantic relationships, experiences are a source of mood elevation or depression, and thus, romantic experiences may also influence people's perceived ability to form and maintain relationships.

Because relationships with others are at the very core of human existence, the desire to understand close relationships is of great interest. For decades, researchers have shown interest on examining close relationships in an attempt to understand human behavior (Bachen & Illouz, 1996; Segrin & Nabi, 2002; Simon, Bouchey & Furman, 1998; Sprecher & Metts, 1999), but the significance of examining close relationships transcends theoretical implications. Studies have shown that there is also practical value in doing so, mainly because relationships seem to have significant impact on physical and mental health (e.g., increased length of life-span, happiness, and improvement of immune system). Consequently, increased understanding of close relationships may actually help people live longer and healthier lives (Berkman & Syme, 1979; Kelley et al., 1983; Wildermuth, 2001a).

Given the importance of research about romantic relationships, an extensive body of literature in the area of interpersonal relationships has been developed to examine such relations. Two significant points deserve special attention for the purposes of the current study. First, scholars argue that research needs to examine the relationship beyond focusing only on the individual or the couple, and instead, examine relationships within a social context (Kelley et al.,

1983). This is of significant relevance in this study, since family and friends provide a social context from which to examine people's attitudes to form romantic relationships on the Net. Second, there is a need to examine relationships that go beyond traditional types of relations. In fact, there seemed to be little understanding of romantic relationships that could be considered non-traditional, like romantic relationships initiated over the Internet as opposed to face-to-face. Lack of knowledge about online romantic relationships can undermine our understanding and tolerance toward those relationships that fall outside conventional parameters (Wood & Duck, 1995).

Online Romantic Relationships: Definition and Brief Overview

Although there is an abundance of research on romantic relationships in general, there is still much to be learned about relationships formed in online settings. For the purpose of this research, an online romantic relationship is understood as an intimate and passionate connection between two single, consenting and heterosexual adults initiated over the Internet (Wildermuth, 2001a, 2001b). In addition, online romantic relationships are limited here to those romantic relationships initiated on the Internet regardless of whether individuals in the relationship decide to meet face to face.

How do ubiquitous technologies, such as email, MUD's and the Net impact people's ability to find or experience love? According to Rosen (2004), technology is not only changing the traditional ways we pursue love, but also, it is transforming the way we think and feel about relationships per se. Various news articles and market reports reveal that the development of romantic relationships on the Internet is growing in importance as an industry, not only because of its increased popularity as an efficient way to find romantic partners, but also because of the uniqueness of the online courtship process. For instance, it has been reported that in 2004, more

than 25 million people –about 17% of the US online population- visited dating sites (Kornblum, 2004). Among all dating sites, Nielsen/Net Ratings indicate that about 6 million people have visited at least one of the most popular dating sites at least once (i.e., *Match.com*, *AmericanSingles, Yahoo. Personals)* (Kornblum, 2004). The increasing number of subscribers using the Net for dating purposes suggests that people not only perceive this nontraditional way of courtship as highly effective but also that the Internet may even get the marriage-minded to the altar faster than traditional courtship.

Figures from the Internet research firm *ComScore* also reveal that online dating has grown by more than 30% since December 2005 with nearly ten million unique users seeking romantic partners online during February 2006 (Lipsman, 2006). This growth seems to correlate with an enticing new body of research that suggests people may perceive the Web as a more effective way of finding a romantic connection than more traditional methods. For instance, when examining a national sample of Americans, Madden and Lenhart (2006) found that nearly 64% agreed that online dating helps people find a better match because individuals have access to a larger pool of potential dates. Likewise, the authors suggested that the general online public seems generally supportive of the notion that online dating facilitates better pairing (Olijnyk, 2002). In addition, data from that study indicated that among all the dating websites, *Yahoo.Personals* and *Match.com* attracted the most visitors in January 2006.

The numbers presented in the previous paragraphs seem to indicate that the number of people going online to find themselves a romantic partner continues to increase every year. However, who are the people looking to form romantic relationships online? According to the previous research profiling people who are more likely to form online romantic relationships indicates that these individuals are generally college-educated and more likely to be employed

(Kornblum, 2004; Wysocki, 1998). When considering gender, it has been found that among people over 35 years old, males were more likely than females to use the Internet to form relationships of a romantic nature (Fallows, 2005). Also, studies found that, compared to women, men reported that they expressed themselves more easily on the Internet, obtained gratification due to the anonymity offered by the online environment and felt less pressured to move the relationship forward, which is a role expected from them in more traditional relationships (Cooper & Sportolari, 1997; Underwood & Findlay, 2004). Findings of a different study suggest that people who use the Internet to meet others were more truthful in general in their interactions, and that most people (80%) formed casual or friendly relationships, whereas a very small number of people formed intimate or romantic relationship (Knox, Daniels, Sturdivant & Zusman, 2001; McCown, Fisher, Ryan & Homant, 2001). When examining college students specifically, Knox and others (2001) also found that almost half of the sample felt more comfortable meeting a person online than in person.

With the increased popularity of romantic relationships formed on the Internet, in a way, there may be no going back to courtship as we knew it because this new trend of online dating is changing the way of initiating romantic relationships (Rogers & Platt, 2001). Nowadays when two people meet at a party and even before going out on a date, both subjects might want to check each other's profiles online, send a couple of emails, know more about each other or even wish each other to 'stay warm' before ending a day of continuous communication. McKenna (1999), who specializes in cyber-relationships, argued that people who have invested so much time and energy writing to and reading about each other on the Net may be more forgiving when they meet in person. So, the emergence of the new media is introducing significant changes in

people's lives, and this rapid growth and flourishing of dating websites may suggest the decline of courtship as it once existed.

Several attributes of the Internet, such as easy access, affordability, and anonymity, render this new medium as unique for the exploration of romantic relationships. For some, romantic relationships developed on the Internet are in many ways courtship as it once was before the advent of the singles bar: plenty of conversation without touching. Computers serve the role of the chaperone, allowing for some background and family checks. So, online dating seems to re-introduce structure back into courtship (Brooks, 2003). Thus, in a computer-mediated environment, people's abilities to interact and pick up a conversation in a bar are now being replaced by their efficient perusal online.

In the past few years, online dating sites have evolved from simple search engines to more sophisticated systems with the ability to find a perfect match based on psychological profiles. In fact, in its origins, online dating and matchmaking services were just search engines that allowed people to search for potential mates on the basis of some characteristics (i.e., appearances or looks, jobs, income, geographic zone or religion). However, computers now seem to be playing matchmaker roles for plenty of individuals who may consider online dating a superior way of developing romantic relationships. Therefore, given the fact that potential matches are selected from a pool of millions of eligible individuals by relying on advanced and sophisticated software to profile or screen matches or predict the success of the relationship, more and more people may perceive the Internet as the next best thing when searching for a romantic partner or as an extremely effective and efficient way to find a soul-mate (Houran, Lange, Rentfrow, & Bruckner, 2004).

Attitudes Toward Online Romantic Relationships

Although research examining attitudes toward romantic relationships formed on the Internet is limited, many scholars have extensively explored attitudes toward the Internet in general. For instance, regarding age group, research shows that young people are more likely than older Americans to have more positive attitudes (Madden & Lenhart, 2006). Additionally, it has been found that individuals who have developed relationships online (e.g., friendships, support groups) reported feeling more understood and able to talk or share personal feelings with online partners than with their primary offline partner. This may explain why people often feel more satisfied with their online relationships as compared to face-to-face relationships (Underwood & Findlay, 2004). If online relationships are perceived and rated as more fulfilling and satisfying, people might rate online romantic relationships the same way. If so, these findings might generalize to romantic relationships formed on the Internet because of the nature of the relationship as well as the attributes of the Internet (i.e., it allows people involved in these relationships to achieve high intimacy in a short time, it transcends geographic boundaries, it provides a safer medium to develop relationships, etc).

It is possible that people in online romantic relationships will experience relationship problems or struggle with the stigma that comes from having an online romantic relationships (Wildermuth, 2004) as people tend to perceive online romantic relationships negatively (Anderson, 2005). Perhaps the unique attributes that make the Internet such an interesting medium to examine (i.e., anonymity, control, proximity, concealed identity) are the same elements that also make people feel uneasy about the relationships formed online. People's attitudes toward relationships formed on the Internet could be based on their expressed concerns about the trustworthiness of online matchmaking sites (e.g., safety, people lying about their

identity or about their intentions). These attributes could also influence people's perceptions of romantic relationships formed on the Internet. For instance, some people who develop romantic relationships on the Internet praise the fact that they can develop their own self-presentation and manage the pace of the relationship; for others these same features could raise some doubts and trust issues. In brief, of all places, the Internet seems to provide people the control they need to allow relationships to develop at their own pace. And although to some extent, online relationships seem to develop in ways that resemble those of face-to-face relations, research on the beliefs and attitudes toward online romantic relationships is very limited.

That people perceive online relationships, including romantic relationships, negatively is a claim commonly found throughout the literature examining mediated relationships (Anderson, 2005; Donn & Sherman, 2002; Lea & Spears, 1995; McKenna, 1999; Nice & Katzev, 1998). However, empirical evidence supporting this claim is very limited. To date, few studies have examined people's perceptions of online relationships, let alone perceptions of online relationships of romantic nature. However, before examining in detail these studies as well as their findings, a brief review of the literature on attitudes or attitude formation is in order.

General Research on Attitudes: A Brief Overview

Attitudes have been examined for many years, but despite its long history of research scholars have not been able to come up with a universal agreed-upon definition of what attitudes are (Olson & Zanna, 1993). Although attitudes have been conceptualized in a number of different ways, most researchers would probably agree that: (1) attitudes are learned, (2) attitudes predispose action, and (3) attitudes include an affective component (Fishbein & Ajzen, 1975). According to Olson and Zanna (1993), attitudes also have cognitive and behavioral components. Regarding the affective component, scholars seem to agree that affect (i.e., the evaluative

component) is the most essential part of the attitude construct, in part because it distinguishes attitude from other concepts (i.e., belief or behavioral intention) (Fishbein & Azjen, 1975). Based on this argument, it seems that, whereas attitudes refer to people's favorable or unfavorable evaluation of a concept, beliefs represent the information or knowledge individuals have about that specific concept.

Considering that attitude is, perhaps, the most distinctive and indispensable concept in American social psychology (Ajzen, 2001; Fishbein & Ajzen, 1975), before moving forward with the review of the literature explaining attitudes and attitude formation, a conceptual distinction is in order between attitudes and beliefs. The best way to differentiate among attitudes, beliefs and behaviors is by considering the trilogy (affect, cognition and conation) (Fishbein & Ajzen, 1975). Based on this triad, attitudes are considered affect, beliefs denote people's knowledge, opinions or thoughts about something, and behaviors refer to actions. Although scholars have defined beliefs in many different ways, beliefs are defined here as cognitive structures containing perceivers' knowledge, information and expectancies about some human social group (Macrae, Stangor, & Hewstone, 1996).

Based on this distinction, whereas attitudes refer solely to a person's location on a bipolar evaluative or affective dimension with respect to an action or event, beliefs represent the information a person has about the issue under examination, which generally links an object to some attribute. For instance, the belief "People who form romantic relationships on the Net are lonely" links the object "People forming romantic relationships on the Net" to the attribute "lonely." Naturally, if beliefs associate an object with primarily favorable attributes, the attitude will likely be more positive, and vice versa (e.g., association with unfavorable attributes will lead to more negative attitudes). Moreover, as individuals form beliefs about an action or event, they

are automatically and simultaneously acquiring attitudes toward that action or event. In other words, each belief links the event to some attribute; the person's attitude toward the event is a function of his or her evaluations of these attributes. Although people may differ on the strength of their beliefs (the likelihood of the association object-attribute), the totality of an individual's beliefs serves as the informational base that ultimately determines a person's attitudes, behavioral intentions, and ultimately, behaviors.

Although the literature acknowledges multiple ways for defining attitudes, attitudes are defined here as learned predispositions to respond in a consistently favorable or unfavorable manner with respect to a given issue under examination (Fishbein & Ajzen, 1975). From this perspective, attitudes include people's (positive or negative) evaluation of the consequences of performing a particular behavior. Thus, it should not come to as a surprise that individuals may be more likely to perform behaviors that are perceived as more favorable and that provide favorable outcomes. From this view, attitudes constitute an individual's general affective evaluation (often expressed as either positive or negative) of a person, group or event which indicates how the individual feels toward each or any of the objects under evaluation. So, examining people's attitudes is a worthwhile enterprise for their potential impact on people's expectations and on people's future actions and behaviors (Ajzen & Fishbein, 1980).

Social Cognitive Theory: Explaining Attitudes and Behaviors

An important part of understanding human nature is the study of structures of knowledge, examination of interpersonal processes of knowledge creation, dissemination of information and the shaping of each of these aspects of cognition by social forces (Howard & Renfrow, 2003). Social cognitive scholars define socialization as the process whereby people acquire rules of behaviors and systems of beliefs and attitudes to effectively function as members of a particular

society (Goodman, 1990). Through socialization individuals learn about what is acceptable or unacceptable. Moreover, social cognition emphasizes verbal representations of knowledge, which provide the basis for cognitive structures. Examples of these cognitive structures include beliefs and attitudes (Howard & Renfrow, 2003).

The literature on interpersonal relationships suggests two major sources of information for understanding people's beliefs and attitudes toward romantic relationships: direct experiences (Pedersen & Shoemaker, 1993; Simon et al., 1998) and vicarious experiences, including others' experiences and media messages (Bachen & Illouz, 1996; Cohen & Weimann, 2000; Segrin & Nabi, 2002). Considering direct experiences, it seems rather obvious that individuals learn about relationships after experiencing first-hand each of these relationships, including parent-child relationships and intimate relationships with close friends or romantic partners (e.g., learning how to cope with a break-up after your own relationship is terminated). By the same token, people learn about relationships through observing how other people deal with or react to their relationships (e.g., observation of parents' romantic interaction or observation of media characters' or actors' romantic interactions).

Social cognitive theory focuses on how children and adults operate cognitively on their social experiences and how these cognitions can influence behavior and development. In brief, it describes a triad, a process of interactions among three major factors: personal factors, environment and behavior. An important tenet of this theory, is that some sources of influence are stronger than others and that they do not all occur simultaneously. Moreover, interactions may differ based on the individual, the behavior under examination, or the situation in which the behavior occurs. Therefore, the model of causation proposed by social cognitive theory is extremely complex (Eastin, 2002; Sheeksha, Woolcott & MacKinnon, 1993).

That people learn through observation is at the core of social cognitive theory (Bandura, 1986, 2001). Social cognitive theory deals with behaviors that occur as a result of social interaction and it might involve the acquisition of those behavior patterns which society expects from its members. Social cognitive theory has been successfully tested in many different contexts, such as business and consumer research (Denrell, 2003), health behaviors and educational campaigns (Burke & Stephens, 1999; Jemmott, Jemmott, & Fong, 1992; Katz, Fromme, & D'Amico, 2000), sexual behaviors (Cohen & Fromme, 2002; Dilorio, Dudley, Kelly, Soet, Mbwara, & Potter, 2001), and sexual behaviors and media (Aubrey, Harrison, Kramer, & Yellin, 2003; Collins et al., 2004; Martino, Collins, Kanouse, Elliott & Berry, 2005).

One key component of social cognitive theory is observational learning. The basic premise here is thus that learning occurs when individuals are able to observe the behaviors of others. For instance, it has been suggested that family, peers and social pressures shape adolescents' overall approach to romantic relationships, at least in Western cultures where society usually establishes standards for romantic relationships (e.g., how romantically involved individuals should behave, or what relationships are permitted or forbidden). Within the context of romantic relationships, research has shown that observation of others' romantic relationships has an impact on the way people perceive the romantic relationship (Bouchey & Furman, 2001; Fitzpatrick & Sollie, 1999; Larson, 1990; Simon et al., 1998).

Social cognitive theory emphasizes how behaviors are acquired or modified by watching others in person or through mediated channels. As previously mentioned, many attitudes, beliefs and behaviors can be learned, at least partly, through what social cognitive theorists have defined as symbolic modeling (Bandura, 2001). Examples of symbolic modeling include media portrayals, films, photos, and plays. These images are of relevance because through media

portrayals people learn and acquire information (e.g., general knowledge, opinions, conceptual frameworks, social or moral acceptability of behaviors). Thus, it is not surprising that in the past, the media have been blamed for creating, spreading and perpetrating stereotypes of gender, age and race through the images portrayed on various media messages (Schneider, 2004). Following this line of thought then, in this sense people may learn about various aspects of online romantic relationships through media portrayals of these relationships.

When social cognitive theory is used as the framework to assess the depiction of various groups or social issues in the media and advertising, researchers have found that media portrayals can indeed have an impact on people's perceptions. For instance, relying on social cognitive theory, Clark, Martin and Bush (2001) examined the impact of vicarious role models (e.g., celebrity endorsers) on young consumers. They concluded that despite lack of direct contact between role models and consumers, young consumers still learned certain attitudes and behaviors via observation. Social cognitive theory would argue that media and advertising provide models whose behavior consumers can learn, and eventually under the right conditions, perform. So, people might not immediately mimic modeled behaviors, but might store these behaviors as cognitive scripts for later retrieval and use (Geen, 1994). Martino et al. (2005) also tested the utility of a social cognitive framework to explain the link between exposure to televised sexual context and adolescent sexual behavior. From a social cognitive approach, the study predicted that adolescents learn sexual behaviors and their likely consequences by watching TV. Overall, the findings provided support for the social influence process by which TV is thought to influence sexual initiation (Martino et al., 2005). Evidence thus shows that media, including ads, are a source of observational learning for audiences with little or no past experience on the issues under examination, and can have potentially long-term effects. Thus, the

importance of creating advertisement that conveys realistic representations and transmits positive messages.

Social cognitive theory not only posits that people learn through observation, but it further argues that people are motivated to perform specific behaviors based on vicarious reinforcements (rewards and punishments) that may result as a consequence of performing the behaviors (Bandura, 1986). Positive and negative outcomes that may arise as a consequence of performing behaviors can teach people about social norms and values. When people observe a person performing a behavior, they may also observe the consequence of that behavior. If the person is rewarded for the behavior, then the observer may be more likely to perform the behavior. Extrapolating this premise to forming online romantic relationships, it could be suggested that when a person sees or knows of an individual who, after forming a romantic relationship online, is reportedly happily married and enjoying a healthy, fulfilling relationship, that person is more likely to form a romantic relationship online. Moreover, Bandura found that observational learning can be achieved more effectively by informing people in advance about the advantages of adopting modeled behaviors than by waiting for the outcome of performing the behavior.

Past Research on Attitudes Toward Online Romantic Relationships

The earliest study examining attitudes toward romantic relationships formed on the Internet was conducted by Nice and Katzev (1998) using a college-aged sample. Although a small number rated their online relationships as romantic ones, findings suggested that the relationships formed online were much closer, stronger and more intimate than most would have expected. These respondents did not characterize their online romances as shallow or distant. In contrast, authors found that respondents perceived their online relationships as genuine.

Although not specifically focusing on romantic relationships, Wildermuth (2001a) examined the nature of online close relationships and the impact of family and friends' negative reactions to the quality and stability of online relationships. Wildermuth's study is relevant here mainly for two reasons: first, it examined the influence of social networks on people's attitudes toward online relationships and argued that the way important others react to the relationship influenced people's intentions to engage in the relationship; and second, it provided evidence that social network approval might influence people's attitudes and perceptions of online relationships.

In order to examine attitudes toward online close relationships, Wildermuth (2001a) joined an online group and collected information by asking members in that group to describe their experiences with online close relationships. Participants provided their own definition of close relationships and shared their relationship stories. From a total of 202 messages, the author analyzed 83 messages with a strong narrative component, where participants provided details of their online close relationships. Interpretation of these messages revealed several major themes: intense love, passion, pain and betrayal were all evident in online close relationships. Likewise, extra-marital affairs occurred in a mediated environment, loneliness emerged as a motivation for going online, and true love was possible in online close relationships. But perhaps the most significant finding of the study is that social networks often expressed disapproval, reacted negatively and showed a lack of support for online close relationships. The author argued that this last finding might reveal the existence of a strong negative bias toward online close relationships from offline significant others. As shall be argued, perhaps this negative bias from social networks is related to people's attitudes toward romantic relationships formed on the Internet, and their willingness to form such relationships.

To further investigate the existence of a societal stigma of online romantic relationships, Wildermuth (2004) conducted a second study surveying college students about their experiences with face-to-face and online close relationships. Two major findings emerged: first, as compared to face-to-face relationships, people were more likely to use negative descriptors and negative personality traits to refer to individuals in online relationships, and second, more disapproving and behavior inhibiting communication strategies were directed toward individuals involved in online relationships. Overall, this study provided evidence that involvement in an online relationship indeed meets several indications of stigma.

A few other studies have looked specifically at intimate online relationships. In one study, Baker (2000) selected two couples as case studies of online relationships. Through a series of phone interviews and emails, the author used a longitudinal study to examine how their relationships progressed. Couples were chosen as cases to illustrate two kinds of outcomes: "successful," continuing couples, or "unsuccessful," couples whose relationships had ended. Several factors emerged which seemed to differentiate among the two types of relationships begun online: (1) meeting place, where they first encountered each other online; (2) obstacles, barriers to getting together overcome by the couples, such as distance and previous relationships; (3) time spent writing or talking before face-to-face interaction, and (4) conflict resolution, ability of the people to resolve problems in communication. People who first met in places based upon common interests, who communicated for long periods of time before meeting offline without too much intimacy, who worked through barriers to becoming closer, and who negotiated conflict well tended to stay together.

In a different study, Donn and Sherman (2002) conducted an examination of young people's attitudes and practices about forming online relationships. In the first study, the authors surveyed undergraduate and graduate students about their Internet use, attitudes and formation of online romantic relationships. Findings revealed that, as compared to younger students, graduate students held more positive attitudes toward online relationships and were more likely to form online relationships. Also, graduate students were not as likely to see forming relationships online as desperate and agreed more than undergraduates that there is nothing wrong with trying to meet people online. In addition, findings seemed to suggest that since younger students come into contact with single peers with shared interests on a daily basis (e.g., school activities, classes, school parties), they may not be the population to whom matchmaking-type sites appeal. For younger individuals, meeting other singles in person at work, bars or parties is still satisfactory, but some others may be seeking more novel ways to meet a romantic partner.

In a second study, Donn and Sherman (2002) exposed students to two real examples of dating service websites, such as *Match.com* and *Matchmaker.com*, and reported their impressions of the sites while a control group answered similar questions without exposure to actual sites. Results indicated that the exposure group rated the sites less negatively than the control group, suggesting that viewing the sites did mediate opinions. Both groups expressed significant concerns about people lying on matchmaking sites and trying to meet people without using visual cues. Other findings suggested that overall, participants rated online relationships as highly impersonal and hard to develop as compared to offline relationships.

One study examining factors relating to perceptions of online romantic relationships was conducted by Anderson (2005). The author asked a sample of college students, who had never experienced relationships on the Internet, to complete self-administered questionnaires asking

questions about their Internet use, Internet affinity, romantic beliefs and perceptions of online romantic relationships. Although this was a correlational study, findings revealed interesting associations. First, it was found that individuals holding more positive orientations toward the Internet in general were more accepting of romantic relationships formed online. Second, participants who reported spending more time using the Internet were also more likely to rate online relationships positively. Regarding romantic beliefs, findings indicated that as compared to traditional romantic relationships students holding more romantic beliefs perceived online relationships as more negative. This association suggests that online romantic relationships were rated as less romantic than more traditional relationships.

The most current study examining online romantic relationships is one conducted by Anderson and Emmers-Sommer (2006). Here the authors examined the extent to which similarity, commitment, intimacy, trust, communication and confidence affect and predict relationship satisfaction in online romantic relationships. Findings indicate that among all these factors, intimacy, trust and communication significantly predicted online relationship satisfaction.

Although research on online close relationships is a growing field, research has assumed that a societal stigma exists against online relationships, particularly those of a romantic nature (Anderson, 2005; Wildermuth, 2004). A societal stigma exists when family, friends and society itself devalue individuals who deviate noticeably from social norms (Katz, 1981). Although little is known about attitudes toward online romantic relationships, the assumption is that overall attitudes are not favorable, and these may vary from people who perceive these relations as weak connections formed by desperate individuals in their last attempt to develop a romantic bond to those individuals who view online romantic relationships as linked to deviant or illegal behaviors

or practices including, but not limited to pornography and cybersex. Yet this field would considerably benefit from a systematic examination of people's attitudes toward romantic relationships formed on the Internet.

Factors Affecting Attitudes toward Online Romantic Relationships

As stated before, social cognitive theory posits that people's conceptions about themselves and the nature of things could be learned through observation. More specifically, it posits that both direct and vicarious observations lead to learning about the social environment. Regarding the social impact of forming online romantic relationships, much of what concerns social cognitive psychologists has to do with what goes on in people's minds (conceptual schemes, perceptions or judgments). But where do these schemas come from?

Direct Experiences with Online Romantic Relationships

Based on past research, attitudes ultimately rest on three fundamental elements: feelings, beliefs and past experience. Because feelings are usually based on personal experience, direct experience might be often more important for attitudes, which are relatively specific and concrete, than for other constructs, such as values and ideologies (Maio, Olson, Bernard & Luke, 2003).

Evidence of this claim was provided by Doll and Ajzen (1992), who found that direct experience attitudes predicted subsequent behavior better than did indirect experience attitudes. However, research in this area has been inconclusive for the most part. For instance, in examining young adults' attitudes toward marriage, it was argued that an increasing number of couples were living together or cohabitating in order to learn about commitment and relationships before entering marriage, yet findings indicated that direct experience of living together was not sufficient preparation to enter marriage (Olson, 1972). A different study by

Thompson, Judd and Park (2000) argued that at least under certain conditions, attitudes based on indirect experience might be more polarized than attitudes based on direct experience. Findings revealed that people relying on second hand information or indirect experiences also had a tendency to give more positive evaluations than individuals who were exposed to the original set of behaviors. Here, ironically, indirect experience was more strongly related to positive attitudes than was prior direct experiences.

In the context of romantic relationships, the literature revealed that previous experiences are related to people's attitudes such relationships. For instance, positive experiences can be associated with the development of more positive attitudes. In fact, studies of interpersonal relationships suggest that people involved in more traditional relationships are more likely than people who are involved in less traditional relationships to hold negative attitudes toward less traditional relationships (Christopher & Kelly, 2004). Less traditional relationships are defined as romantic involvements in which couple members had to deal with social disapproval as a result of their union (e.g., homosexual relationships, age or racial differences) (Lehmiller & Agnew, 2006).

In an ethnographic study conducted by Holland and Eisenhart (1992), the authors observed and interviewed female college students from two campuses over a period of time. Interviews with the women and observations of their peer activities revealed multiple references to romantic relationships, with an emphasis on romance and attractiveness. The authors suggested that prestige among females was defined by the peer group, and college students devoted a great deal of time to the peer system. In this case, it was also suggested that women could gain prestige only by making themselves attractive or by dating attractive men. In brief,

dating validated a women's attractiveness, provided intimacy, and relieved her from further searching.

Regarding attitudes and perceptions of online romantic relationships, recent descriptive data from a national survey published by the Pew Internet and American Life Project (Madden & Lenhart, 2006), revealed that those who regarded online daters as desperate tended to have less experience online and reported lower levels of trust generally. Likewise, male Internet users were more likely than their female counterparts to categorize people forming romantic relationships online as a desperate group. The data also revealed that many people who formed romantic relationships on the Web appeared to be successful in meeting people online and reported that online dating was, overall, a pretty good experience. Interestingly enough, although most Internet users did not think that people turn to cyberspace to form romantic relationships out of desperation, most online users and people forming romantic relationships online suspected that many people were dishonest about their marital status on dating websites (Fox & Madden, 2006; Madden & Rainie, 2003).

Indirect Experiences with Online Romantic Relationships

Although there is a tendency to look at direct experiences for explanations of human behavior, individuals do not have to rely solely on direct experiences. A vast amount of knowledge can be obtained through media messages (Berry, 2003; Earles, Alexander, Johnson, Liverpool, & McGhee, 2002; Vaughan & Rogers, 2000). In fact, sources of indirect experience can instruct people about what do to or how to behave in various situations. As social beings, people can also learn from vicarious experiences, such as friends' and family's experiences. According to social cognitive theory, "if knowledge could be acquired only through the effects

of one's own actions, the process of cognitive and social development would be greatly retarded, not to mention exceedingly tedious" (Bandura, 1986, p. 47).

In the context of personal relationships, there is evidence that, although "direct experience may be individuals' primary source of information about relational interaction, such information may be also supplemented by media messages" (Comstock & Strzyzewski, 1990, p. 264). Evidence from prior research suggests that dating and romantic relationships were among the most common script themes featured in media (Ward, 1995). Media portrayals of romantic relationships can not only provide new information about specific topics, but they can also reinforce previous knowledge. In fact, in modern society, a well well-known source for transmission of social stereotypes is mainstream media, including TV, movies or newspapers (Macrae et al., 1996). Specifically regarding online relationships, while most Americans do not have firsthand experience forming romantic relationships online, it has been reported that close to one out of three adults know someone who has developed a romantic relationship on the Internet (Madden & Rainie, 2003). Moreover, with the possible exception of family and friends, the media are probably the most powerful transmitters of stereotypes.

Learning through observation: A case for others' experiences. Social cognitive theory posits that people learn through either direct or indirect experiences (vicarious learning). Although Bandura (1986) acknowledged that people can learn through direct reinforcement, social cognitive theory was explicitly developed to explain learning through observation and vicarious reinforcement. In addition, it has been found that much social learning is fostered by exposure to real life models that perform patterns of behavior that may be learned by others (Bandura, 2001). According to social cognitive theory, much of human learning is a function of observing the behaviors of others, and learning about socially expected and desirable behaviors.

The notion that individuals may learn by observing the actions of others is recognized in many fields of study (Duffy & Feltovich, 1999). Anthropologists, for instance, have long noted that in many cultures, observation is the primary method through which individuals learn, whereas among behavioral psychologists, the hypothesis that individuals learn through observation of others is also well established. For example, Bandura (1986) summarized a large body of research and concluded that the major effects of observation include the learning of new behaviors and the facilitation of behaviors already known.

There is much empirical evidence of how individuals might learn through social networks or neighbors or by word-of-mouth. Ellison and Fudernberg (1993, 1995) examined the effect of word of mouth communication on people's behaviors and found that information flow might lead to efficient learning. Although using a different context, Jackson and Kalai (1997) examined different groups of players and social learning. More specifically, they looked at how gamblers learned from past experiences or previous play of earlier groups. Likewise, Duffy and Feltovich (1999) conducted an experiment examining whether amount and content of information provided to players would affect their behaviors. More specifically, they allowed players to observe, prior to choosing their own actions, the actions and payoffs of other pair of players and found that observation of other players' actions and payoffs indeed affected observers' behaviors. For decades, research has found that peers are also a significant source of influence, especially among adolescents (Unger, Rohrbach, Howard-Pitney, Ritt-Olson, & Mouttapa, 2001). Moreover, the fact that individual during adolescence experience the need for independence from the parents leading them to establish stronger dependence on peers and friends has been established since the early 1960's (Coleman, 1961).

Studies examining romantic experiences have looked at direct and indirect personal experiences (e.g., previous romantic experiences, perception of parents' marriage, close friends' relationships) as the primary source for the development of romantic beliefs (Knox & Sporakowski, 1968; Simon et al., 1998). Probably one of the most complete overviews explaining the development of romantic expectations among adolescents is one by Simon et al., (1998). These authors proposed that intimate relationships with close friends or romantic partners, parent-child relationships, and observation of parents' romantic interaction all play a role in the development of romantic beliefs. Likewise, the authors suggested that peers and social pressures could also shape adolescents' expectations of romantic relationships, at least in Western cultures where society usually establishes standards for romantic relationships (e.g., how romantically involved individuals should behave, parental approval before starting a committed relationship).

Regarding observation of parents' relationships and its influence on children's perception of romantic relationships, research has shown that interactions between parents provide children with key elements to better understand or imagine romantic relationships (Bouchey & Furman, 2001; Simon et al., 1998). Bouchey and Furman (2001) posited that parents' romantic relationship might influence people's romantic beliefs in several ways. The authors argued that people might learn how to deal with conflict and how to interact with their romantic partners by observing their parents' relationship. Moreover, it was suggested that people may imitate these patterns of behaviors in later romantic relationships. The authors concluded that through observation of parents' interactions, people acquire information to better understand the dynamic of romantic relationships. Another study conducted by Simon et al. (1998) also argued that parents' interaction is a source of information about aspects of romantic relationships, and

therefore "adolescents could be internalizing expectations about romantic partners' behaviors and attitudes" (p. 19). Here, the authors argued that parental romantic interaction should influence people's perception of romantic relationships because most of the time "parents' relationships are the most long-standing model of a romantic bond witnessed by children" (p. 20). Based on past evidence, it could be argued that children's understanding of romantic relationships in general is shaped by their observation of romantic interactions, including those between their mothers and fathers (Simon et al., 1998).

Since the emergence of online romantic relationships could be considered a relatively new phenomenon, there is very little research examining how people perceive this type of relationship formed over the Internet. Learning through observation has been also examined within the area of consumer research as a vehicle to study consumer behavior. In this regard, it was found that acquisition of consumer skills is likely to develop as a result of the adolescents' interactions with various socialization agents; more specifically, skills are likely to be learned by adolescents from their parents by observing consumer behaviors, as well as newspaper and TV contacts (Moore & Moschis, 1981). Without a doubt, peers and family are important learning sources. Sociologists have speculated that the family is instrumental in teaching young people about various aspects of life. With the possible exception of family and friends, media are considered the most powerful transmitter of cultural stereotypes, and evidence suggests that media depictions of a particular group can influence beliefs associated with that group (Mackie, Hamilton, Susskind, & Rosselli, 1996).

Learning through observation: A case for media exposure. People form impressions of many social realities with which they have little or no contact, based on symbolic representations of society, mainly by the mass media. To a large extent, people act on their images of reality

(Bandura, 1986). The general assumption is that exposure to the stereotypical content of news stories influences subsequent opinions and impressions (Jo & Berkowitz, 1994).

Depiction of online relationships are plentiful in the mainstream media, including newspapers (e.g., New *York Times, Atlanta Journal Constitution*), popular magazine articles (e.g., *Time*, *Glamour*), TV shows (e.g., *Today, Primetime*) and Hollywood movies (e.g., *You've Got Mail; Must Love Dogs*). Despite lack of empirical studies content analyzing news media depictions of online relationships, many news stories seem to describe online close relationships by focusing on the negative aspects of the relationship (e.g., deception, risks), conveying a stigma against this type of interactions (e.g., Benedetti, 2000; Cohen, 2001; Smolowe, 1994; Stone, 2001). For example, it has been argued that the media highlight cases of people who believe they have found their soul-mate and leave behind established relationships to travel across the country to meet people who then turn out to be not exactly who they seemed (Cooper & Sportolari, 1997). Sensationalistic negative examples of online relationships (e.g., cases of gender switching, spousal betrayal, and deception of communication partners) are also frequent in the news media even though recent data from a national survey revealed that deception seems to be the exception rather than the rule (Fallows, 2005). News media depiction of online relationships, especially those romantic in nature, seems to follow three patterns: predatory relationships, bizarre romances, or pathetic lonely people who are described as weird or unique in some way (Wildermuth, 2001a). Although no study has used content analyses to determine media representation of online relationships and people who form them, some scholars argue that portrayals of people involved in online relationships as nerdy, desperate, shy or sex-predators seem to be abundant in the popular news media (Anderson, 2005).

Although some scholars seem to agree that media portrayals of people who form online romantic relationships is mostly negative, news articles seem to signal that attitudes toward online dating are progressively and slowly changing. In fact, it could be argued that nowadays it is easier to find news articles highlighting the popularity of online dating services or websites. According to one article, "membership at the matchmaking sites is dramatically up, while the blush factor of telling your friends that you're meeting *HotPants243* for a latte significantly down" (Stone, 2001, pp. 46). Nonetheless, negative stories about the dark side of Internet romantic relationships seem to outnumber happy ending stories.

In the past few years, scholars have argued that the news media have much to do with the belief that online romantic relationships are dangerous, since much of what is published in the popular press emphasizes the dangers of meeting people on the Internet (Donn & Sherman, 2002). But, while news media sources have tended to focus on sensationalistic examples of romantic relationships formed online, existing empirical studies examining the development and quality of these relationships have shown that online relationships are somewhat ordinary and similar to those relationships developed offline (Parks & Floyd, 1996). Media depiction of online romantic relationships, especially the news media, seems to portray these relationships as shallow, risky, impersonal and sometimes hostile. Contrary to the way online romantic relationships are depicted in news stories, scholarly research has found that relationships initiated in cyberspace are perceived as closer as and more intimate than offline romantic relationships (Nice & Katzev, 1998; Donn & Sherman, 2002).

Whereas news media depiction of online romantic relationships seem to portray these relationships in a negative way, not surprisingly, advertisements promoting online romantic relationships and dating sites convey a more positive image, highlighting the advantages of

forming close relationships on the Web (e.g., an easy way to find your soul-mate; relationships are based on compatibility rather than on appearances, etc). This is illustrated by the TV ads for *eHarmony.com*, a popular website for people interested on forming romantic relationships (see www.eharmony.com), which promote the advantages of the website as well as the computerized system used to match couples on the basis of psychological profiles (i.e., measures of compatibility and personality). Furthermore, these ads seem to guarantee that users will find long- lasting and happily-ever-after romantic relationships. Understandably, nothing is mentioned in the ads about possible disappointments, deception or dissatisfaction with the relationships. These ads depict online romantic relationships as the living fairy-tale just as Disney intended it to be.

Why should we care about ads depicting online romantic relationships? According to Williamson (1995), advertisements are one of the most important cultural factors molding and reflecting life. Moreover, it has been argued that advertising strongly influences youths and results in undesirable socialization (Churchill & Moschis, 1979). But the relevance of examining ads does not rest exclusively on the conveyance of meaning. Advertisements help people to create connections between certain type of consumers and certain products (Williamson, 1995). People may, at some point, be aware of the advertising myth (a lie), but it is the images people see in the ads that give ads significance. Williamson argues that not only do ads convey meanings of everything around us, but they are everywhere. Even if somebody decides not to read the newspaper or watch TV, it is almost impossible to avoid ads exposure because these images are very pervasive: in magazines, radio, billboards or the Internet. This is precisely why advertising is so hard to control, because whatever restrictions are made in terms of the verbal content or false claims, there is no way to control the use of images and symbols within ads.

For many decades, researchers have examined advertising and its influence on people (Churchill & Moschis, 1979; Close, Finney, Lacey & Sneath, 2006; Moore & Moschis, 1981; Wang, 2006). Studies on this area have looked at various issues, such as ad content (positive vs. negative), arguing that the prevalence of positive information means that negative information is both more novel and distinctive (James & Hensel, 1991). In addition, research on consumer behaviors and advertising seems to suggest that although people expect advertisements to emphasize positive features and, to some extent, to exaggerate them (Bailey, 2006), the potential impact of advertisements on consumers may depend on several factors, including product experience. Another area of consumer research focused on consumers' behaviors, arguing that television, family and peers appear to be important sources of consumer information (Churchill & Moschis, 1979). Specifically, it has been found that TV and peers appear to be important agents in adolescent consumer socialization, teaching young adults the expressive elements of consumption. This argument could explain potential impact of exposure to TV ads and friends' past experience on people's perceptions of online romantic relationships.

From a sociological perspective, advertisements are considered social discourses through and about objects (Leiss, Kline, Jhally & Botterill, 2005). In other words, ads do more than just sell products; they serve as markers and communicators for interpersonal distinctions. "Advertising is not just a business expenditure undertaken in the hope of moving some merchandise off the store shelves, but is rather an integral part or modern culture" (p. 5). Moreover, Leiss et al. (2005) argued that advertising is best studied as a form of social communication about material cultural, and as a cultural resource used by individuals for a variety of reasons. In addition, advertisements seem to play to people's emotions creating false needs and providing viewers with unsolicited information. In brief, ads carry social meanings

and it is through this social discourse that consumers' behaviors and perceptions might be influenced.

Regarding people's beliefs and attitudes, there are many ways in which the media may influence (or sometimes distort) people's perceptions. First, research has shown that there are some groups that are absent or underrepresented in American media (e.g., seniors, women in general, Asians) (Harwood & Anderson, 2002). Second, some groups or individuals may be depicted in stereotypical ways, performing specific roles or engaging in unique behaviors. For example, gender roles are abundant in the media (e.g., females in passive roles or traditional ways) (Larson, 2001; Smith, 1994). Stereotypical depiction of roles based on race is also common in American media, such as Blacks depicted as athletes or Asians depicted as computer geeks (Dixon & Linz, 2000). Third, media presentations can also be quite subtle presenting issues framed within a particular context that can affect people's attitudes and stereotypes (Harwood & Anderson, 2002; Poindexter, Smith, & Heider, 2003). If one extrapolates these arguments to the context of online romantic relationships then, it could be argued that the way media (i.e., news stories and ads) depict online romantic relationships could have an impact on how people perceive and evaluate those relationships. So, for instance, if media depict people who participate on online romantic relationships as sexual predators and criminals, people who are exposed to those depictions might be more likely to develop more negative attitudes toward that type of relationship.

As discussed previously, people's beliefs are sometimes a direct reflection of individual's experiences (e.g., direct or indirect contact). These experiences are particularly relevant for communication research because personal contact may influence people's beliefs and attitudes, which is the basic premise of the contact hypothesis. Although originally developed within the

framework of interpersonal contact, the contact hypothesis has provided evidence that positive personal contact with a specific target produces a favorable change in stereotypical attitudes (Christian & Lapinski, 2003; Schiappa, Gregg, & Hewes, 2005). In the same way, positive personal contact with people who have had favorable experiences with online romantic relationships could lead to the development of more favorable attitudes toward online romantic relationships.

The contact hypothesis posits thus that under the appropriate conditions, direct contact is one of the most effective ways to reduce prejudice between groups. Although already proven successful within the framework of interpersonal contact, later studies extrapolated this theory to media messages, arguing that exposure to media messages can provide the sort of (interpersonal) experience that can influence viewers' attitudes toward an specific group or event. Moreover, research suggests that when direct information is limited, other sources of information, like media messages, may very well influence existing beliefs (Fujioka, 1999; Schiappa et al., 2005). So, through media exposure people are also likely to gain information and knowledge about other people, groups or events. Extrapolating these arguments to the context of online romantic relationships, people who have never experienced or developed romantic relationships on the Internet are likely to gain information about these relationships through either media messages about these relationships or previous experiences of others.

Factors Affecting People's Intentions to Form Romantic Relationships on the Internet

Previous paragraphs discussed core elements when examining people's attitudes, but why have social psychologists devoted so much attention to the study of people's attitudes? What is the relevance of studying people's attitudes? According to Allport (1935), the concept of "attitude" is probably the most distinctive and indispensable concept in contemporary American

social psychology. For many years, it has been argued that the number of functions that attitudes serve made the concept and its examination indispensable. In addition, and perhaps more importantly, scholars are interested on examining people's attitudes because attitudes serve to guide people's behaviors (Armitage & Christian, 2003).

The Theory of Reasoned Action: Predicting Individuals' Behaviors

The view that the influence of attitude on behavior is mediated through behavioral intentions is the cornerstone of the theory of reasoned action advanced by Fishbein and Ajzen in the mid 1970's (Fishbein & Ajzen, 1975). In order to account for the relationship between attitudes, beliefs and behaviors, these authors developed what is considered one of the most useful of the attitude-behavior models, which "combines attitudinal beliefs about a given behavior with perceptions of the expectations of others in the social milieu to predict intention to carry out a given behavior" (Slater, 1999, p. 336).

According to the Theory of Reasoned Action, a particular behavior is determined by a person's intention to perform the behavior. Behavioral intentions are a function of that person's attitude toward the behavior and his/her subjective norm (Ajzen & Fishbein, 1980). In other words, a specific behavior (or the intention to perform a specific behavior) can be predicted if the person's attitude and subjective norm are known. Attitudes, the first component here, are thus defined as a person's positive or negative evaluation of any particular behavior. The theory of reasoned action posits that *attitudes* are a function of the beliefs that a person accumulates over a lifetime. Some beliefs are formed from direct experience, some are from outside information and others are inferred or self generated. Obviously, only beliefs that are considered "salient" actually work to influence people's attitudes (Ajzen & Fishbein, 1980, 2005). This notion is tied to some of the premises of social cognitive theory, specifically regarding how people might learn

by either second hand information or by observing and evaluating the outcomes of those behaviors. A belief that online romantic relationships are good and beneficial and a successful way of finding a soul mate can influence one's attitude toward developing online romantic relationships and may motivate people to participate or develop in this type of relationships.

Another important element considered under the framework of reasoned action is *subjective norms*, defined as the product of what others think about the behavior and motivations to comply with those views. In its purest essence, subjective norm is a type of peer pressure. Whether or not individuals participate or intend to participate in any behavior is influenced strongly by the people around them. These people may include friends or a peer group, family, co-workers, church congregation members, community leaders and even celebrities.

Subjective norms include perceptions about how family and friends perceive a particular behavior and the degree to which people are motivated to comply with those views. These two factors create subjective norms. It is important to note that subjective norms are formed only in relation to the opinions of persons considered to be significant or important (Ajzen & Fishbein, 2005). Subjective norms, together with attitudes, influence whether the behavior is carried out (or intentions to perform specific behaviors).

The theory of reasoned action posits that the proximal cause of behavior is one's intention to engage in the behavior. A major premise here is that behavioral intention is a function of both attitude toward the outcome of the behavior and subjective norms. Moreover, because intentions are found to be good predictors of specific behaviors, they have become a critical part of many contemporary theories of human behavior, such as social cognitive theory (Ajzen & Fishbein, 2005). The theory of reasoned action has been tested with considerable success in a plethora of studies examining health-related behaviors (i.e., weight loss, cancer

screening) and consumer behaviors (e.g., Ajzen & Fishbein, 2000; Bobbitt & Dabholkar, 2001). Other studies testing the model of reasoned action have examined voting behaviors (Azjen & Fishbein, 1980), abortion (Smetana & Adler, 1980), gambling (Moore & Ohtsuka, 1999), and attendance at training sessions (Brinberg & Cummings, 1984; Fishbein & Stasson, 1990).

Attitudes as predictors of behavioral intent. Much of the literature on attitudes has been already discussed on previous paragraphs. An attitude is an index of the degree to which people like or dislike a person, a behavior, or any other event. In the context of romantic relationships, the study of people's attitudes and beliefs is emphasized by findings suggesting that beliefs and feelings are intertwined with behaviors (Cobb, Larson, & Watson, 2003). Under the framework of reasoned action then, beliefs influence the way people evaluate (attitudes) specific behaviors and guide people's intentions to behave, which ultimately influences their actual behaviors. From a reasoned action perspective, the construct "attitude" refers to the evaluation of performing a specific behavior, which for the purposes of this research involves the development of romantic relationships over the Net. However, as shall be seen next, attitudes (e.g., "for me, online romantic relationships are good/bad) are not the only factor directly related to behavioral intent. In addition to attitudes, there are also subjective norms that consist of beliefs that important others either approve or disapprove of performing the behavior (e.g., "most people who are important to me approve/disapprove of people forming relationships on the Net") and the extent to which individuals are motivated to comply with others' opinions. In brief, whereas attitudes refer to people's overall evaluation of the performed behavior, subjective norms refer to people's perception of social pressure to perform the behavior as well as their motivations to comply (Sheeran, Norman & Orbell, 1999).

Subjective norms as predictor of behavioral intent. Subjective norms are understood here as a construct formed by people's beliefs about social approval of a particular behavior and their motivations to comply. Social approval refer to what significant others think a person should (or should not) do. For example, people may believe that their parents think they should not get romantically involved with someone they have met on the Internet. However, for this belief to affect behaviors, this person must also care about his/her parents' views regarding online romantic relationships and be motivated to comply with their wishes.

Important sources or referents include family members and friends. In fact, here the links between reasoned action theory and social learning theory become evident if one considers that according to social learning theory early in life people learn through reinforcement of their behavior those attitudes that are acceptable to parents and friends. Likewise, people can also learn about attitudes through what they are told by parents or significant others (language) (Bandura, 1986). In brief, social cognitive theory suggests that individuals can learn simply by observation, watching the rewards and punishments other people reap from their behaviors and by deducing from their behaviors what kind of behavior is likely to be evaluated positively by parents and friends, thus gaining their acceptance. This indeed is at the core of reasoned action as well: the significance of considering what people who are important to a particular individual think about performing the behavior under examination.

For years, popular public opinion surveys have shown that people and society in general are likely to rate more negatively those relationships that diverge from the traditional norm (e.g., same-sex relationships or interracial relationships). The assumption is that social perceivers have well defined and consensual beliefs about what constitutes appropriate relationships (Levinger, 1990 in Lewandowski & Jackson, 2001), so if online romantic relationships violate

perceivers' belief of what appropriate relationships should be, they might be hardly accepted. In sum, relationships that are associated with negative portrayals may elicit negative reactions or attitudes. In the past, people have also shown resistance to allow other types of relationships to become "socially accepted", such as interracial relationships. In fact, these results are consistent with data indicating that a substantial number of people still do not support such relationships (Lehmiller & Agnew, 2006).

Subjective norms are of relevance here because the development of personal relationships does not occur in a social vacuum. The influence of subjective norms on people's relationships is not new. Studies examining the influence of social networks and family on romantic relationships have debunked the popular myth of "two against the world." Scholars have found that third party involvement in the initiation and development of romantic relationships far from being the exception is the rule (Leslie, Huston, & Johnson, 1986). This suggests that people's relationships and social networks are closely connected and that friends and family play significant roles in individuals' overall satisfaction with their relationships. Thus, third party involvement, and more specifically their approval or disapproval of a particular relationship, can influence the relationship itself in either a positive way (e.g., saying good things about a partner) or a negative way, (e.g., stressing negative qualities about a partner or relationship; parents expressing disapproval of their child engaging in a romantic relationship with someone he or she met on the Internet).

Sociologists have also long stated the importance of social norms to define actions or groups as either acceptable or unacceptable (Parks, 1995). In addition, Huston and Burgess (1979) argued that network members react to a relationship by either supporting it (and if so, rewarding partners for keeping the relationship) or by attempting to stop or thwart it. Evidence

seems to suggest that support or approval one receives from social networks can positively or negatively affect the relationship itself or attitudes toward the relationship (Wildermuth, 2004). Approval could either encourage or discourage individuals to develop and maintain a specific romantic relationship. Scholars have further referred to the disapproval of a relationship as social interference (Bryan, Fitzpatrick, Crawford & Fisher, 2001) and found that reaction from friends or family is mostly negative rather than positive (Parks & Roberts, 1998). The connection between network approval and relationship satisfaction seems to suggest that if one thinks that friends and family do not approve of an individual forming online romantic relationships, then the less likely a person would form this type of relationship.

Despite the well-documented finding from laboratory research that people are concerned about the evaluations of others and are motivated to behave in "socially desirable" ways (Dovidio, Brigham, Johnson, & Gaertner, 1996), to date only one study has explored possible associations between social network support and attitudes toward online relationships (Wildermuth, 2004). In fact, to date there is only one study looking at how people perceive online romantic relationships and the way people react to these relationships. Wildermuth (2004) found that that people who were not involved in online relationships were more likely to attach strong, negative stigma to online romantic relationships. Moreover, they expressed negative opinions more strongly to friends and family who had developed online relationships by referring to online partners as nerds, desperate, shy or geeks. These findings clearly indicate that friends and family members' past experience with online romantic relationships could influence the way people perceive and respond to online romantic relationships.

In this study, Wildermuth (2004) considered responses that family and friends have to close relationships formed on the Internet. Findings revealed that social network approval was

associated with more positive attitudes toward online close relationships. More specifically, it was found that more approving messages from family and friends were associated with lower levels of stigma consciousness on the part of the online relationship participant. In addition, it was found that people who experienced more stigma consciousness reported less satisfaction with the overall quality of their online relationships. In other words, how others responded to these romantic relationships seemed to affect how people experienced these relationships.

In brief, evidence suggests that others' opinions of online romantic relationships hold relevance for those involved in the relationship (Anderson, 2005). Subjective norms involve an individual's beliefs about the extent to which most people who are important to him or her think he or she should or should not perform the behavior in question, and these beliefs are weighted by the motivation that the individual has to comply with the wishes of those people. Hence, subjective norms can be expressed as the product of the individual beliefs of important others' views and motivation to comply with those people's views. In summary, the theory of reasoned action posits that people's intention to perform a behavior is a function of the person's attitude and subjective norms, and that behavioral intentions are the most immediate factor influencing behavior. Under the framework of the theory of reasoned action then, people's attitudes toward online romantic relationships and their perception of significant others' approval of forming online romantic relationships should predict people's intentions to develop romantic relationships over the Internet.

The Current Study

Despite the high rate of occurrence of online relationships and the recent academic interest on further understanding romantic relationships formed on the Internet, research examining people's beliefs and attitudes toward online romantic relationships is still limited and

sparse. As the literature reviewed here shows, there are only a few studies (e.g., Anderson, 2005; Hardey, 2002; Nice & Katzev, 1998; Wildermuth, 2001a, 2001b, 2004) examining online romantic relationships. Therefore, the present study attempts to conduct an in-depth examination of people's attitudes toward online romantic relationships to provide further understanding of this new type of relationship.

Given the paucity of empirical research in the area of online romantic relationships, the overall purpose of this study is to examine the factors that may influence people's attitudes and intentions to develop or form romantic relationships on the Internet. The current study consisted of a cross-sectional survey of students enrolled in an urban university in the Southeastern United States. This study sought students who are reportedly single or casually dating (i.e., not involved in serious committed romantic relationships) and with no prior direct experience developing romantic relationships on the Internet. Exclusion of people with prior direct experience forming online romantic relationships allowed for examination of factors other than first-hand experience, more specifically other's experiences and media exposure. For those people with prior direct experience with online romantic relationships, it could be assumed that their first-hand experience would influence their beliefs, attitudes and intentions to form (again) online romantic relationships.

Previous studies have indicated that in a college sample, the number of individuals with prior direct experience developing romantic relationships on the Internet is very low (Anderson, 2005; Nice & Katzev, 1998) making this sample suitable for the purposes of this research. From a social cognitive approach, individuals model their behavior on vicarious experiences such as media when their real life experiences are more limited.

Drawing on social cognitive theory (Bandura, 1986) and the theory of reasoned action (Fishbein & Azjen, 1975), the purpose of this study is three-fold: (a) to examine the impact of people's indirect experiences with online romantic relationships (i.e., family and friends' experiences with online romantic relationships, and exposure to news media and ads about online romantic relationships) on people's beliefs and social norms about romantic relationships formed on the Net; (b) to examine a possible association between people's beliefs about online romantic relationships and their attitudes toward these relationships, and lastly, (c) to examine whether attitudes and subjective norms (social norms and motivations to comply) are predictors for people's intentions to form online romantic relationships.

Figure 1 describes the processes under examination. Based on social cognitive theory, the model proposed here suggests that people's indirect experiences (i.e., family and friends' experiences with online romantic relationships and media exposure) influence their beliefs about online romantic relationships as well as their perception of social norms (perception of others' approval of online romantic relationships). The four types of indirect experience under examination here are friends' and family's past experiences with online romantic relationships, and exposure to news stories about online romantic relationships and ads about dating sites. Based on the theory of reasoned action, this model then proposes that people's beliefs about online romantic relationships will shape people's attitudes toward these relationships.

The theory of reasoned action argues that attitudes and subjective norms will predict people's intentions to engage in a particular behavior. Subjective norms are defined here as the product of social norms (whether significant others approve of a particular behavior) and the extent to which people want to comply with those views. In this specific case, the behavior under examination is people's intentions to develop or form romantic relationships on the

Internet. Moreover, intentions are of interest here because according to the theory of reasoned action, intention is the critical determinant of behavior. To sum up, this study suggests that people's intentions to form online romantic relationships can be explained and understood within a broader theoretical framework that merges the basic tenets of social cognitive theory and the theory of reasoned action.

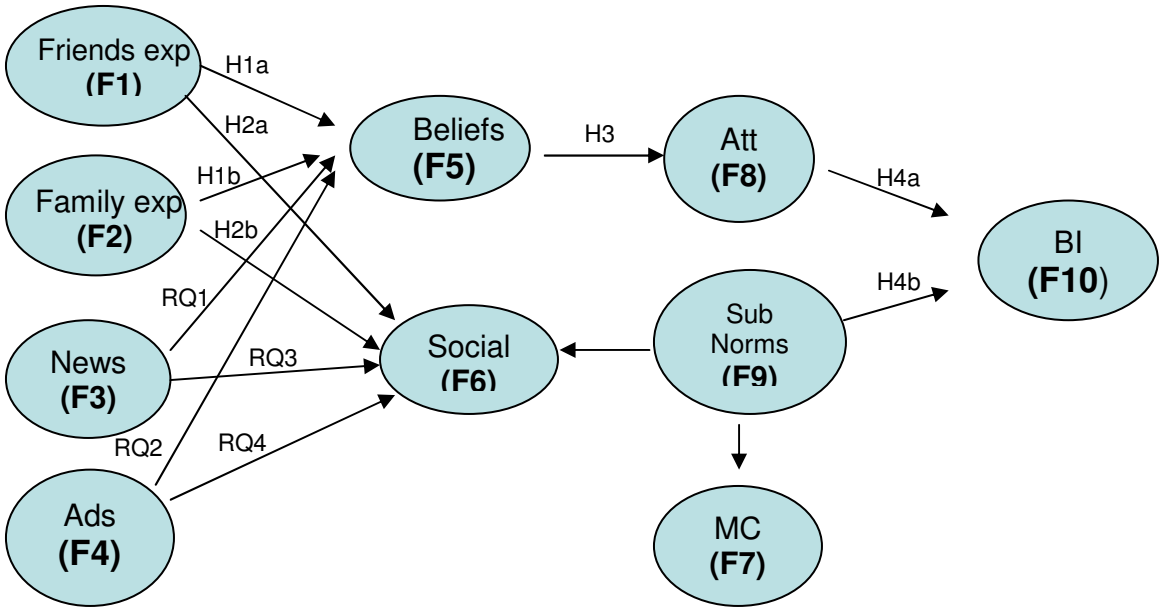

Figure 1. Proposed model of hypothesized relationships. *Friends exp* and *Family exp* = friends' and family's past experiences with online romantic relationships; *News* = media exposure to news stories about online romantic relationships; *Ads* = exposure to advertising about dating websites and online matchmakers; *Social* = social norms, or significant other's approval of forming online romantic relationships; *Sub Norms* = subjective norms, or people's perception of significant others approval and motivations to comply to those views; *MC* = motivations to comply with significant others' views; *Beliefs* = beliefs about romantic relationships formed online; *Att* = attitudes toward online romantic relationships; *BI* = intentions to develop online romantic relationships.

Before introducing the research questions and hypotheses under examination in the current study, the issue of causality needs to be addressed. This research investigates only *relationships* among variables, not causality, particularly regarding any associations involving media exposure. The current study, like many previous studies that have been done on the topic of media socialization (Brown & Newcomer, 1991; Ward, 2002; Ward & Rivadeneyra, 1999), cannot rule out the possibility that the actual causal order is reversed, with people's beliefs and attitudes toward online romantic relationships affecting their selective exposure to media depicting these relationships. If this study establishes that there are, indeed, relationships among the variables under examination, further research should explore these associations applying designs, such as experiments or longitudinal designs, which help to sort out the causal order.

Research Questions and Hypotheses

Based on the figure introduced on page 51, this study examines people's beliefs and attitudes toward online romantic relationships and their intentions to form these types of relationships under the frameworks of social cognitive theory and the theory of reasoned action. According to social cognitive theory, people with no prior direct experience must rely on indirect sources of information to gain knowledge about various events (Bandura, 1986). It is expected then that information gained through socialization may influence people's beliefs and attitudes (Bandura, 1986). Following this premise, it is argued here that one form of indirect experience with online romantic relationships, specifically family and friends' experiences with online romantic relationships, will predict people's beliefs and social norms toward online romantic relationships. Moreover, social cognitive theory also argues that the groups to which people belong will have certain opinions and social norms which they expect group members to share and behave accordingly. On the basis of these arguments, it is hypothesized that:

H1a: The more positive respondents' perceptions of friends' experiences the more positive beliefs they will hold about online romantic relationships.

H1b: The more positive respondents' perceptions of family's experiences with online romantic relationships, the more positive beliefs they will hold about online romantic relationships.

H2a: The more positive respondents' perceptions of friends' experiences with online romantic relationships, the more positive perceptions of social norms related to online romantic relationships.

H2b: The more positive respondents' perceptions of family's experiences with online romantic relationships, the more positive perceptions of social norms related to online romantic relationships.

It has been argued that, with the exception of family and friends, the media are probably the most powerful transmitter of information (Bandura, 1986). In fact, the contribution of media content as an alternative source of knowledge about various topics (e.g., sex, gender roles) has been highlighted in previous research (Aubrey et al., 2003; Ward, 2002). Furthermore, anecdotal evidence regarding media depiction of online romantic relationships suggests two very different portrayals. On one hand, news media coverage of online romantic relationships tends to highlight mostly negative aspects of this type of relationship (e.g., Benedetti, 2000; Carlin & Surk, 2000). Examples of these portrayals are prevalent on American news shows and TV specials, which report specific cases of online predators and the dangers of online dating or online deception (e.g., *To Catch a Predator* on NBC, Online Predators on *CBS*, *America's Most Wanted* on Fox). In addition, Wildermuth (2004) argued that articles published in the popular press typically portray people involved in online romantic relationships in a negative way (e.g., online

predators, freaks, or geeks). On the other hand, media advertisements depicting online romantic relationships tell a totally different story. Ads promoting online relationships portray these relationships in a more favorable way. For instance, TV ads promoting websites like eharmony.com highlight very positive aspects of online romantic relationships (e.g., a safe way to meet your romantic partner; an effective way to find true love; a secure way to develop long-lasting relationships). Based on these assumptions, it appears that depiction of online romantic relationships varies depending upon the type of media source that people are generally exposed to and their perceptions of how romantic relationships are portrayed in these types of media. However, acknowledging that there are not formal content analyses of media portrayals of online romantic relationships and that very little is known about the nature of these portrayals, this study merely focuses on examining how exposure to news media and to ads about online romantic relationships is related to the way people think about and respond to romantic relationships formed online.

RQ1: How will exposure to news media stories about online romantic relationships relate to beliefs about online romantic relationships?

RQ2: How will exposure to ads about online romantic relationships relate to beliefs about online romantic relationships?

RQ3: How will exposure to news media stories about online romantic relationships relate to social norms?

RQ4: How will exposure to ads about online romantic relationships relate to social norms?

Because both social cognitive theory and reasoned action theory contend that salient beliefs are the best predictors of people's attitudes, it can be further anticipated that more

positive beliefs about online romantic relationships would be related to people reporting more positive attitudes toward romantic relationship formed on the Internet. If this assumption is accurate, the following is expected:

H3: More positive beliefs about online romantic relationships will be associated with more positive attitudes toward these types of relationships.

Given that attitudes are expected to predict related behavioral intentions (Fishbein & Azjen, 1975), it is expected that more positive attitudes toward romantic relationships formed on the Internet (e.g., these relationships are beneficial, good and positive) will lead to intentions to form romantic relationships on the Internet. But attitudes are not the only predictor of behavior intent. On the basis of the theory of reasoned action, behavioral intentions are based on two types of cognitive antecedents, namely attitudes toward performing the behavior and subjective norms surrounding that behavior. Empirical evidence also suggests that perception of social network approval is positively related to people's attitudes toward the relationship per se (Wildermuth, 2004). As the theory of reasoned action proposes, it is a combination of more positive attitudes and subjective norms that predicts people's intentions to perform a specific behavior.

H4a: More positive attitudes toward online romantic relationships will predict people's intent to form romantic relationships on the Internet.

H4b: More positive subjective norms regarding online romantic relationships will predict people's intent to form romantic relationships on the Internet.

CHAPTER TWO

Pilot Study

The overall objective of this research project was to provide further understanding of the various factors affecting intentions to form romantic relationships over the Internet and college students' attitudes toward these types of relationships. Prior to data collection for the main study, a pilot study was conducted mainly to derive and test measures used in the main study. The rationale for conducting the pilot study is based on previous research. The literature suggests that, when examining people's attitudes and behavioral intentions, beliefs need to be elicited through pilot work (Fishbein & Azjen, 1975). Pilot work is required here for the following purposes: (a) to derive and identify the set of beliefs and words/phrases that are salient in a college sample population when describing or thinking about online romantic relationships, (b) to check reliability and validity of relevant measures to be included in the main study, and (c) to avoid potential confusion or misunderstanding that might emerge prior to the data collection for the main study. Testing and development of the measures were accomplished through a web-based self-administered questionnaire among a multiethnic sample of college students enrolled in an urban university in the Southeastern United States. Details of the pilot study are provided below.

Participants

The pilot study consisted of 100 students enrolled in the Psychology research pool at Georgia State University. Participation was voluntary, confidential and anonymous. Students registered online to participate on this web-based pilot test and received one research credit for participation. Participants' age ranged between 18 and 44 years old (M = 20.03, SD = 4.20). Of those, 71% were females and 29% were males. A total of 42% participants identified themselves

as White/Caucasian, 31% as African Americans, 13% as Asian, 4% as Hispanic/Latino (a), and 10% as Multiracial. Regarding year in college, 48% were Freshmen, 36% Sophomore, 11% Junior, 4% Senior, and 1% Graduate Student. Students were from a variety of majors, including but not limited to Psychology, Biology, Communication and Journalism, Law, Business and Computer Sciences. The majority of the individuals in the sample were single, not dating or casually dating (93%); 4% reported being engaged or in a committed relationship, 2% were married, and 1% did not answer.

Procedure

Participants were asked to complete a web-based self-administered questionnaire. Appendix B summarizes the questions asked on this web-based survey. Each question appeared in a new window on the computer screen. Participants were asked to hit "next" to navigate through the web survey. As mentioned before, two of the most popular methods to assess beliefs within samples is to include both free-responses and closed-ended questions. For open-ended questions, a text-box was provided for participants to provide their answers without limitation on space or number of characters. Closed-ended questions were presented in form of rating scales.

Participation was voluntary and anonymous, and answers were kept confidential. Students received one research credit for participation in the pilot study, and those participating in the pilot study were banned from participating in the main study.

Measures

Prior direct experience. To evaluate the extent to which respondents in this sample have had developed online romantic relationships, the pilot study asked about subjects' past direct experience. In order to gain information about prior direct experience with online romantic relationships in this group, this pilot study asked participants to several questions regarding their

own personal experience with online romantic relationships (e.g., prior direct experience and attitudes toward online romantic relationships). Those who had formed online romantic relationships were also asked to evaluate their overall experience with these relationships on three 7-point semantic differential scales (right-wrong, positive-negative, beneficial-harmful).

Friends' and family's past experiences. In addition, participants were asked to report the frequency of family and friends' past experiences with online romantic relationships and to evaluate overall experience with those relationships on three 7-point semantic differential scales (good-bad, positive-negative, harmful-beneficial) scored from 0 to 6.

Media exposure. Participants' exposure to media (news stories and ads) was assessed by asking subjects to answer items measuring the extent to which they have been exposed to news stories about online romantic relationships (i.e., TV or newspaper stories) and ads about dating sites (i.e., print, TV or online ads about dating sites or matchmaker services). Responses were provided on a 7-point scale ranging from Not at All (0) to A great Deal (6).

Perceptions of media portrayal of online romantic relationships. To measure perceptions of media (news and ads) portrayals of online romantic relationships, 16 statements about portrayals in news coverage and in ads for online dating sites were created. Participants rated their extent of agreement with the statements on 7-point Likert scales ranging from Strongly Disagree (0) to Strongly Agree (6). Specifically, respondents rated 8 statements asking about news media portrayals of online romantic relationships, half reflecting positive portrayals and half negative portrayals. The positive statements described news stories as portraying people in online romantic relationships as faithful and committed, as madly in love with each other, as involved in meaningful relationships, and as having long-lasting and stable relationships. The negative statements described news stories as revealing only the dark side of online romantic

relationship, acknowledging the dangers and risks in online romantic relationships, and portraying people who form online romantic relationships as losers and desperate. The same 8 items were used to measure perceptions of the various portrayals in advertisements for online dating sites, replacing the phrase news stories with references to advertisements.

Beliefs. The general procedure described by Azjen and Fishbein (1980) was followed in order to determine the specific beliefs about online romantic relationships by asking representatives of the audience about specific behaviors. These authors suggested that in the context of actual studies, researchers need to identify the set of beliefs that are salient in a given population. These salient beliefs can be determined by eliciting beliefs from a group of participants that belongs to the population under examination. The beliefs that are most frequently elicited by this sample constitute the modal set of salient beliefs for the population in question. Each descriptor or word provided by the participants was counted and grouped with other descriptors or words with similar meaning (e.g., scary, risky or deceiving). After counting all descriptors, a coding scheme was developed using four categories (weird, shy or lonely, risky or dangerous, fake and attractiveness).

In generating beliefs, participants in the pilot study were asked to write down as many as words or phrases as they could think of when talking about online romantic relationships. Based on work by Ajzen and Fishbein (2005), participants here were first asked to list words and phrases that came to mind or that they use to describe online romantic relationships (i.e., "Think of some words or phrases that YOU would use to describe online romantic relationships or people involved in that type of romantic relationship. Write as many words or phrases as you can think of."). Subjects' responses were coded by two independent coders using the following six categories: *desperate or weird* (e.g., crazy, creepy, strange, different, abnormal, anxious, not

normal); *unattractive* (e.g., ugly, not attractive, bad looking); *lonely or shy* (e.g., introvert, scared, antisocial, timid, reserve); *risky or dangerous* (e.g., unsafe, scary, worry, predator, sick, stupid); *fake* (e.g., deceiving, unrealistic, false, illusion, dishonest, superficial, meaningless); and *exciting* (e.g., stimulating, refreshing, adventurous, great). Previous studies examining online romantic relationships have already used some of these categories to refer to describe these types of relationships (Anderson, 2005; Donn & Sherman, 2002; Wildermuth, 2001a, 2004), while some other categories were derived inductively by grouping or clustering words or indicators based on their meaning. Coders independently coded the responses, and in the few cases where coding differed, they discussed the differences in order to reach a unanimous decision.

In order to obtain additional insight into people's salient beliefs about online romantic relationships, participants were also asked to answer two open-ended questions based on those recommended by Ajzen and Fishbein (1980) to examine beliefs. Specifically, respondents were asked: "What do you believe are the *advantages (disadvantages)* of forming or developing romantic relationships on the Internet?". Answers to these questions helped derive people's beliefs about romantic relationships on the Net.

Social norms. Again based on Ajzen and Fishbein (1980), participants were asked to answer open-ended questions about significant others' views regarding online romantic relationships: "In your opinion, are there any people or groups who would *approve (disapprove)* of you developing romantic relationships on the Internet? If so, who?" Answers to these questions identified the most significant referents for participants in this group (i.e., parents, friends, peers). This information was used to develop the questions regarding social norms and motivations to comply, which are the two components needed to create a latent construct used in the main study: subjective norms. As Ajzen and Fishbein argued, in forming a subjective norm,

people take into account the approval of other sources that are important to them. Thus, to determine subjective norms, salient referents need to be identified.

Demographics. Participants also answered questions regarding age, gender, race, major, year in school, and relationship status. This last item was measured by a single question asking participants whether they are single, not dating; single, casually dating; engaged; or married.

Results

The findings in the pilot study provided information regarding participants' past experience with online romantic relationships, exposure to indirect sources of experience regarding online romantic relationships (i.e., family and friends' past experiences and media exposure), salient beliefs about online romantic relationships and identification of the salient referents to be included as part of the main questionnaire. Results of this initial study also helped to derive salient beliefs, and to identify which people or groups influence them. These results were used a posteriori to develop items used in the main questionnaire.

Direct experience with online romantic relationships. Of the 226 participants in this study, only 3% of the participants reported having developed or formed online romantic relationships. Also, the vast majority of participants reported having met previous romantic partners through friends, family or bars (98%) whereas only 2% reported having used the Net to meet a romantic partner. Knowledge about their direct past experience with online romantic relationships was crucial here in an attempt to establish the extent to which this group of participants may or may have not formed online romantic relationships. The low number of people, who reported having used, formed or developed romantic relationships on the Internet confirmed that finding a romantic partner on the internet is not a common practice among university students.

Friends' and family's past experiences. Questions asking about family and friends' past experiences helped to assessing the extent to which indirect experiences might influence people's attitudes toward online romantic relationships. Regarding family and friends' past experiencing forming online romantic relationships, findings indicated that nearly 70% of the respondents had at least one friend who had formed an online romantic relationship, whereas 32% of the respondents said they had at least one family member who had formed a romantic relationship online.

People's perceptions of family's and friends' past experiences were measured by asking participants to evaluate those relationships on three scales (bad-good, harmful-beneficial and negative-positive) using three 7-point semantic scales. To provide a succinct overview of how participants viewed others' relationships, responses were categorized as negative or positive depending upon the answer. Specifically, low scores (1-3) were classified as bad/harmful/negative, and high scores (5-7) were classified as good/beneficial/positive. The midpoint of 4 represented neutral perceptions. Closer examination of perception of friends' past experiences revealed: 34% evaluated their friends' experiences as good versus 20% who perceived the relationships as bad; 30% perceived them as harmful versus 25% as beneficial; and 33% as positive versus 31% as negative. Regarding perception of family members' past experiences: 47% perceived the experiences as bad versus 12% as good; 53% as negative versus 12% as positive; and 40% as harmful versus 12% as beneficial. These responses revealed several important findings: first, that college students are indeed exposed to indirect experiences with online romantic relationships (i.e., friends and family members), and second, that overall, participants evaluated family members' past experiences as more negative, harmful and bad than their friends' past experiences.

Media exposure. Participants were also asked about their exposure to media messages, specifically news media stories and advertising about dating sites and matchmakers. Descriptive statistics indicated that participants reported relatively low exposure (on a scale of 0 to 6) to print news (M = 2.56, SD = 1.52) and TV news stories (M = 2.79, SD = 1.49). When looking at the means of exposure to ads, participants here reported lower exposure to print or TV ads about dating sites (M = 3.60, SD = 1.18), than exposure to online ads about dating sites (M = 4.19, SD = 1.27).

Perceptions of media portrayals. Prior to running reliability analyses on people's perception of both news stories about online romantic relationships and ads about online dating and matchmakers, the negative items (i.e., depict online romantic relationships in a negative way, reveal only the dark side, acknowledge dangers and risk of online romantic relationships, and portray people as losers and desperate) were reverse coded for both types of media. Reliabilities were alpha = .91 for news stories depicting online romantic relationships and alpha = .82 for ads about online dating sites. These findings validate the reliability of the two scales measuring people's perceptions of the media's (news stories and ads) depiction of online romantic relationships.

Beliefs. All participants reported three or more words or phrases they thought were associated with online romantic relationships. Two independent coders coded all responses and achieved a level of agreement of 92% of the classifications. Participants' responses strongly suggested that most beliefs associated with online romantic relationships have a negative valence. Only 3 students of the total sample of 100 mentioned attributes with either positive or neutral valence (e.g., exciting, great, happy, open-minded, trusting or adventurous).

Results here indicated that 88% of the participants referred to online romantic relationships or people who formed them as desperate or weird; 64% as shy or lonely; 19% as risky or dangerous; 12% as fake; 11% as unattractive; and 3% as exciting or adventurous. These percentages suggest that most of the participants perceived online romantic relationships (and people involved in these relationships) negatively.

Using these results as a guide, eight items were written for the questionnaire assessing beliefs about online romantic relationships (e.g., online romantic relationships are pursued mostly by desperate or weird people; online romantic relationships are pursued mostly by people who are shy or lonely). Some beliefs were written in a positive way (reverse coded) (e.g., meaningful relationships can be developed in the internet, online romantic relationships are normal). The list of all eight statements is presented in the Appendix C.

Social norms. Ajzen and Fishbein (1980) suggested asking participants two different questions: who would approve and who would disprove of people engaging in specific behaviors to measure social approval. When asked about approval of forming online romantic relationships, a substantial majority of participants (66%) indicated that nobody they know would approve of developing online romantic relationships. Nearly 18% said only their closest friends would approve 12% said their family would approve; 3% mentioned “other” (e.g., Church, uncle); and 1% did not answer the question. By contrast, when asked who would disapprove of participants forming online romantic relationships, 71% of the participants said that both family and friends would disapprove of them developing romantic relationships online; 19% said only their family would disapprove of forming online romantic behaviors; 1% said only friends would disapprove; 6% said both their family and friends would disapprove; 2% mentioned “other” (e.g., Church, uncle); and 1% did not answer the question. On the assumption

that respondents are likely to list referents with whom they are motivated to comply (Sutton et al., 2003), the findings for the approve and disapprove questions here suggest that, on average, participants had negative subjective norms with respect to developing online romantic relationships. The information obtained here indicated that both friends and family are significant referents for the group under examination and thus, both family and friends were used as referents in the measures used in the main study.

CHAPTER THREE

Method: Main Study

Participants

This study is a cross-sectional analysis of undergraduate students recruited from the Psychology pool at GSU. In the initial sample of 338 students, most of the participants were either single or casually dating (78.8%), 19.4% reported being engaged and 1.8% were married. Just over two thirds (69.8%) reported having formed online relationships, but of those, only 14.2% were romantic in nature. The majority of the individuals were single, not dating or casually dating (93%), 4% reported being engaged or in a committed relationship, 2% married and 1% did not answer. Since this study focuses on individuals who are either single or casually dating and who have no prior experience with online romantic relationships, excluded from analysis were individuals who were engaged or married as well as those who reported prior direct experience forming or developing romantic relationships online. In brief, a total of 112 participants were excluded on the basis of their relationship status and/or their past direct experience forming online romantic relationships.

The final sample consisted of 226 respondents (19.9% males and 80.1% females) whose age ranged between 18 and 54 years old (M = 19.48; SD = 3.81). Of this sample, 43.4% of the participants identified themselves as African American, 33.2% as White/Caucasian, 12.4% as Asian, 7.1% as Hispanic, and 3.9% as other. The majority of the respondents (60.3%) were in their freshman year, 21.7% were in their sophomore year, 12.4% in their junior year, 4.4 % in their senior year and 1.4% did not answer. Regarding their majors, 25.7% were Biology or Nursing, 16.1% Business, Finance or Accounting, 13.7% were undecided, 6.2% Education,

5.3% Journalism, Communication or Film, 5.3% Political Sciences, 5.3% Arts, 4.9% Law, 4.4.% Other and 13.1% did not report their major.

Procedure

Participants were asked to complete a web-based self-administered online questionnaire. Participation was voluntary, confidential and anonymous. Students participating on the pilot study were restricted from participating on the main study. Participants received one research credit. After signing the consent form, respondents gained access to the online questionnaire. Data were downloaded into SPSS worksheet and analyzed using LISREL 8 (Joreskog & Sorbom, 1993[1]).

Measures

The main questionnaire included several sets of measures, such as perceptions of family's and friends' past experiences with online romantic relationships, media exposure to messages about online romantic relationships, beliefs and attitudes toward online romantic relationships, social norms and motivations to comply, intentions to form online romantic relationships, and demographics. Appendix C shows the main questionnaire.

Indirect experience via observation of family and friends. Participants reported the number of online relationships developed by both friends and family. In addition, participants rated their friends' and family's experiences with online romantic relationships on three 7-point semantic scales ranging from 1 to 7: bad-good, negative-positive and harmful-beneficial (alphas = .91 and .95 for friends and family, respectively). Items were scored such that the low end of the scale represents negative valence and the high end of the scale represents positive valence. People

[1] For additional information on the use of structural equation analysis with latent variables, see Bentler (1980), and Joreskog and Sorbom (1993).

reporting not having any indirect past experience with friends, or with family, were coded at the mid-point of the scale as a 4. Regarding the number of friends with past experiences in online romantic relationships, nearly 71% said they had at least one friend who had formed online romantic relationships whereas only 29% participants reported not having any friend who had formed online romantic relationships. Regarding family past experiences, a total of 66% reported having at least one family member who had formed online romantic relationships whereas about 34% reported having no family member who had formed online romantic relationships. Perceptions of friends' relationships averaged a mean of 3.89 (SD = 1.18) and perceptions of family's relationships averaged a mean of 3.95 (SD = 1.09).

Indirect experience via media exposure. Two types of media were examined here: news stories about online romantic relationships and ads about online dating sites and online matchmakers. To measure media exposure, participants were asked to report the extent to which they had been exposed to news stories about online romantic relationships (in the newspaper and on TV), and advertisements about online romantic relationships (on the Internet, and on television and in print). Responses were recorded on a 7-point scale ranging from Not at all (1) to A great Deal (7). The means for news stories were: print news (M = 2.81, SD = 1.50) and TV and print news stories (M = 3.10, SD = 1.51) whereas the means for ads were: print or TV ads about dating sites (M = 4.47, SD = 1.83), and online ads about dating sites (M = 4.91, SD = 1.90). Each of these two items were combined together to obtain a mean for exposure to news stories (M = 2.95, SD = 1.37) and a mean for exposure to ads (M = 4.69, SD = 1.67).

In addition, participants responded to eight statements (four positive and four negative) regarding their perceptions of online romantic relationships on news media and ads. These items were previously used and tested in the pilot study and found to be reliable. These items included:

(a) news media depict online romantic relationships in a negative way; (b) news media reveal only the dark side of online romantic relationships, (c) news media portray online romantic relationships as meaningful, (d) news media portray online romantic relationships as long-lasting and stable. Responses were recorded on a 7-point scale ranging from Strongly Disagree (1) to Strongly Agree (7). Parallel items, but this time referring to advertisements about online romantic relationships was also included. Negative items for both portrayal of news and portrayal of ads were reversed coded, so that high scores reflected more positive evaluations. Reliabilities for these scales were alpha = .88 for news stories (M = 3.18, SD = 1.59) and alpha = .92 for ads (M = 5.80, SD = 1.09).

Beliefs about online romantic relationships. Participants also rated the extent to which they agreed or disagreed with eight statements linking online romantic relationships to positive or negative attributes. These attributes were previously identified through pilot work. Responses were recorded on a 7-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (7). These items included: "Online romantic relationships are pursued mostly by people who are physically unattractive"," Meaningful romantic relationships can be developed on the Internet", "The Net is a safe place to meet a new romantic partner", " Online romantic relationships are pursued mostly by desperate or weird people", "Long-lasting and stable relationships can be developed on the Net", "Online romantic relationships are pursued mostly by people who are shy or lonely", "Online romantic relationships are normal", and "Romantic relationships formed on the Web are superficial". Items 1, 4, 6 and 8 were reverse coded so that high scores on this variable indicate more positive perceptions. These items were then averaged to create the variable beliefs about online romantic relationships with an alpha = .80 (M = 3.73, SD = .96).

Attitudes toward online romantic relationships. This scale was composed of eight 7-point semantic differential items evaluating online romantic relationships as: harmful/beneficial, pleasant/unpleasant, good/bad, worthless/valuable, exciting/boring, acceptable/unacceptable, positive/negative, and right/wrong (e.g., "For me romantic relationships formed on the Internet are bad/good", "For me romantic relationships formed on the Internet are harmful/beneficial")[2].

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[2] As discussed in the literature review, attitudes are formed by affective and cognitive components. Although any attitude scaling procedure (Likert scaling, Thurstone scaling) can be used to obtain a respondent's evaluations, the semantic differential is most commonly employed (Fishbein & Azjen, 1975). Empirical research has shown that overall evaluation often contains two separable components. One component is instrumental in nature, represented by such adjective pairs as *valuable-worthless*, and *harmful-beneficial*. The second component has a more experiential quality and is reflected in such scales as *pleasant—unpleasant* and *enjoyable-unenjoyable.* To make sure that the bipolar adjectives selected for inclusion are in fact evaluative in nature, Fishbein and Azjen (1975) suggested starting with a relatively large set so that the researcher can then select a small subset of scales that exhibit high internal consistency for the final attitude measure. It is also recommended that the initial set of scales selected for the pilot study include adjective pairs of both types, as well as the *good — bad* scale which tends to capture overall evaluation very well. Item selection procedures, as described for the construction of the intention measure, are then applied to select items for the final attitude scale. Care should be taken to counterbalance positive and negative endpoints to counteract possible response sets. In establishing distinctions between attitudes and beliefs scholars argue that the concept of attitudes should be used only where there is strong evidence that the measures used asked people to respond on bipolar affective dimensions.

Responses were scored from 1 to 7, so that the high scores correspond to positive evaluations. These items were then averaged to constitute a direct measure of attitude (M = 3.59, SD = .92, alpha = .89).

Social norms. To measure social norms, participants responded to four items (two for friends and two for family) on a 7-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (7). The items are: "My friends [family] think that it would be ok for me to develop a romantic relationship on the Net," and "My friends [family] would disapprove of me forming a romantic relationship on the Internet." The item(s) measuring disapproval were reverse coded. These four items were averaged to create one direct measure of social norms, alpha = .79 (M = 2.62; SD = 1.25)

Motivation to comply. Two items were used to assess the extent to which participants wanted to do what their friends/parents think they should do. Responses were recorded on a 7-point Likert-type scale ranging from Not at All (1) to Very Much (7). Items were averaged to create one direct measure of motivation to comply with significant other (M = 3.82, SD = 1.50).

Subjective norms. To provide a measure of subjective norms, this variable was originally intended to be composed of four items measuring social norms, each multiplied by the motivation to comply with the relevant referent (friends or family). However, practical and theoretical limitations of creating this variable as a multiplicative term led to further modifications, which are explained in detail on page 76.

Behavioral intent. Following the theory of reasoned action (Ajzen & Fishbein, 2005), three items were used to measure people's intentions to perform a specific behavior, in this case, forming romantic relationships on the Internet (i.e., "I plan to use the Internet to form a romantic relationship," "I intend to form a romantic relationship on the Internet", "I would never consider

using the Internet to meet a romantic partner"). The second item was reverse-coded. Participants responded to these items on a scale from Strongly Disagree (1) to Strongly Agree (7). Items were introduced as hypothetical scenarios to allow respondents currently involved in romantic relationships to answer these items. Items were averaged to create the variable behavioral intention (M = 2.05, SD = 1.18; alpha = .76)

Demographics. Participants also answered questions regarding age, gender, race, year in school, major, and relationship status. This last item was measured on a single item question asking participants whether they are single, not dating; single, casually dating, engaged or married. Only participants who reported being single, not dating or casually dating were included in the main analyses.

Statistical Analyses

Basic statistical analyses were conducted first including descriptive statistics and correlations among the main variables. To test the overall model and goodness of the path model's fit the data here, the structural equation modeling program LISREL 8 was used (Joreskog & Sorbom, 1993). Structural equation modeling is used here as strictly confirmatory to determine if the proposed model fit the data.

Structural equation modeling is a collection of statistical techniques that can be considered an extension of multiple regression. There are several advantages of using SEM over multiple regression. First, with multiple regressions the influence of several independent variables on one dependent variable can be examined. In contrast to multiple regression, SEM allows the examination of how well each of the variables under examination are measured at the same time as the examination of the extent to which variables are related to each other. In practice, each latent variable is formed when a researcher specifies which observed variable (e.g., questionnaire

items) are hypothesized to measure a construct. The program then calculates how well these items are measuring it. A second advantage of using SEM over multiple regression is related to the complexity of the model under examination. Using SEM, it is possible to examine the influence of several variables on a group of variables, according to a model previously specified by the researcher. Lastly, SEM allows examining the extent to which a model proposed by a researcher fits a particular dataset. This point is of particular relevance here because when theory of reasoned action data are analyzed using multiple regression, the influence of attitudes and subjective norms on behavioral intention is examined in one analysis.

Procedure. As in path analysis, causal links between variables of a specified causal model are estimated from the sample covariance matrix. However, the model to be tested is specified at the level of latent variables. This is accomplished by constructing equations relating latent variables to their indicators. Together, the equations constitute the measurement model. A second set of linear equations relating latent variables to one another must also be specified to constitute the structural model. Parameters are estimated simultaneously using a maximum likelihood method of estimation. Maximum likelihood method is commonly used when running SEM because unlike other estimations it is not dependent on the scale of measurement and does not require a large number of subjects (Byrne, 1998).

Structural equation modeling proceeds by assessing whether a sample covariance or correlation matrix is consistent with a hypothetical matrix implied by a theoretical model (Heck & Thomas, 2000). The basic statistical theory underlying SEM is based on examining the variances and covariances among observed variables believed to define different constructs. Furthermore, causal directions and correlations were hypothesized based on social cognitive theory and the theory of reasoned action. After specifying the proposed set of theoretical

relationships, the model was tested against the actual data. Results indicated that in operationalizing constructs, the observed indicators are not the construct itself, but only a set of possible manifestations of it (Heck & Thomas, 2000). Restricting paths to zero is what provides the test of a particular hypothesized model and in most cases is needed to identify a unique solution to the set of equations.

The data were analyzed in two separate phases. In the first phase, the adequacy of the measurement model was assessed. In the second phase, the data were used to test the goodness of fit of the overall model using as a framework the social cognitive theory and theory of reasoned action, and then to investigate whether this model could be improved by incorporating significant additions to the basic model.

The first set of analyses was to determine whether the observed variables that were hypothesized to be indicators of certain latent constructs in fact reflected them reliably. An initial model was run that (a) fixed all factors' variances at unity in order to identify the model (Joreskog & Sorbom, 1993) and (b) allowed all constructs to correlate freely. The main focus is on the paths, right sign, and significance. A path diagram, constructed from the proposed model shown on page 51, specified the relationships among the variables. Assessment of the parameter estimates consists of evaluation of the statistical significance and reliability. In this case, the evaluation focuses on the *t*-values of the parameters, which represent the parameter estimates divided by their standard errors, and squared multiple correlations (R^2) of the observed variables. Holmes-Smith (2001) asserts that an observed variable is reliable when its R^2 exceeds 0.50, which is roughly equivalent to a standardized loading of 0.70. Holmes-Smith (2001) also contended that based on a level of $\alpha = 0.05$, parameters, which have *t* values ≥ 1.96 are

considered to be significant. A covariate matrix was used for estimation of the model, and standardized parameter estimates were produced.

The hypothesized model proposed five exogenous factors (*Friends' and Family's Past Experiences, Exposure to News, Exposure to Ads and Motivations to Comply*). Observed variables are hypothesized to produce significant loadings on the latent variables. Three items loaded in *Friends' and Family's Past Experiences*. Two items each loaded onto *Exposure to News, Exposure to Ads, and Motivations to Comply*. There were also five latent variables, namely *Beliefs, Attitudes, Social Norms, Subjective Norms* and *Behavioral Intention.* Eight observed variables were hypothesized to load on each of the factors *Beliefs* and *Attitudes*, and three observed variables were hypothesized to load on the factor *Behavioral Intention.* According to the theory of reasoned action, external variables, such as demographics (e.g., age, gender) do not predict intention (Azjen & Fishbein, 1980).

The endogenous factor *Subjective Norms* was problematic when setting up the LISREL code. This factor was originally intended to be composed of four items measuring social norms, each multiplied by the motivation to comply with the relevant referent (friends or family). However, as a latent factor, *Subjective norms* had to be redefined due to model identification issues. In the light of this event, the factor originally defined as subjective norm was re-specified as one latent factor called *Social norms,* which now consisted only of the four items measuring social norms. A few arguments can provide theoretical and practical justification for using social norms rather than the multiplicative term for subjective norms. First, past research has suggested that when using multiplicative terms to create subjective norms, it becomes impossible to test the independent contribution of the two components of this construct (Hankins, French, & Horne, 2000; Vallerand, Deshaies, Cuerrier, Pelletier & Mongeau, 1992; Van den Putte & Hoogstraten,

1997). Second, some of the studies that have examined reasoned action using structural equation modeling have redefined subjective norms as a factor comprised only by social norm items, eliminating the items that assess motivation to comply (Myers & Horswill, 2006; Wulfert & Wan, 1995). Therefore, following previous studies that have used SEM to test the theory of reasoned action, this study used only the four social norms items (instead of the multiplicative term) to assess people's perceptions of what significant other think they should do regarding development of romantic relationships over the Internet.

Goodness-of-fit was determined in the second set of analyses. Results are discussed based on the research questions and hypotheses. Although the percentage of missing data on any given variable was less than 3%, listwise deletion of cases would have resulted in significant sample loss in the main multivariate analyses. To avoid any bias this might introduced in the results, means were used to replace missing values (Byrne, 1998; Little & Rubin, 1987). Criteria used to determine goodness-of-fit of the proposed model is described next.

Goodness-of-fit indices. In principle, a non-significant chi-square test would signify that the data provided a good fit to the model. Because the goodness of fit test is affected by sample size, additional statistics for the adequacy of the model are provided. There are literally dozens of comparative fit indexes, but they are all based on the same ideas: (1) how much the model deviates from the null hypothesis of no relationships, and (2) shrinking the index as the number of variables increases.

When presenting the results concerning the fit of a model, authors should look at the following measures: (a) chi-square value, (b) degrees of freedom, and (c) corresponding p value. In addition, the proposed model should be evaluated in the light of several other goodness-of-fit indexes, as they provide additional information about the fit of the model (Raykov, Tomer &

Nesselroade, 1991). First, the Bentler and Bonett (1980) index called *Normed Fit Index* (NFI), compares model fit to that of a model for the same data presuming independence of the measured or observed variables is. Usually values greater than .90 or .95 are considered reflective of adequate fit. However, NFI has been shown to be underestimated when small samples are used. Thus, Bentler (1990) proposed an adjustment to the NFI, the *Comparative Fit Index* (CFI), which takes sample size into account. Values above .90 are considerable acceptable for a good-fitting model. Another index considered here is the *Root Mean Squared Error of Approximation* (RMSEA). This fit index is also widely used because it offers a close test of statistical fit for the model, as opposed to the exact test of fit for the chi square statistic. The RMSEA allows for a discrepancy of fit per degree of freedom, which provides a bit more room for acceptance of the model than does the chi-square statistic alone (Marcoulides & Hershberger, 1997).

In brief, the *p* value associated with the chi-square statistic, the adjusted goodness-of-fit index (AGFI), the normed fit index (NFI), the root mean squared error of approximation (RMSEA) and the Bentler-Bonett (Bentler, 1990) incremental fit index were used in the study.

CHAPTER FOUR

Results: Main Study

Descriptive Statistics

Means and standard deviations for the items on all the scales are summarized in Table 1. A closer examination of the means for friends' and family's past experiences indicates that they were perceived as slightly negative or neutral, just below the scale midpoint of 4. In addition, the means indicate that exposure to news media stories about online romantic relationships was somewhat limited, whereas exposure to ads about online romantic relationships was higher. A paired sample t-test revealed that exposure to news was significantly lower than exposure to ads ($t(125) = -1.73$, $p < .001$), showing that participants here reported higher exposure to advertisements about online romantic relationships than exposure to news stories about this type of relationship.

Regarding beliefs about online romantic relationships, the mean score seems to indicate that overall, people's beliefs about online romantic relationships were slightly negative since the overall mean for beliefs ($M = 3.73$) is slightly lower than the mid-point of 4. Participants' responses also suggest that their attitudes toward online romantic relationships were slightly negative, as indicated by a mean score of 3.59 out of a possible 7 with a midpoint of 4. Social norms were relatively low ($M = 2.62$ on a scale of 1 to 7), indicating that participants, in general, believed their friends and family would be somewhat disapproving of their forming an online romantic relationship. On average, participants reported very low intentions to form romantic relationships in the Internet, as indicated by the mean score of 2.05 on a 7-point scale with a midpoint of 4.

Table 1. Means, Standard Deviations, and Alphas

Construct/Item	Mean (SD)	Alpha
Perceptions of Friends' Experiences	*3.89 (1.18)*	*.91*
Bad – Good	3.83 (1.42)	
Negative – Positive	3.92 (1.31)	
Harmful – Beneficial	3.92 (1.12)	
Perceptions of Family's Experiences	*3.95 (1.09)*	*.95*
Bad – Good	3.94 (1.19)	
Negative – Positive	3.95 (1.14)	
Harmful – Beneficial	3.98 (1.08)	
Exposure to News	*2.95 (1.37)*	*.79*
Newspaper stories about online romantic relationships	2.81 (1.50)	
TV news stories covering online romantic relationships	3.10 (1.51)	
Exposure to Ads	*4.69 (1.67)*	*.75*
Print or TV ads about dating sites or matchmaker services	4.47 (1.85)	
Online ads about dating sites or matchmaker services	4.91 (1.90)	
Beliefs	*3.73 (.96)*	*.80*
Online romantic relationships are pursued mostly by people who are physically unattractive (R)	3.83 (1.63)	
Meaningful romantic relationships can be developed on the Internet	2.59 (1.37)	
The Net is a safe place to meet a new romantic partner	3.96 (1.52)	
Online romantic relationships are pursued mostly by desperate or weird people (R)	3.59 (1.55)	
Long lasting and stable romantic relationships can be developed on the Internet	3.66 (1.46)	
Online romantic relationships are pursued mostly by people who are shy or lonely (R)	3.17 (1.48)	
Online romantic relationships are normal	4.33 (1.36)	
Romantic relationships formed the Web are superficial (R)	4.74 (1.42)	
Attitudes	*3.59 (.92)*	*.89*
Harmful-Beneficial	3.40 (1.09)	
Unpleasant - Pleasant	3.67 (1.14)	
Bad – Good	3.43 (1.09)	
Worthless-Valuable	3.59 (1.32)	
Boring – Exciting	3.73 (1.35)	
Unacceptable – Acceptable	3.81 (1.44)	
Negative – Positive	3.60 (1.11)	
Wrong – Right	3.50 (1.12)	
Social Norms	*2.62 (1.25)*	*.79*
My friends think that it would be ok for me to develop a romantic relationships in the Net	2.85 (1.53)	
My family members think that it would be ok for me to develop a romantic relationship in the Net	2.06 (1.46)	

Table 1. Means, Standard Deviations, and Alphas (cont.)

My friends would approve of me forming a romantic relationship in the Net	3.17 (1.65)	
My family members would approve of me forming a romantic relationship in the Net	2.40 (1.75)	
Behavioral Intentions	*2.05 (1.18)*	*.76*
I plan to use the Net to form a romantic relationship	1.74 (1.18)	
I would consider the Net to meet a romantic partner	2.69 (1.91)	
I intend to use the internet to meet a romantic partner	1.73 (1.75)	

Note. Scores on all items could range from 1 to 7. Items labeled (R) were reverse coded.

In the literature review, it was argued that the news media generally portrays online romantic relationships negatively, whereas ads portray such relationships in a positive manner (Anderson, 2005; Bailey, 2006; Stone, 2001; Wildermuth, 2001a). People's perceptions of media portrayals of online romantic relationships suggested that, on average, participants agreed that news stories depicted online relationships in a negative way, whereas advertisement about dating sites portrayed these relationships in a positive way. One-sample t-tests compared the means for these two variables to the scale midpoint of 4. The mean for portrayals of news stories ($M = 3.18$) was significantly lower than 4, $t (225) = -10.68$, $p < .001$, suggesting that people perceive news stories portrayals of online romantic relationships as relatively negative. In contrast, the mean for portrayals of ads ($M = 5.80$) was significantly higher than 4, $t (225) = 25.23$, $p < .001$. A paired samples t-test comparing the portrayals of online romantic relationships in news stories and ads revealed a significant difference, $t (225) = -23.58$, $p < .001$, suggesting that portrayals of these relationships in the news stories is perceived as significantly more negative than the portrayals in ads.

Table 2 presents the zero-order correlations among all variables in the study, as well as means and standard deviations.

Table 2. Means, Standard Deviations, and Zero-order Correlations among Main Variables

	1	2	3	4	5	6	7	8	9	10
1. Friends	--									
2. Family	.31***	--								
3. News	-.05	-.06	--							
4. Ads	-.07	.12	.27***	--						
5. Beliefs	.37***	.37***	-.16*	-.06	--					
6. Social	.18**	.04	-.15*	-.09	.36***	--				
7. Motcom	-.04	.00	.07	.18**	-.14*	-.16*	--			
8. SubNorm	.14*	.14*	-.05	.04	.22***	.77***	.43***	--		
9. Attitudes	.42***	.34***	-.07	.03	.72***	.40***	-.02	.35***	--	
10. Intent	.21***	.18***	-.09	.01	.52***	.48***	-.12	.31***	.53***	--
M	3.88	3.95	2.95	4.69	3.73	2.62	4.03	10.33	3.59	2.06
SD	1.18	1.09	1.37	1.67	.96	1.25	1.25	5.68	.92	.19

Note. *Friends* and *Family* = perception of friends and family's experiences with online romantic relationships; *News* and *Ads* = exposure to news stories about online romantic relationships and ads about dating services and matchmakers; *Beliefs* = beliefs about romantic relationships formed online; *Social* = social norms about online romantic relationships; *Motcom* = motivation to comply with significant others' views about online romantic relationships; *SubNorm* = subjective norm; *Attitudes* = attitudes toward online romantic relationships; *Intent* = intentions to develop online romantic relationships.

$p < .05$; $^{**}p < .01$; $^{***}p < .001$

As Table 2 shows, several significant correlations were found among the main constructs under examination here. Results revealed that people's perceptions of others' past experiences (friends and family) were positively and significantly correlated to their beliefs about these relationships ($r = .37$, $p < .001$ and $r = .37$, $p < .001$ respectively). In addition, a small but

significant positive correlation was found between perceptions of friends' past experiences and people's perceptions of social norms ($r = .18$, $p < .01$). No association was found between perceptions of family's past experiences and social norms. Regarding attitudes, perceptions of friends and family's past experiences were positively related to people's attitudes toward online romantic relationships ($r = .42$, $p < .001$ and $r = .34$, $p < .001$ respectively). Likewise, positive and significant correlations were found between friends' and family's past experiences and intentions to form online romantic relationships ($r = .21$, $p < .001$ and $r = .18$, $p < .001$ respectively).

Regarding associations between media exposure and people's beliefs about online romantic relationships, there was a small but significant negative correlation found between beliefs and exposure to news about online romantic relationships, $r = -.16$, $p < .05$, suggesting that more exposure to news stories about online romantic relationships were related to less favorable perceptions of these relationships. In addition, more exposure to news media stories was negatively related to people's perceptions of social norms, $r = -1.5$, $p < .05$. Media exposure was not correlated with attitudes or behavioral intentions.

Associations between beliefs, attitudes, social norms and behavioral intentions are of particular interest here because the theory of reasoned action holds that intentions to engage in a behavior are most influenced by individuals' attitude toward engaging in the behavior and their perceptions of norms associated with it. A very strong positive correlation was found between beliefs and attitudes toward online romantic relationships, $r = .72$, $p < .001$. Social norms were positively correlated with both beliefs ($r = .36$, $p < .001$) and attitudes ($r = .40$, $p < .001$). All three of these variables were positively correlated with behavioral intentions (beliefs, $r = .52$, $p < .001$; attitudes, $r = .53$, $p < .001$; social norms, $r = .48$, $p < .001$).

Goodness-of-Fit of the Tested Model

The proposed model was tested with structural equation modeling using maximum likelihood estimation in LISREL 8 (Joreskog & Sorbom, 1993). The covariance matrix was used in all LISREL 8 analyses. Testing of main research questions and hypotheses was done using structural equation modeling. The proposed model was introduced on page 51. The criteria used for this purpose were: (a) a non-significant p value for the chi-square test; (b) a comparative fit index (CFI) or relative fit index (RFI) of .95 or greater, as close to 1 as possible; (c) a root mean square residual (RMR) as small as possible; (d) a root mean square error of approximation (RMSEA) less than or equal to .05 for a close fit or .08 for a reasonable fit (Bentler, 1990; Browne & Cudeck, 1993).

The full model was subjected to structural equation modeling using LISREL. SEM provides overall test of model fit and individual parameter estimates simultaneously. This proposed model offered a good fit to the data, χ^2 (459, N = 226) = 635.261, $p < .001$. Two fit indexes comparing the fit of the data with that of a null model were also used: normative fit index (NFI) = .937, comparative fix index (CFI) = .981. The CFI provides a better indication of model fit when dealing with smaller samples (Byrne, 1998). The RMSEA value for the hypothesized model is .034 with 90% confidence interval ranging from .024 to .042. Interpretation of the confidence interval indicates that, over all possible randomly sampled RMSEA values, 90% of them will fall within the bounds of .024 and .042, which indicates a good fit, and thus, it is concluded that the initially hypothesized model fits these data well.

The structural model of the hypothesized model had a chi-square, χ^2 (475, N = 226) = 711.057, $p < .001$. However, two fit indices comparing the fit of the data with that of a null model indicate the model fits the data well: normative fit index (NFI) = .929 and comparative fix

index (CFI) = .975. The CFI provides a more accurate appraisal of model fit than does the NFI with smaller samples (Byrne, 1998). The RMSEA is .039, with a 90% confidence interval of .031 and .047. For the model AIC = 813.041 and the Saturated AIC = 1122.00, these indexes address the issue of parsimony in the assessment of model fit so that statistical goodness-of-fit as well as the number of estimated parameters are taken into account. A smaller (than saturated and independence model) AIC of the model indicates that considering the combination of model fit and parsimony, the hypothesized model indicates a better fit than the saturated model. Since the overall model tested here offered a good fit of the data, no modifications are required. As MacCallum, Browne and Sugawara (1996) argued, when an initial model fits well, it is probably unwise to modify it to achieve even better fit because "the modifications may simple be fitting small idiosyncratic characteristics of the sample" (p. 501). The goodness-of-fit statistics for the hypothesized model are summarized in Table 3.

Table 3. Fit Indices for the Proposed Model for Behavioral Intention

Model	χ^2	DF	P	NFI	CFI	RMSEA	AIC
Measurement model	635.261	459	.000	.937	.981	.034	784.698
Structural model	711.057	475	.000	.929	.975	.039	813.041

The measurement model was further assessed for construct reliability. The composite reliability for each construct of this study is presented in Table 4. Internal consistency was investigated by calculating the composite reliability for each factor. Composite reliability is an alpha equivalent. The composite reliability of all latent constructs exceeded the benchmark of .50 recommended by past research (Nunally & Bernstein, 1994).

Table 4. Constructs, Items, Factor Loadings and Construct Reliability

Construct/Items	Factor Loadings	Reliability[a]
Perceptions of Friends' Experiences		*.93*
Item 1	.90	
Item 2	.94	
Item 3	.81	
Perceptions of Family's Experiences		*.95*
Item 4	.94	
Item 5	.96	
Item 6	.89	
Exposure to News		*.78*
Item 7	.79	
Item 8	.82	
Exposure to Ads		*.75*
Item 9	.84	
Item 10	.71	
Beliefs		*.79*
Bel1	.65	
Bel2	.52	
Bel3	.57	
Bel4	.68	
Bel5	.32	
Bel6	.56	
Bel7	.63	
Bel8	.41	
Attitudes		*.90*
Att1	.69	
Att2	.68	
Att3	.82	
Att4	.81	
Att5	.49	
Att6	.71	
Att7	.76	
Att8	.73	
Social Norms		*.83*
Sn1	.76	
Sn2	.76	
Sn3	.78	
Sn4	.70	
Behavioral Intentions		*.76*
Bi1	.58	
Bi2	.81	
Bi3	.70	

[a]Composite reliability = [{Sum (square of each loading)/(1-square of each loadings)}/ 1 + Sum {square of each loading/(1- square of each loading)}]. See Gagne and Hancock (2006).

Testing Main Research Questions and Hypotheses

Having an acceptable measurement model, the analysis of the structural equation model was conducted to test the structural relationships among the constructs. Figure 2 summarizes loadings for the hypothesized relationships among constructs.

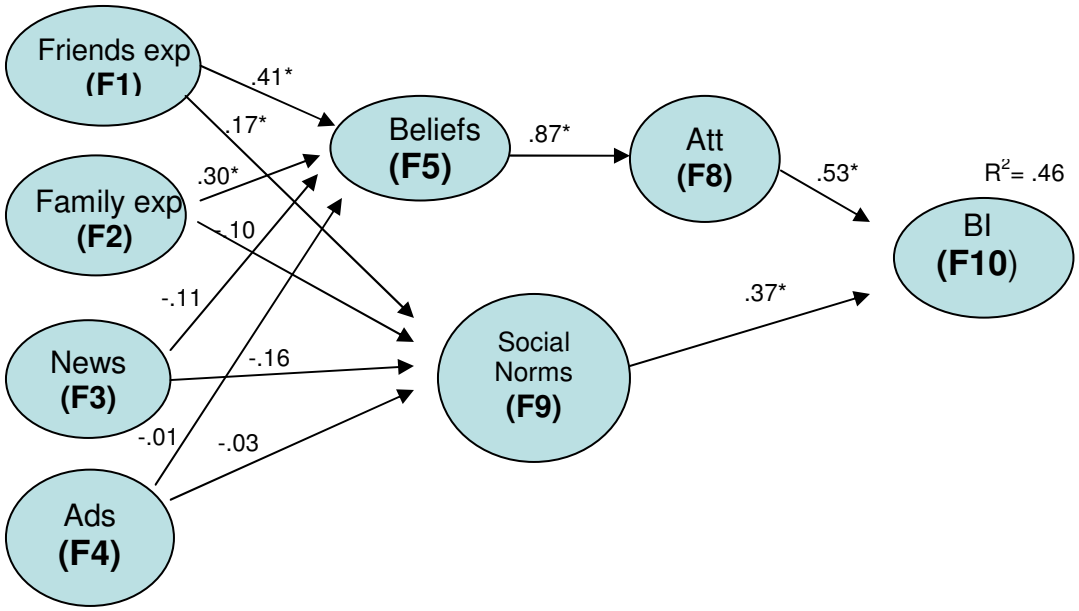

Figure 2. Standardized loadings of the tested model. *Friends exp* and *Family exp* = friends' and family's past experiences with online romantic relationships; *News* = exposure to news stories about online romantic relationships; *Ads* = exposure to advertising about dating websites and online matchmakers; *Social Norms* = people's perception of significant others approval; *Beliefs* = beliefs about romantic relationships formed online; *Att* = attitudes toward online romantic relationships; *BI* = behavioral intents or intentions to develop online romantic relationships.

* $p < .05$

Hypothesis 1a. This hypothesis predicted a positive relationship between perceptions of friends' past experiences with online romantic relationships and more positive beliefs about online romantic relationships. By looking at the path coefficient between these factors it can be seen that this hypothesis was supported, $\beta = .41$, $p < .05$, suggesting that the more positive perception of friends' past experiences with online romantic relationships, the more positive beliefs participants reported about these types of relationships.

Hypothesis 1b. This hypothesis predicted a positive relationship between perceptions of family members' past experiences with online romantic relationships and more positive beliefs about online romantic relationships. By looking at the path coefficient between these factors, it can be seen that this hypothesis was supported, $\beta = .30$, $p < .05$, suggesting that the more positive perception of family members' prior experiences with online romantic relationships, the more positive beliefs participants reportedly held about these types of relationships.

Hypothesis 2a. This hypothesis predicted a positive relationship between perceptions of friends' past experiences with online romantic relationships and positive social norms with regard to online romantic relationships. By looking at the path coefficient between these factors, it can be seen that this hypothesis was supported, $\beta = .17$, $p < .05$, suggesting that the more positive perception of friends' past experiences with online romantic relationships, the more positive social norms respondents reportedly held about these types of relationships.

Hypothesis 2b. This hypothesis predicted a positive relationship between perceptions of family members' past experiences with online romantic relationships and positive social norms with regards to online romantic relationships. The path coefficient between these factors shows that this hypothesis was not supported at $p > .05$, suggesting no association between perceptions

of family members' prior experiences with online romantic relationships and social norms related to online romantic relationships.

Research question 1. The first research question asked whether exposure to news media stories about online romantic relationships was related to subjects' beliefs about online romantic relationships. This question was stated in a two-tailed manner, and the path coefficient between exposure to news media stories and beliefs about online romantic relationships as not significant at α=.05.

Research question 2. The second research question asked whether exposure to ads depicting dating sites and online romantic relationships was related to participants' beliefs about online romantic relationships. This question is also stated in a two-tailed manner. The existence of a relationship between perceptions of advertising portrayals of online romantic relationships and beliefs about such relationships would be reflected by the significance of the coefficient for the corresponding path in the model. In this case, the path in question was found not significant at α >.05, suggesting no correlation between these variables.

Research question 3. The third research question examined whether exposure to news stories about online romantic relationships was related to perception of social norms. The coefficient of the path representing this relationship in the model was not significant at the .05 level.

Research question 4. This research question asked whether exposure to ads about online romantic relationships was related to perception of social norms. The coefficient of the path representing this relationship in the model was not significant at the .05 level, suggesting no association between higher exposure to ads about online romantic relationships and people's perception of social norms.

Hypothesis 3. This hypothesis predicted that people reporting more positive beliefs about online romantic relationships would be more likely to report positive attitudes toward these types of relationships. The coefficient of the path between beliefs and attitudes in the model was very strong, significant ($\beta = .87$ $p < .05$) and in the predicted direction, suggesting that people who reported more positive beliefs about online romantic relationships were also more likely to evaluate online romantic relationships positively.

Hypotheses 4a and 4b. On the basis of theory of reasoned action, these hypotheses predicted that both people's attitudes toward online romantic relationships and their social norms would predict people's intent to form romantic relationships on the Internet. These hypotheses addressed the significance of the paths from the two constructs: attitudes and social norms to behavioral intentions. The coefficients for both of these paths were significant ($\beta = .53$ and $\beta = .37$, respectively, $p < .05$) and in the expected positive direction, suggesting that people holding more favorable attitudes and who thought that significant others would approve of them forming online romantic relationships also reported higher intentions to develop romantic relationships online.

Squared multiple correlations for structural equations. These correlations for the structural equations are summarized in Table 5. The correlations indicate the percent of the variance on the latent dependent variable(s) accounted for by the latent independent variables. As Table 5 shows, the strongest coefficient is from beliefs to attitudes, suggesting that 76% of the variance in Attitudes accounted for by the people's beliefs about romantic relationships formed in the Internet. People's indirect experiences with online romantic relationships (friends and family past experiences and media exposure) accounted for 27% of the variance on people's beliefs and only 6% of the variance on social norm about online romantic relationships. Overall,

when taken together 46% of the variance in Behavioral Intentions accounted for by people's attitudes toward online romantic relationships and social norms. In addition, as Table 2 revealed, both attitudes toward online romantic relationships and social norms were also positively related, $r = .35$, $p < .001$), suggesting that people who evaluated online relationships more favorable were also more likely to perceive their significant others would approve of themselves forming online romantic relationships.

Table 5. Squared Multiple Correlations for the Structural Equations

Latent Variable	R^2
Beliefs	.272*
Attitudes	.760**
Social Norm	.069*
Behavioral Intention	.458**

Note. *Beliefs* refer to people's beliefs about online romantic relationships. *Attitudes* are people's evaluations of online romantic relationships. *Social Norm* refers to significant others' views about online romantic relationships. *Behavioral Intention* refers to people's intentions to develop online romantic relationships.

* $p < .05$; ** $p < .01$

In summary, the first run of the hypothesized model provided an accurate representation of the data. The statistical values used for evaluating goodness-of-fit were in the range of their acceptable levels. The links between the observed (measurement) variables and their underlying constructs were found to be very strong and reliable. Likewise, results from the structural model demonstrated that six hypothesized paths were significant at α level of .05 as Figure 2 indicated.

CHAPTER FIVE

Discussion

Main Findings

Most of the available research examining people's perceptions and attitudes toward romantic relationships formed over the Internet is anecdotal (Donn & Sherman, 2002). Guided under the framework of social cognitive theory and the reasoned action theory, this study sought to provide new insight about those factors that might relate to the way people perceive and evaluate online romantic relationships and their intentions to form or develop these relationships when direct experience is lacking. Specifically, it proposed the integration of social influence (i.e., friends', family' past experiences and media exposure) as an attempt to further understand those factors influencing the way young adults perceive and evaluate online romantic relationships and their intentions to form them.

This study introduced a structural model outlining possible associations and causal relationships among several factors introduced here that might potentially influence people's attitudes and intentions to form online romantic relationships. The model proposed here began with four constructs measuring people's indirect experiences with online romantic relationships (i.e., perceptions of friends' and family's past experiences and exposure to media depicting online romantic relationships). It examined the potential contribution of these four factors as they related to people's beliefs about online romantic relationships and their social norms (perceptions of significant others' views about online romantic relationships). Likewise, it was predicted that people's beliefs would then correlate to their attitudes toward online romantic relationships. Ultimately, and following the theory of reasoned action, it was suggested that two factors,

namely attitudes toward online romantic relationships and social norms about these relationships, would predict people's intentions to form or develop romantic relationships over the Internet.

The model was tested using structural equation modeling (SEM) that allows for examination of paths and relationships of complex models. Overall, the hypothesized model fit the data well. Findings here indicated that perceptions of friends' and family's past experiences with online romantic relationships had a direct association with people's beliefs about online romantic relationships and an indirect effect on people's attitudes toward and intentions to form or develop romantic relationships over the Internet. Only perception of friends' past experiences was related to social norms. Exposure to media about online romantic relationships was not related to people's beliefs, attitudes, social norms, or intentions to form these types of relationships. Beliefs about these relationships were strongly and significantly related to attitudes toward the relationships and lastly, both attitudes toward online romantic relationships and social norms were positively and significantly related to people's intentions to develop these types of relationships. In sum, the model proposed here explained 46% of the variance in people's intentions to form romantic relationships over the Internet. In other words, when taken together, indirect past experiences, beliefs, attitudes, and social norms accounted for 46% of the variance in people's intentions to form or develop romantic relationships over the Internet.

A closer look at these findings revealed interesting information. First, the structural model supported the expectations that people's perceptions of both friends' and family's past experiences with online romantic relationships are related to their beliefs about these relationships. However, only perception of friends' past experiences was related to people's perceptions of what significant others think they should do with regard to forming online romantic relationships. Second, exposure to news media and exposure to ads about dating sites

were not related to either people's beliefs about online romantic relationships or their perceptions of what significant others think they should do. Third, the construct Beliefs was strongly correlated with people's attitudes toward online romantic relationships. Finally, when taken together, both people's attitudes toward online romantic relationships and social norms predicted people's intentions to form or develop romantic relationships over the Internet. Explanations for these findings as well as implications that may proceed from them are discussed next.

Indirect Experiences: Others' Experiences and Media Exposure

Friends' and family's past experiences. Driving this study was the prediction that perceptions of others' past experiences with online romantic relationships would emerge as significant predictors for people's beliefs about online romantic relationships when direct experience was lacking. Two factors introducing people's indirect experiences with online romantic relationships to the model were people's perceptions of friends' and family's past experiences with online romantic relationships. Both factors emerged as significant predictors for people's beliefs about online romantic relationships, which provides evidence supporting the association between perceptions of others' past experiences and the beliefs people have about online romantic relationships when first hand experience is lacking.

Regarding second hand experience with online romantic relationships, early studies revealed that nearly 31% of Americans reportedly know people who have formed or developed romantic relationships online (Madden & Lenhart, 2006). Consistent with past research, findings here support the idea that more and more people are exposed to these types of relationships through either friends or family members. More specifically, results in the main study revealed that nearly 71% of the participants here reported knowing at least one friend who had formed online romantic relationships whereas about 66% reported having at least one family member

who had formed online romantic relationships.

Research under the framework of social cognitive theory suggests that people learn through either direct or indirect experiences (Bandura, 2001), and within the context of romantic relationships specifically, it has been found that observation of others' romantic relationships impacted the way people perceive and evaluate romantic relationships (Bouchey & Furman, 2001; Simon et al., 1998). In agreement with past research (Simon et al., 1998; Unger et al., 2001), friends and family members not only emerged as significant referents for participants in the main study, but results here also suggest that the way people perceive their friends' and family's past experiences with online relationships influences their own perceptions of online romantic relationships. Based on the direction of the path coefficients found here, it seems possible to claim that the more negative or harmful people perceive their friends' and family's past experiences with online romantic relationships to be, the more likely people will be to incorporate that information into their own beliefs about online romantic relationships. This idea could explain, at least partially, why people react negatively to online relationships when direct experience is lacking. If significant others have formed or developed online romantic relationships in the past, and people perceive these relationships as negative, bad or harmful, these perceptions would then impact the way individuals perceive and evaluate the relationships per se. In this regard, it can be concluded that observation of significant others' experiences with online romantic relationships, specifically friends and family members, not only relates to the way people perceive the relationship per se, but also their intentions to form or develop these types of relationships.

Regarding social norms, findings here provide further evidence suggesting that peer social networks play an important role in people's social development. Past research has not only

identified friends as a significant source of influence (Eastin, 2005; Unger et al., 2001), but it also confirmed significant associations between perceptions of negative experiences and the way people perceive, evaluate and respond to a particular event or situation (Ajzen & Fishbein, 1980). In addition, social cognitive theory suggests that the peer social network is a powerful context in which children observe their peers' social behaviors and use those perceptions to guide their own behaviors (Habib & Cangemi, 2001). Consistent with previous studies, findings here revealed that in the context of romantic relationships, perceptions of others' past experiences with online romantic relationships affect people's social norms. Moreover, taking this finding one step further, it could be speculated that people might feel pressured to conform to others' views, especially when these views are considered acceptable or approved by their peer groups. Interestingly enough, perceptions of family's past experiences with online romantic relationships were not related to social norms. This might be explained by the fact that participants in this sample relied heavily on friends' experiences and overlooked or disregarded family's experiences. One reason could be based on the perceived similarities with peer groups.

That friends' and family's past experiences emerged as significant predictors for people's beliefs about online romantic relationships is certainly important yet not surprising if one considers findings obtained in previous studies (Bouchey & Furman, 2001; Unger et al., 2001). Just as past research has shown, findings here underscore the importance of significant others in the formation of beliefs and attitudes, a finding supported by years of research in the area of social influence (e.g., Chaiken, 1987; Eagly, 1987). Perhaps the most significant finding though, is revealed when looking at the model as a whole. Implicit in the aim of this study was the idea of broadening the scope of the theory of reasoned action to include indirect experience (e.g., friends' and families past experiences) that could indirectly influence people's beliefs toward

online romantic relationships. To this end, it was proposed that people's beliefs about online romantic relationships might be shaped by perception of others' experiences. Observational learning has been established as a central mechanism people use to determine whether or not to participate in a given behavior (Bandura, 2001), and learning through observation allows individuals to shape cognitive models without physically participating in a specific behavior. That the group under examination here would rely on the past experiences of their family and friends in forming beliefs about online romantic relationships was supported by findings here and in previous literature. As already mentioned, studies examining peer influence has provided plenty of evidence to this claim. Findings here confirmed that friends' and family's past experiences emerged as important learning sources about online romantic relationships. However, past research has also suggested the media as a very powerful source of information that can influence people's beliefs (Mackie et al., 1996).

Media exposure. In addition to friends' and family's past experiences with online romantic relationships, this study advanced four research questions examining the potential association between media exposure, people's beliefs about online romantic relationships and what significant others think people should do. Although friends and family's past experiences with online romantic relationships significantly predicted people's beliefs about online romantic relationships, this was not the case for media exposure. Media exposure was not related to either people's beliefs or social norms about online romantic relationships.

Based on social cognitive theory (Bandura, 1986, 2001), which posits that individuals can expand their knowledge, skills and even behavioral repertoires on the basis of information acquired through the media, this study sought to examine potential associations between media exposure and people's perceptions about online romantic relationships. More specifically, this

study advanced four research questions examining whether exposure to two media (e.g., news media stories and ads about dating sites) was correlated to people's beliefs and social norms about online romantic relationships. No association was found among these variables. In fact, contrary to previous studies suggesting that media exposure might have a direct impact on people's beliefs of romantic relationships formed online (Donn & Sherman, 2002), this study found no evidence for that claim. Several reasons could explain this lack of association between media exposure and people's beliefs and social norms. First, general research examining uses of media for socialization argued that people, and especially adolescents may choose from a diverse range of media materials the ones that best suit their individual preferences and personalities (Arnett, 1995). In addition, it has been argued that people may receive different socialization messages from media, peers and other sources in their immediate environment. From these perspectives, it might be that media exerted no influence on people's beliefs or social norms because messages from media were not consistent with messages people gathered from other socialization sources.

In agreement with past literature suggesting that people perceive romantic relationships formed over the Internet in a negative way (Wildermuth, 2001a, 2004), the majority of the participants in the pilot study, when asked to write down words or phrases used to describe this type of relationship, used negative descriptors such as weird, desperate, ugly or risky. This finding provides additional support to the claim that overall, people associate online romantic relationships with negative words or outcomes. The results here suggest that beliefs about online romantic relationships are related to perception of others' past experiences but not to media exposure. This result is of particular interest because despite the fact that previous studies have introduced the idea that the media are responsible for the negative perception of online romantic

relationships (e.g., portrayal of relationships or participants as losers, lonely) (Anderson, 2005; Wildermuth, 2001a, 2004), the findings here suggest that perception of others' relationships and not the media might influence people's perceptions and beliefs about those relationships.

Previous studies (Anderson, 2005, Wildermuth, 2001a, 2004) have suggested that media, specifically news media, might have much to do with people's apprehension to form online romantic relationships, in part because much of what is published in the popular press highlights the dangers of meeting people over the Internet. In addition, studies have also suggested that exposure to ads promoting online dating sites might relate to people's beliefs about these types of relationships due to the nature of the ads promoting online romantic relationships. Thus, news media stories about online relationships were selected here because anecdotal evidence and even scholarly research indirectly supported the popular media stereotype that individuals involved in online relationships are weird, losers or freaks. Furthermore, it has been suggested that most of the news stories covering online romantic relationships in the news depict these relationships as negative, risky and dangerous (Smolowe, 1994; Stone, 2001).

Although most participants here agreed with the idea that news media seem to portray online romantic relationships in a negative way whereas ads portray these relationships more positively, the fact that media exposure was not related to either beliefs or social norms could be explained by looking at the media genres selected here. Although sensationalistic negative examples of online romantic relationships are frequent in the news media (Fallows, 2005), these messages seemed to have no effects on people's beliefs about online romantic relationships. Several reasons might explain the lack of association between exposure to media and people's beliefs about online romantic relationships.

First, it could be that the news media selected here (TV and newspapers stories) exerted little influence on these participants because of limited exposure. A national study examining American news habits revealed that: (1) People are increasingly turning away from newspapers, and (2) that although TV news is preferred over print news, just one in three young adults (31%) enjoys keeping up with the news, spending an average of 26 minutes on all TV news (Kohut, Doherty, Parker & Flemming, 2001). In fact, not only did these authors find an increase in the number of people using the Internet – over other types of media – for news, but they also found that nearly 47% of college graduates who are under age 30 got news online at least once a week. So, it could very well be that participants here might seek media –other than TV or print media- to get their news. Second, lack of association between exposure to news media and people's beliefs could also be explained by the potential influence of other variables, such as perception of trustworthiness of the news media or credibility of the sources, perception of realism (e.g., the extent to which viewers perceive the news content to be real) or perception of the content itself (e.g., viewers might rate news as sensationalistic) and thus exposure to the media seemed to have no effect on people's beliefs.

Another possible explanation for the lack of association between exposure to media and people's beliefs or attitudes could be found in the content of the media messages per se. For instance, previous studies examining sexual oriented content or sexual behaviors found positive associations between media exposure and learned attitudes or behaviors (Clark et al., 2001; Martino et al., 2005; Ward & Friedman, 2006). Moreover, researchers have argued that certain topics, namely sex or sexual behaviors, might be more prevalent in the media and more appealing to certain groups than other topics (Bryant & Rockwell, 1994; Ward & Friedman, 2006). By the same token, there have been strong indicators that relevant broadcast media

content significantly influences formation and reinforcement of beliefs about racial behaviors, especially when direct interracial contact is lacking (Armstrong, Neuendorf, & Brentar, 1992; Graves, 1999). From this perspective then, the lack of association between media exposure and people's beliefs or attitudes toward online romantic relationships could be due to the fact that messages about forming online romantic relationships or online romantic relationships themselves are not that appealing to this group and therefore, exposure to this content was not related to participants' beliefs or attitudes toward the relationships.

Lack of association between media exposure and people's beliefs or attitudes toward online romantic relationships can also be explained by the frequency of media messages about the topic. Consider, for instance, media depiction of sexual content. Past research has shown that depiction of sexual behaviors occurs, on average, approximately 10 times per hour on television, with primetime TV shows depicting sexual talk or behaviors in eight of every ten episodes (Martino et al., 2005). Although there is no empirical evidence or research examining the frequency of media messages about online romantic relationships, it could be argued that online romantic relationships are not covered by the media with the same intensity or frequency as other types of messages or topics, such as sexuality or sexual behaviors.

Thus, lack of association between media exposure and people's beliefs or attitudes toward online romantic relationships could be explained by the media content itself, the frequency of the coverage, but also by the viewers' motivations (or lack of) to seek information about this type of relationship. Perhaps participants here do not see themselves using the Internet to form online romantic relationships, and therefore they disregard the information. Another reason that might explain this lack of association between exposure to media and people's beliefs could be found in the fact that unlike other topics like race or sex, online

romantic relationships are not a crucial part of people's self-concept or personality (who they are). In addition, previous findings suggested that younger people, such as teens, might be more likely to be influenced by media exposure than the college students under examination here. For example, Bryant and Rockwell (1994) found that young teenagers were the most vulnerable group for which exposure to TV programming featuring sexual intimacy could alter moral judgment.

With regard to exposure to ads, studies have argued that young individuals might be more likely to be persuaded by advertisements (Clark et al., 2001; Close et al., 2006; Williamson, 1995) and that typically, advertising attempts to sway brand choices (Wells, Burnett, & Moriarty, 1989). Although ads about dating sites and matchmakers are everywhere (Wildermuth, 2004), exposure to these ads did not directly shape individuals' views about romantic relationship online. More specifically, participants here reported being exposed to ads about dating sites and matchmakers, however exposure by itself was not related to beliefs about online romantic relationships or social norms. A few reasons could explain the lack of association. First, it could be that although the group under examination here reported being exposed to ads about dating sites and online matchmakers, there was little involvement or engagement with the content of the messages, message believability was low, or people simply do not recall the content. In fact, examination of the potential influence of ads on viewers would benefit from including additional variables such as viewers' level of engagement, motivations for watching, or viewers' involvement (Wang, 2006). Moreover, although respondents here reportedly watched these ads, it might be that they disregarded the actual content because they might not consider the Internet as a possible avenue for finding a romantic partner. As college students, it might be that opportunities to socialize and form romantic relationships are perceived as plentiful, and thus ads

about online romantic relationships might not have any significant influence on their beliefs or social norms about romantic relationships formed online.

Second, past research examining potential effects of advertising on viewers argued that changes in behaviors, or in this case intentions to perform a specific behavior are typically considered secondary effects, and that some behaviors are simply less likely to be the focus of sustained thought (Slater, 1999). Based on previous findings, results here might suggest that ads promoting dating sites or matchmakers simply do not challenge people's belief systems and that the limits of behavioral competence (i.e., not having internet connection, money or time to register, lacking ability to write a long profile about themselves) might need to be further examined to determine how other variables might play a role in people's beliefs. Moreover, even though the Internet is becoming available to more people every year, it could very well be that some participants in this sample simply did not have easy access to these types of media, and therefore, no significant correlation was found on this sample. Third, past research has found that people might overcome the potential influence of ads because viewers as consumers have become aware of the persuasive power of advertisements and expect ads to emphasize positive features (Bailey, 2006). Thus, it might very well be that exposure to ads here failed to correlate to people's beliefs about online romantic relationships because participants here might disregard these messages or perceive them as not believable, minimizing any potential impact on the way people think or act about having a relationship online.

In sum, findings here provided no support for the claim that media messages could impact people's beliefs and attitudes toward online romantic relationships. Exposure to news media stories or ads was not related to either people's perceptions or their evaluations of these types of relationships. Although exposure to news media stories and ads about dating sites failed

to emerge as significant predictors in the overall model, a small but significant correlation was found between exposure to news media stories and beliefs and social norms. These findings indicate that people who reportedly watch more news stories about online romantic relationships were also less likely to hold more positive beliefs and social norms. These negative correlations need to be investigated further. So, although the literature review seemed to suggest possible associations between media exposure and people's beliefs about online romantic relationships, this study found no significant association between exposure to media and people beliefs or social norms regarding online romantic relationships.

Attitudes toward Online Romantic Relationships

Attitudes are a popular research topic in social psychology for at least two reasons: first, they are useful in predicting people's behavior (Azjen & Fishbein, 1980, 2000), and second, several theoretical frameworks for the studies of attitudes are available from social psychology researchers (Eagly & Chaiken, 1993), thereby facilitating research on this pivotal construct. Likewise, examination of people's beliefs is meaningful for their potential influence on people's attitudes and future behaviors (Ajzen & Fishbein, 1980).

As previously stated in the review of the literature, attitudes in general refer to learned predispositions to respond in a consistently favorable or unfavorable manner with respect to a given object or behavior. Past research has suggested that if beliefs associate an object primarily with favorable attributes, the attitude would likely be more positive and vice-versa (i.e., less favorable attributes would correlate with less positive attitudes). This study extrapolated this claim to the context of online relationships, and predicted that people's beliefs about romantic relationships formed online would emerge as a positive predictor for people's attitudes toward these relationships. Evidence supported that claim. Just as expected, social influence variables

(i.e., perception of friends and family's past experiences with online romantic relationships) were related to people's beliefs about these relationships, and people's beliefs about these relationships emerged as a strong predictor for their attitudes.

In agreement with previous studies, findings here indicated that the majority of the descriptors participants used to refer to online romantic relationships had a negative connotation (i.e., weird, desperate, ugly, fake). Although further empirical research is needed in this area, this finding provides evidence to the claim that overall, perceptions of online romantic relationships are not favorable. Results here indicated that the beliefs that people hold about online romantic relationships influenced the way they evaluated those relationships, at least when direct experience is missing (Underwood & Findlay, 2004; Wildermuth, 2001b). It is also important to note that individuals value the experiences of other people when forming their own impressions, as this study found. From this perspective, having more favorable beliefs about online relationship had an impact on how people evaluated those relationships.

Another interesting finding here was the indirect path found between people's perceptions of others' past experiences with online romantic relationships and their attitudes toward these types of relationships. Findings revealed that people's perceptions of friends' and family's past experiences with online romantic relationships were related to their own beliefs about these relationships, which in turn were related to attitudes. In other words, the more favorable their perception of others' past experiences, the more favorable their attitudes toward online romantic relationships. This is consistent with past research suggesting that perception of favorable outcomes correlated with people's overall evaluation of any specific event or behavior (Fishbein & Ajzen, 1975). Furthermore, the association between people's perceptions of others' past experiences, beliefs and attitudes could be explained by the fact that people might rely on

personal sources (e.g., perceptions of significant others' experiences) to develop or modify their own beliefs. From this perspective, it might be that when it comes to forming beliefs and attitudes about romantic relationships, people rely on past experiences that are considered close, real and tangible as opposed to vicarious representations of these relationships in the media. In addition, research examining young adults' socialization and consumer behaviors has actually argued that people rely more on personal sources (e.g., friends, family) to obtain information about events or products considered high risk, and on mass media for information about products perceived as low risk (Moore & Moschis, 1981). Taking this finding one step further, it could be speculated that since romantic relationships might be perceived as "high" risk because of the personal investment and involvement that this type of relationship requires, therefore individuals are more likely to rely on personal sources to form their own beliefs and attitudes. By the same token, it could be argued that the lack of association between media exposure and beliefs or attitudes might be related to the fact that media messages are more a reflection of societal beliefs than beliefs at the individual level. In brief, evidence here suggests that participants turn to friends and family's past experiences for help in forming their beliefs and attitudes toward online romantic relationships, just as past research has indicated (Furman, Brown, & Feiring, 1999)

As findings here revealed, attitudes, and ultimately intentions to perform behaviors, are a function of beliefs. Moreover, individuals who believe that performing a specific behavior will lead to positive outcomes are more likely to hold favorable attitudes toward performing that behavior, whereas individuals who believe negative outcomes may result would hold unfavorable attitudes. This study provides additional evidence for this claim. Consistent with past research (Thompson et al., 2000) suggesting that attitudes ultimately rest on three fundamental elements: feelings, beliefs and indirect past experience, this study found evidence

that attitudes are also an important factor determining people's intentions to form or develop romantic relationships over the Internet.

Predicting Behavioral Intention

This study also predicted that both people's attitudes toward online romantic relationships and social norms would predict people's intent to form romantic relationships on the Internet. Under the scope of reasoned action theory, this hypothesis addressed the significance of the paths between behavioral intentions to form online romantic relationships and two constructs: attitudes and social norms. Reasoned action theory specifies that the intention to perform any behavior is modeled by both attitudes toward performing the behavior, and perceptions of the social pressures on the individual to either perform or not perform the behavior. The theory of reasoned action has been found to be capable of predicting a variety of behaviors, such as alcohol or drug consumption (Brinberg & Cummings, 1984; Cood, Lounsbury & Fontenelle, 1980), sex-related behaviors (Cohen & Fromme, 2002; Flores, Tschann & VanOss, 2002) or intentions to seek marriage counseling (Bringle & Byers, 1997). In this particular study, it was argued that based on reasoned action theory intentions to form romantic relationships online would be directly related to attitudes toward these relationships and social norms. Findings here provided support for that claim.

Ajzen and Fishbein (1980) argue that beliefs are viewed as underlying a person's attitudes and that attitudes and social norms ultimately determine intentions to perform a specific behavior. Findings here provide support for this claim. Just as predicted by the theory of reasoned action, findings here indicated that people's beliefs about online romantic relationships emerged as a strong predictor for attitudes toward these relationships.

Regarding social norms, defined as the perceived social pressure from significant others, past research has found that in many cases social norms failed to significantly predict intentions to perform a specific behavior (Ajzen, 1991; Bagozzi & Lee, 2002; Van Ryn, Lytle, & Kirscht, 1996). However, that was not the case here. Social norms emerged as a significant predictor for behavioral intentions to form online romantic relationships, suggesting that people who think that others would approve of them forming romantic relationships were more likely to report stronger intentions to form online romantic relationships.

Although not under examination here, a positive significant zero order correlation was found between social norms and attitudes toward online romantic relationships, suggesting that perception of more positive social norms was related to more positive attitudes toward online romantic relationships. In other words, it may be the case that the participants have high regard for social approval, and thus their own attitudes are related to their perceptions of what significant others think, specifically friends and family. These findings make institutive sense. Research has shown that when people comply with the opinions and expectations of significant others, they are certainly more likely to avoid social pressures and disapproval (Latimer & Martin, 2005). This finding is consistent with past research on the theory of reasoned action, and suggests that people who evaluated romantic relationships online more positively were also more likely to report that their significant others think they should form or develop romantic relationships online and more likely to comply with significant others' views.

In summary, while scholarly research specifically examining online romantic relationships is limited, such relationships have been described in the media, covered in news articles, and experienced by some according to recent accounts of online dating (Madden & Lenhart, 2006). Wildermuth (2004) found that more severe, disapproving, and explicit messages

from family and friends correlated with higher levels of stigma consciousness on the part of participants. This study provides further understanding of people's intentions to develop online romantic relationships by examining the extent to which other people's experiences with online romantic relationships, media exposure, attitudes and social norms influence people's intentions to form this type of relationships.

Limitations and Future Studies

Results here must be interpreted in the light of a number of study limitations. First, regarding the cross-sectional sample used here, the results cannot be generalized because the survey was conducted among a small sample of college students who are not representative of even the population of college students. In addition, it is important to keep in mind that results here should not be construed as providing more than tentative evidence regarding issues of causation. There was no way to sequence the events under examination here, so it is still unknown whether beliefs or attitudes occurred before, during or after. Therefore, future studies could benefit from using longitudinal data that allow for establishing stronger conclusions about the nature and direction of causality. Likewise, future studies could also replicate the model proposed here while considering a larger sample to test model convergence. Although, research has found no support to the notion of an absolute minimum *n* or the notion of a critical radio of sample size to number of indicators, when examining simulated data Gagne and Hancock (2006) found that larger samples, more indicators per factor, and stronger factor loadings generally improve model convergence and parameter estimation.

This study also focused exclusively on people who had no direct experience forming online romantic relationships. Examining people with no direct experience developing romantic relationships over the Internet was relevant here to allow for further examination of factors other

than first hand experience, more specifically significant others' past experiences and media exposure. Although significant associations were found among most of the main variables under examination here, future studies would benefit from examining participants who have had prior direct experience with online romantic relationships. More specifically, future research could also consider past experience as it relates to relationship development (e.g., relationships leading to marriage, long term dating, living together, and breaking up).

Certainly, it is unrealistic and virtually impossible to measure all relevant variables in one single study, and therefore there is a need for future research looking at other variables besides direct experience forming online romantic relationships, such as internet usage or literacy, perceived control, or exposure to media other than just news stories or advertisements, such as Hollywood movies or TV shows. Past research examining young people's socialization and media argued that adolescents watch more movies than any other segment of the population (Arnett, 1995). Regarding romantic relationships formed online, these have been portrayed in various popular American movies, such as *You've got Mail* or *Must Love Dogs* as well as in various popular TV Shows, such as the *Simpsons, Two and Half Men or Everybody Loves Raymond.* Future studies could examine exposure to these types of media as it relates to people's beliefs and attitudes toward online romantic relationships. More importantly though, it is clear that romance is a central topic in Western young adults' pop culture (Furman et al., 1999). In fact, no other topic or issue is nearly as dominant. Sex, dating and romantic interest or relationships are among the most common script themes for characters featured in TV serials (Ward, 1995). In addition, past research examining socialization and media has indicated that variables other than merely exposure could also play an important role in viewers' beliefs, attitudes or behaviors (e.g., motivations for viewing, active vs. passive exposure) (Martino et al.,

2005; Moore & Moschis, 1981). Therefore, additional studies are needed to further examine the potential influence of exposure to different types of media portrayals about online romantic relationships on people's beliefs or attitudes toward these types of relationships. The need for this kind of research is especially evident if one considers that individuals have greater control over media choices than any other source of socialization, because they can choose from a variety of media materials, the ones that best suit their individual preferences (Arnett, 1995).

Regarding the theory of reasoned action, Ajzen and Fishbein (1980) proposed that human behavior results from reasoning, linking beliefs to action. So, beliefs derived from both the actual behavior under examination and beliefs derived from perceptions of others' views about that behavior, link to attitudes and eventually to intentions to perform a specific behavior. Despite sweeping statements about the predictive power of Fishbein and Ajzen's model of reasoned action, this model has been criticized (Manstead, 1983; Saltzer, 1981).

Notwithstanding evidence showing strong correlations between behavioral intention and actual behavior (Sheppard, Hartwick & Warshaw, 1988) and the fact that behavioral intention is the most influential predictor of behavior (Ajzen, 1991), one criticism of the theory of reasoned action is the idea that individuals might not be able to perform a specific behavior even if the intention to do so is very strong. Critics here argued that other external factors or variables could prevent a person from performing a particular behavior even though the intentions are strong. For example, a person may be prevented from purchasing a new house if the current owner does not accept the purchase offer, or if the interest rate is unaffordable. To include factors beyond the control of the individual requires a slightly different theoretical framework, such as the theory of planned behavior. However, the theory of reasoned action was used here because intention to develop romantic relationships in the Internet can be seen as within people's immediate control.

The theory of reasoned action does not measure individuals' perception of their ability to control their behavior. To include such a measure, future research could rely on the theory of planned behavior developed in the mid 1980's (Ajzen & Madden, 1986). The theory of planned behavior measures actual behavior along with the extent to which that individual has the skills, resources, and other prerequisites needed to perform a given behavior. In the context of online romantic relationships specifically, future studies could measure not only actual behavior (forming online romantic relationships), but also more specific behavior such as signing up to a specific dating site (i.e., eharmony.com or Match.com), as well as people's perceptions of their ability to find a suitable partner over the Internet (e.g., how easy or hard). In addition, future studies could also measure other variables such as people's perceived control over developing these relationships (perceptions of the ability to find a romantic partner online) and self-efficacy.

The notion of self-efficacy is not new within the framework of planned behavior. Self-efficacy refers to individual judgments of a person's capabilities to perform a behavior (Bandura, 1986). Ajzen (1991) has thus suggested that perceived self-efficacy is concerned with judgments of how well one can execute actions to deal with the situation at hand. In other words, self efficacy measures how confident people are in themselves that they we can actually perform the action, which could have a big impact on the behavior itself. Recent research examining self-efficacy within the new media environment (Internet) has defined self efficacy as Web users' self-perceived confidence and expectations of using the Internet (Wu & Tsai, 2006). So, as it applies to online romantic relationships, self-efficacy could evaluate people's judgments of their own capabilities to find a romantic partner over the Internet and develop an online romantic relationship, which could have an impact on actually forming romantic relationships online.

Despite these criticisms, a meta analysis conducted by Sheppard et al. (1988) not only suggested that more than half of the research that has utilized the reasoned action model has investigated activities for which the model was not originally intended, but also that the model performed extremely well in the prediction of behaviors and goals. Based on these results, the researchers concluded that the model of reasoned action "has strong predictive utility, even when used to investigate situations and activities that did not fall within the boundary conditions originally specified for the model" (p. 338).

Several methodological limitations are worth noting. First, elicitation of individuals' beliefs during pilot testing included an open-ended question that asked participants about both romantic relationships formed online and people who participated on this type of relationship. However, in the main study participants were asked to rate and evaluate online romantic relationships only. This could be potentially problematic because people might perceive online romantic relationships differently that those who participate in those relationships. In other words, participants could have a different perception of the relationship itself. Some people might have favorable attitudes toward people participating in the relationships; however they might feel differently about the relationship itself.

Second, it is also worth noting the limitations associated with the way social norms were treated. The literature using the theory of reasoned action shows a lack of consistency regarding measurement of social norms. Here, authors have to choose among different and inconsistent alternative that may or may not model the theory as originally intended by the authors. There seem to be as many ways to measure social norms as there are studies using the theory of reasoned action. Each study using reasoned action as a framework seems to create its unique way to measure social norms, ranging from one single item (e.g., Sapp, Jarrod & Zhao, 1994; Shim,

Eastlick, Lotz, & Warrington, 2001), to multiple items (Lin, 2006) or the average of several random items combined (Fitzmaurice, 2005; Myers & Horswill, 2006). Previous research assessed the validity of the constructs under examination in the theory of reasoned action to test the independent contribution of these components (Vallerand et al., 1992). The most significant finding was related to the use of multiplicative terms for social norms. The authors concluded that when using these multiplicative terms, it became impossible to test the independent contribution of each of the constructs used in the theory. Therefore, it seems evident that there is a need to further examine social norms using different approaches other than the multiplicative term among items. Although the social norm construct achieved reliability here, and it has been used in several past studies, the field would benefit from future studies examining the validity and reliability of measuring social norms. In any case, results of these analyses are thus best considered with caution.

Regarding the use of structural equation modeling, research has shown that application of the theory of reasoned action to specific ethnic groups might provide information as to whether a behavior is under attitudinal or normative influence, or both (Flores et al., 2002). Future studies using SEM could then propose an examination of people's attitudes and intentions to form online romantic relationships by developing a multigroup comparison study that evaluates significant predictors in different groups (e.g., heterosexual versus homosexual use of the Internet in forming relationships) or ethnic groups (e.g., Hispanics versus Caucasians). More specifically, although most studies using reasoned action seem to point to attitudes as a stronger predictor than social norms, this might not be the case when considering different ethnic groups. Consider other cultures, such as the Asian or Latin culture, where family views and opinions might have a stronger impact on people's beliefs and attitudes toward online romantic relationships. In

addition, some behavioral intentions or actual behaviors might differ across cultures because of differences in the relative importance cultural groups attach to personal attitudes versus group norms. As past research has revealed, it is important to examine specific beliefs and norms while considering differences in ethnicity or culture, which might encourage or delay performance of specific behavior (Flores et al., 2002).

Factors under examination here accounted for about 46% of the variance in people's intentions to form or develop online romantic relationships. In a meta-analysis based on 185 independent studies (Armitage & Conner, 2001), the theory of planned behavior was found to account, on average, for 39% of the variance in intentions and for 27% of the variance in behavior. Although the obtained value found here was much higher, this still leaves considerable variance to be explained. Some of the unexplained variable may be due to random measurement error, low predictive validity or inappropriate operationalization of the predictor or criterion measure. Nevertheless, "even with these limitations, meta analyses show that reasoned action approach has done extremely well, particularly if one considers that before the introduction of this model, most studies accounted for, at most, 10% of the variance in behavior" (Ajzen & Fishbein, 2004, p. 432).

Future studies could expand this area of investigation by examining additional external and internal factors not considered here that might motivate people to develop romantic relationships over the Internet. Certain factors may be particularly relevant for the age group studied here. Most young adults might be very insecure people who struggle with their self-concepts and with others' views or values on a regular basis. Researchers have argued that young adults might be still very malleable, frail and constantly in a state of flux, continuously seeking some acceptable equilibrium and identity (Brown et al., 1999). Thus, studies could also consider

additional factors such as individual differences or life styles (e.g., introversion, self-esteem, geographic mobility, and Internet usage or Internet affinity). As a matter of fact, scholars who have conducted research on attitudes toward the internet in general have found that those who hold more positive orientations toward the Internet or spend more time navigating the Net may be more open to, or accepting of, interpersonal relationships formed online (Anderson, 2005; Eastin, 2005). Likewise, online communication has been identified as a tool for overcoming social anxieties and shyness (Nice & Katzev, 1998), so it might be that individual traits or characteristics (e.g., shyness, loneliness or anxiety) could be related to the way people perceive online romantic relationships. For instance, it could be argued that shy people find it easier and more comfortable to form online relationships, and arguably, that their perceptions of these relationships might be more positive. By the same token, social cognitive theory posits that social influences come in different forms, including observation, imitation or modeling (Bandura, 1986). However, viewers' abilities, interests, motivations and self-concept may make them more or less susceptible to the influence of the information, and thus, future research could expand this area of research while considering these other variables in the equation.

Regarding online relationships, McKenna and associates (2002) have previously established the significance of examining variables such self-disclosure, loneliness or relationship stability and found that those who better express their true-selves over the Net were more likely than others to have formed close online relationships. It was also found that those who were socially anxious and lonely were somewhat more likely to feel that they can better express their real-selves online (McKenna et al., 2002). Given the potential influence of these variables, future studies could consider factors internal to the individual, and examine the extent

to which those characteristics may or may not play a role in people's intentions to form online romantic relationships.

Notwithstanding the limitations of this research, the present investigation makes significant contributions for expanding the understanding of romantic relationships formed on the Internet. By conducting structural equation modeling, this study tested a model based on Ajzen and Fishbein's theory of reasoned action and elements of Bandura's (1986) social cognitive theory. Moreover, since causal paths are estimated among latent rather than manifest variables, the path estimates are free from the unreliability of the manifest variables. This allows for a much more precise test of the relationships among various components of any given model. Latent-variable model also permits the testing of all the links in a mediation model simultaneously, rather than in the conventional regression way. Lastly, analyses conducted here afforded the possibility of clarifying controversial or ambiguous aspects of a model, as well as elaborating and refining aspects of the model by contrasting it with competing alternatives (Vallerand et al., 1992).

The study of attitudes has been one of the core areas of the social science disciplines for decades (Armitage & Christian, 2003). This study not only provided an in-depth examination of attitudes toward online romantic relationships, but it also implemented important suggestions made by previous studies under the framework of the theory of reasoned action. More specifically, it conducted an elicitation study to identify salient beliefs, which is at the cornerstone of the theory of reasoned action (Sutton et al., 2003). In spite of the importance accorded to salient beliefs by reasoned action theory, the elicitation stage has been overlooked in many studies. In addition, this study broadened the spectrum of the theory of reasoned action by

providing evidence of the impact of elements within social cognitive theory on predicting people's intentions to perform any specific behavior.

Implications

The present findings contribute significantly to the current understanding of people's attitudes toward online romantic relationships and their intentions to form or develop these types of relationships over the Internet. With the growing popularity of the Internet and about 17% of the US online population visiting dating sites (Kornblum, 2004); this study examined several factors associated with people's attitudes and intentions to develop romantic relationships over the Internet. In general, these findings show that although the Internet and its uses as a forum for initiating and building romantic relationships is in the early stages of social acceptance, people's perception of friends and family's past experiences with online romantic relationships shaped their beliefs and attitudes toward these relationships and ultimately, their intentions to form romantic relationships over the Internet.

This study also makes a significant contribution by examining how individuals' social environment impacts their perceptions of online romantic relationships. Past research in the area of romantic relationships argued that most studies tend to focus only at either the level of individuals or couples (Kelley et al., 1983), yet romantic relationships do not develop in a vacuum. Studies have well established the importance of relationships in people's lives (Cann, 2004). Furthermore, romantic relationships are considered important sources of social acceptance, well-being and learning relational patterns (Brown et al., 1999). This study makes significant contributions to this area of research by examining how social influences (perceptions of friends' and family's experiences with online romantic relationships and media) as well as perceptions of what significant others think a person should do relate to their intentions to form

these types of relationships. This study provides additional evidence of the relevance of peers and family members to people's beliefs about romantic relationships formed over the Internet. From a socialization perspective, people learn and internalize values, beliefs and norms of society. Moreover, research in this area has identified several significant sources of socialization, such as, parents, peers, media, church and others (Arnett, 1995). From this perspective, future research should begin examining the lack of integration of the sources of information in the socialization process, in the sense that people might receive different socialization messages from their significant socialization sources (i.e., family, peers, school, community, media, legal system and cultural belief system), and the extent to which these messages (often presented in contradiction) may or may not impact people's beliefs, attitudes and intentions to perform specific behaviors.

This study attempted to expand the understanding on romantic relationships formed online while combining two main theories: social cognitive theory and reasoned action theory. This was accomplished by introducing the influence of indirect sources (i.e., friends' and family's past experiences with online romantic relationships and exposure to media). In developing the model examined here, this research study borrowed from key theories of behavior and learning. Social cognitive theory posits that through observation of others, people acquire information and beliefs that then guide their subsequent behavior (Bandura, 1986). Based on this premise, it can be argued that people learn from others' past experiences and that this learning shapes their own set of beliefs and ultimately, their own behaviors. Regarding the theory of reasoned action, it suggests that both attitudes toward online romantic relationships and social norms are immediate determinants of intentions to form romantic relationships over the Internet.

This study also provided evidence for the theory of reasoned action within the context of new media and romantic relationships. Findings suggest that people's attitudes toward online romantic relationships and social norms are significant constructs predicting their intentions to form or develop online romantic relationships. So, as long as people continue to feel that the Internet facilitates their personal goals, and as long as they rely on learning from others' past experiences, the more likely it is that their intentions to form online romantic relationships would relate to those perceptions. Furthermore, acknowledging that SEM allowed formulation of a causal model among latent variables, this study provides a better idea of the potential causal relationships among the key variables under examination here: indirect experiences, beliefs, attitudes, social norms and intentions to form romantic relationships over the Internet.

Understanding people's attitudes and some factors associated with them could be a more productive direction to pursue in examining how the Internet may be changing interpersonal relationships and people's perceptions of mediated relationships. Moreover, findings here suggest that the integration of the Internet into everyday life does not match its popular appeal. Most Internet users still may default to the traditional offline ways of communicating, transacting affairs, getting information, and entertaining themselves. Likewise, past research has suggested that cyberspace might be serving as an alternative venue for forming relationships for people who are alienated from their peers or parents, and that more well-adjusted youth might have less need for this venue (Wolak, Mitchell, & Finkelhor, 2003). If one acknowledges that online relationships are accessible to increasing number of people, and that the rapid growth of Internet use makes it likely close online relationships will become an enduring part of our social landscape, future studies need to further expand this area of research examining if people with

difficulties may be using online relationships as temporary bridges that allow them to find comfortable and supportive relationships.

Recent studies examining online relationships and homosexuals indicate that gay men and lesbians have not only been early adopters of new technologies such as online dating and matchmakers, but they are one of the demographic groups that have most fully exploited the capabilities of the online medium (Gudelunas, 2006). Perhaps the fact that the Internet is becoming the place for the development of less traditional relationships (including those that may be perceived by some as immoral or inappropriate) is linked to people's attitudes toward relationships formed online. In other words, it might be that online relationships have little social acceptance despite the fact that the Internet allows for the development of all kind of relationships.

The study also provides further evidence of the relevance of examining romantic relationships in the context of the new media environment. Recent research in the area of personal relationships argues that despite obvious differences between relationships established in the Net and relationships established face-to-face (i.e., medium), these relationships do not seem to differ much from each other (Wildermuth, 2001b). More specifically, it has been argued that where people meet may not be important in and of itself, but instead, the meeting place might only be significant when that place plays a role in the maintenance and progression of the relationship. Bonebrake (2002) argued that it is no longer the case that people who use the Internet as the starting point of a relationship can be characterized as practicing unconventional approaches to beginning and maintaining relationships. In today's busy world, the use of the Internet for romantic purposes (i.e., dating) appears to be rapidly expanding in use, but not in acceptance, as evidenced by the study conducted here. So, although this study has been

successful in evaluating factors that correlate to people's attitudes toward online romantic relationships and intentions to form these relationships, it is clear that this is but one step further toward a better understanding of the use of the Internet in developing romantic and social relationships.

The latest research examining levels of intimacy in online relationships suggests that although some level of intimacy is present in online relationships, relationships that develop online are not likely to result in greater intimacy than that experienced by individuals in their face-to-face relationships (Scott, Mottarella & Lavooy, 2006). Certainly online communication as a means to try to connect romantically with another person is not likely to fade away in the near future (Chenault, 1998). Thus, perceptions, attitudes and intentions to form romantic relationships online are topics worthy of further exploration.

Conclusions

Because of the popularity of the Internet, online close relationships have recently become a focus of academic research (Anderson, 2005; Donn & Sherman, 2002; Wildermuth, 2001a, 2001b, 2004). That people use the Internet for developing new relationships or friendships or for interpersonal communication is well established throughout the literature on new media and close relationships (Bonebrake, 2002; McKenna, 1999; McKenna et al., 2002; Parks & Floyd, 1996; Walther & Burgoon, 1992). Moreover, anecdotal evidence and even most scholarly research argued that "online interpersonal relationships, particularly romantic relationships, carry the stigma of being something of a talk-show phenomena" (Anderson, 2005, p. 521).

Certainly, the Internet seems to be changing the way people perceive romance (Hollander, 2004), and both mainstream media and online dating companies seem to be promoting the idea that people can find and establish romantic relationships online (Mulrine &

Hsu, 2003). So, while more and more people are now aware of the potential capability of the Net to find themselves romantic partners, little is known about attitudes toward romantic relationships formed over the Internet and people's intentions to form these types of relationships. Therefore, the primary goal of this study was to provide empirical evidence examining potential factors that might relate to people's beliefs, attitudes toward and intentions to form romantic relationships over the Internet.

Based on previous research, it was argued that in the absence of direct experience with online romantic relationships, people's attitudes and their intentions to develop these types of relationships might be influenced by indirect sources of past experiences. To broaden the scope of reasoned action, this study included elements from social cognitive theory (i.e., friends' and family's past experiences and exposure to media messages) to the examination of people's attitudes toward online romantic relationships and intentions to form these types of relationships. Findings here provided initial support for the viability of an integrative model combining both social cognitive theory and the theory of reasoned action, suggesting that social cognitive variables can complement the explanatory value of attitudes and social norms in predicting people's intentions to form online romantic relationships. The proposed model under examination here fit the data well. Findings suggest that people's perceptions of others' past experiences with online romantic relationships were related to their beliefs about and attitudes toward those relationships. Moreover, perception of friends' past experiences was related to perceptions of social norms. However, it was found that media exposure to messages about online romantic relationships had no influence on people's beliefs, attitudes, or social norms regarding these types of relationships. Lastly, when taken together, perceptions of others past

experiences, beliefs, attitudes and social norms were related to people's intentions to form or develop romantic relationships over the Internet.

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Appendix A: Consent Form

Georgia State University
Department of Communication
Informed Consent

Title: Attitudes toward Online Personal Relationships

Principal Investigator: Cynthia Hoffner - PI
Raiza Toohey (Rehkoff) – Student PI

I. Purpose: You are invited to participate in a research study. The purpose of the study is to investigate people's perceptions of romantic relationships formed on the Internet and their intentions to develop these relationships. You are invited to participate because you are at least 18 years old and a student at GSU. A total of 300 participants will be recruited for this study. Participation will require approximately 25-30 minutes of your time.

II. Procedures: If you decide to participate, you will fill out an online survey. The survey will take 25-30 minutes to complete. You will receive one research credit for participation even if you drop out from the study.

III. Risks: In this study, you will not have any more risks than you would in a normal day of life.

IV. Benefits: Participation in this study may not benefit you personally. Overall, we hope to gain information about how people respond to personal relationships formed on the Net.

V. Voluntary Participation and Withdrawal: Participation in research is voluntary. You have the right to not be in this study. If you decide to be in the study and change your mind, you have the right to drop out at any time. You may skip questions or stop participating at any time. Whatever you decide, you will not lose any benefits to which you are otherwise entitled.

VI. Confidentiality: We will keep your records private to the extent allowed by law. We will use numbers rather than your name on study records. Only the researchers will have access to the information you provide. It will be stored in private files protected by passwords to protect privacy. The findings will be summarized and reported in group form.

VII. Contact Persons: Contact Dr. Cynthia Hoffner at 404-651-3200 or Raiza Toohey via email at **jourarx@langate.gsu.edu** if you have questions about this study. If you have questions or concerns about your rights as a participant in this research study, you may contact Susan Vogtner in the Office of Research Integrity at 404-463-0674 or svogtner1@gsu.edu**.**

VIII. Copy of Consent Form to Subject: You can print out a copy of this consent form for your records. If you are willing to volunteer for this research, please check below.
Principal Researcher: Cynthia Hoffner and Raiza Toohey (Student PI)

Appendix B: Pilot Study Instrument

*** Questionnaire***

Below you will find several questions. Please remember there are no right or wrong answers. Take your time to read each question carefully and write your answers in the space provided.

1. People are developing close, personal relationships on the Internet. One type of close relationship is romantic in nature. Please think of some words or phrases that YOU would use to describe **online romantic relationships or people involved in that type of romantic relationship**. Write as many words or phrases as you can think of.

1.

2.

3.

4.

5.

Now, please think of **YOU** developing or forming a romantic relationship on the Internet. With this in mind, please answer the following four questions (2 to 5). *Note: If you are currently involved in a romantic relationship, please answer these four questions as though you were single.*

2. What do you think would be the advantages of developing or forming a romantic relationship over the Internet? List all the advantages you can think of.

3. What do you think would be the disadvantages of developing or forming a romantic relationship over the Internet? List all the disadvantages you can think of.

4. In your opinion, are there any people or groups who would approve of YOU developing or forming a romantic relationship on the Internet? If so, who?

5. In your opinion, are there any people or groups who would disapprove of YOU developing or forming a romantic relationship on the Internet? If so, who?

Now, based on your own views about online romantic relationships, please answer to the following statements by marking a check in the space that best represents your answer.

First, please indicate YOUR opinion of someone else developing or forming a romantic relationship on the Internet, using the following scales.

6. In your opinion, developing a romantic relationship over the Internet is:

Right: _____:_____:_____:_____:_____:_____: _____: Wrong

Positive: _____:_____:_____: _____:_____:_____:_____: Negative

Beneficial: _____:_____:_____: _____:_____:_____:_____: Harmful

Now, think of news stories specifically those related to romantic relationships formed over the Internet and indicate the extent to which you have been exposed to news stories about online romantic relationships on the scale below.

	Not at all						A great deal
7. Newspaper stories about online romantic relationships	0	1	2	3	4	5	6
8. Television news stories covering online romantic relationships	0	1	2	3	4	5	6

If you have never been exposed to either newspaper or TV news stories about online romantic relationships please skip to question 27

Still thinking about news stories about online romantic relationships, please indicate the extent to which you agree or disagree with the following statements:

News media stories about romantic relationships formed on the Internet:

	Strongly Disagree						Strongly Agree
9. Depict online romantic relationships in a negative way	0	1	2	3	4	5	6
10. Portray people who form online romantic relationships as faithful and committed to the relationship	0	1	2	3	4	5	5
11. Reveal only the dark side of online romantic relationships	0	1	2	3	4	5	6
12. Portray online romantic relationships as meaningful							
13. Acknowledge the dangers and risks in online romantic relationships	0	1	2	3	4	5	6
14. Portray online romantic relationships as long-lasting and stable	0	1	2	3	4	5	6
15. Portray people who form online romantic relationships as losers and desperate	0	1	2	3	4	5	6
16. Portray people who form online romantic relationships as madly in love with each other	0	1	2	3	4	5	6

Now, think of **print and online advertisement**, specifically ads about online dating sites or matchmaker services and indicate the extent to which you have been exposed to ads about online romantic relationships on the scale below:

	Not at all						A great deal
17. Print or TV ads about dating sites or matchmaker services	0	1	2	3	4	5	6
18. Online ads about dating sites or matchmaker services	0	1	2	3	4	5	6

If you have never been exposed to print, TV or online ads about dating sites or matchmaker services please skip to question 27

With these ads about online dating sites or matchmaker services on mind, please indicate the extent to which you agree or disagree with the following statements:

Advertisements about online dating sites or online matchmakers:

	Strongly Disagree						Strongly Agree
19. Depict online romantic relationships in a negative way	0	1	2	3	4	5	6
20. Portray people who form online romantic relationships as faithful and committed to the relationship	0	1	2	3	4	5	6
21. Reveal only the dark side of online romantic relationships	0	1	2	3	4	5	6
22. Portray online romantic relationships as meaningful							
23. Acknowledge the dangers and risks in online romantic relationships	0	1	2	3	4	5	6
24. Portray online romantic relationships as long-lasting and stable	0	1	2	3	4	5	6
25. Portray people who form online romantic relationships as losers and desperate	0	1	2	3	4	5	6
26. Portray people who form online romantic relationships as madly in love with each other	0	1	2	3	4	5	6

Next, think of your own experiences developing relationships on the Internet. Based on your past experience, please answer the following questions.

27. Have you ever formed a close relationship via the Internet? ___ Yes ___ No

*If your answer is **None**, please skip to question 32*

28. If you have formed one or more close relationship on the Internet, please indicate what type(s) of relationships you have formed. (check all that apply)

___Friendship _____Romantic ____Other: (specify) _____

29. On average, how many online romantic relationships have you been involved in so far?

_____None ____1 ____2 ____3 ____4 or more

*If you answer is **None**, please skip to question 32*

30. Based on your own experience forming romantic relationships online, how would you rate your overall experience?

good: _____:_____:_____:_____:_____:_____:_____: bad

positive: _____:_____:_____:_____:_____:_____:_____: negative

harmful: _____:_____:_____:_____:_____:_____:_____: beneficial

extremely quite slightly neither slightly quite extremely

31. Based on your overall experience developing or forming romantic relationships on the Internet, how likely is it that you would recommend that your friends or relatives become romantically involved with someone they met on the Internet?

Unlikely: _____:_____:_____:_____:_____:_____:_____: Likely

extremely quite slightly neither slightly quite extremely

32. To your knowledge, how many of **your friends** have formed or developed a romantic relationships on the Net?

____ None ____1 ____2 ____3 ____4 or more

*If your answer is **None**, please skip to question*

33. Based on your **friends' experiences** with online romantic relationships, how would you rate their overall experience?

good: _____:_____:_____:_____:_____:_____:_____: bad

positive: _____:_____:_____:_____:_____:_____:_____: negative

harmful: _____:_____:_____:_____:_____:_____:_____: beneficial

extremely quite slightly neither slightly quite extremely

34. To your knowledge, how many of **your family members or relatives** have formed or developed romantic relationships on the Net?

____ None ____1 ____2 ____3 ____4 or more

*If your answer is **None**, please skip to question 36*

35. Based on your **family members or relatives'** experiences with online romantic relationships, how would you rate their overall experience?

good: _____:_____:_____:_____:_____:_____:_____: bad

positive: _____:_____:_____:_____:_____:_____:_____: negative

harmful: _____:_____:_____:_____:_____:_____:_____: beneficial

extremely quite slightly neither slightly quite extremely

Finally, we need to know a few more things about you. We really appreciate your time!

36. What is your sex? _____ Male (0) ____ Female (1)

37. What is your age? _____

38. With which racial or ethnic group(s) do you identify? [Check all that apply]

____ 1. African-American/Black ____ 4. Native American

____ 2. Asian/Pacific Islander ____ 5. White/Caucasian

____ 3. Hispanic/Latino(a) ____ 6. Other: _____

39. What is your year in college?

____ Freshman (1) _____ Sophomore (2) ____ Junior (3) ____ Senior (4) ___Grad (5)

40. What is your major? _____

41. What is the highest level of education that you expect to attain?

___ 1. Some college; will probably not graduate ___ 4. Law degree

___ 2. College graduate ___ 5. M.D. or Ph.D.

___ 3. Masters degree/MFA

42. What is your current relationship status?

___ Single, not dating (1) ___Single, casually dating (2)
___Committed relationship or engaged (3) ___ Married (4)
___Other (5): _____
(*specify*)

43. In the past, which of the following sources have you relied on to meet potential romantic partners? (check all that apply)

___ Bars/Clubs ___Family ___ Friends
___Internet ___ Work ___ Other: _____
(*specify*)

Thanks ☺

Appendix C: Main Study Instrument

Questionnaire: Attitudes toward Online Personal Relationships

Nowadays, people are developing close, personal relationships on the Internet. One type of personal relationship is romantic nature. This relationship is called an online romantic relationship.

Below are several statements about online romantic relationships. Read each of them, and indicate your level of agreement by clicking the number that best represents your answers.

		Strongly Disagree						Strongly Agree
1	Online romantic relationships are pursued mostly by people who are physically unattractive	1	2	3	4	5	6	7
2	Meaningful romantic relationships can be developed on the Internet	1	2	3	4	5	6	7
3	The Net is a safe place to meet a new romantic partner.	1	2	3	4	5	6	7
4	Online romantic relationships are pursued mostly by desperate or weird people	1	2	3	4	5	6	7
5	Long-lasting and stable romantic relationships can be developed on the Internet	1	2	3	4	5	6	7
6	Online romantic relationships are pursued mostly by people who are shy or lonely	1	2	3	4	5	6	7
7	Online romantic relationships are normal	1	2	3	4	5	6	7
8	Romantic relationships formed on the Web are superficial	1	2	3	4	5	6	7

As you shall see, many questions here make use of rating scales with 7 places; you are to mark the line that best describes your opinion. Please be sure to answer all items and more importantly, never mark more than one line on a single scale.

Example: If you think the weather in Atlanta is extremely good, you would check the first line, as follows:

The Weather in Atlanta is:

good: ___✓___:_____:_____:_____:_____:_____:_____: bad

Based on your own knowledge and opinions about online romantic relationships, rate how characteristic you think the following attributes are of online romantic relationships. Mark on the space that best represents your answer.

In my view, romantic relationships formed on the Internet are:

10. Harmful: _____:_____:_____:_____:_____:_____:_____: Beneficial
extremely quite slightly neither slightly quite extremely

11. Pleasant: _____:_____:_____:_____:_____:_____:_____: Unpleasant

12. Good : _____:_____:_____:_____:_____:_____:_____: Bad

13. Worthless:_____:_____:_____:_____:_____:_____:_____: Valuable

14. Exciting: _____:_____:_____:_____:_____:_____:_____: Boring

15. Acceptable:_____:_____:_____:_____:_____:_____:_____: Unacceptable

16. Positive: _____:_____:_____:_____:_____:_____:_____: Negative

In your opinion, developing a romantic relationship on the Internet is:

17. Right: _____:_____:_____:_____:_____:_____: _____: Wrong

18. Positive: _____:_____:_____: _____:_____:_____:_____: Negative

19. Acceptable: _____:_____:_____: _____:_____:_____:_____: Unacceptable

20. What type(s) of relationships you have formed on the Internet? (check all that apply)

___ None ___Friendship ___Romantic ___Other: _____
(specify)

In you have NOT formed a Romantic relationship on the Internet, please skip to question 22

21. On average, how many online romantic relationships have you been involved in so far?

____1 ____2 ____3 ____4 or more

22. To your knowledge, how many of **your friends** have formed or developed a romantic relationships on the Net?

____ None ____1 ____2 ____3 ____4 or more

*If your answer is **None**, please skip to question 24*

23. Based on your **friends' experiences** with online romantic relationships and the information they shared with you, how would you rate their overall experience?

good: _____:_____:_____:_____:_____:_____:_____: bad

positive: _____:_____:_____:_____:_____:_____:_____: negative

harmful: _____:_____:_____:_____:_____:_____:_____: beneficial

extremely quite slightly neither slightly quite extremely

24. To your knowledge, how many of **your family members or relatives** have formed or developed romantic relationships on the Net?

____ None ____1 ____2 ____3 ____4 or more

*If your answer is **None**, please skip to question 26.*

25. Based on your **family members or relatives'** experiences with online romantic relationships and the information they shared with you, how would you rate their overall experience?

good: _____:_____:_____:_____:_____:_____:_____: bad

positive: _____:_____:_____:_____:_____:_____:_____: negative

harmful: _____:_____:_____:_____:_____:_____:_____: beneficial

extremely quite slightly neither slightly quite extremely

Indicate your level of agreement with each of these statements below:

		Strongly Disagree						Strongly Agree
26	*My friends* think that it would be ok for me to develop a romantic relationship in the Internet	1	2	3	4	5	6	7
27	*My friends* would disapprove of me forming a romantic relationship on the Internet	1	2	3	4	5	6	7
28	*My family members* think that it would be ok for me to develop a romantic relationship in the Internet	1	2	3	4	5	6	7
29	*My family* would disapprove of me forming a romantic relationship on the Internet	1	2	3	4	5	6	7

30. Generally speaking, how much do you want to do what your **Friends** think you should do?

Not at All: _____: _____: _____ : _____: _____: _____: Very Much

31. Generally speaking, how much do you want to do what your **Family** thinks you should do?

Not at All: _____: _____: _____ : _____: _____: _____: Very Much

Now, please think of **YOU** developing or forming a romantic relationship on the Internet.
Note: If you are currently involved in a romantic relationship, please answer these four questions as you would if you were single.

	Strongly Disagree						Strongly Agree
32. I plan to use the Internet to form a romantic relationship	1	2	3	4	5	6	7
33. I would never consider using the Internet to meet a romantic partner	1	2	3	4	5	6	7
34. I intend to use the Internet to meet a romantic partner	1	2	3	4	5	6	7

35. How likely is it that you would advise either your **Friends or Family Members** to develop or form a romantic relationship on the Internet?

Unlikely: _____:_____:_____:_____:_____:_____:_____: Likely
extremely quite slightly neither slightly quite extremely

Next, think of **News Stories** specifically related to romantic relationships formed over the Internet. Indicate the extent to which you have been exposed to these stories.

	Not at all						A great deal
36. Newspaper stories about online romantic relationships	1	2	3	4	5	6	7
37. Television news stories covering online romantic relationships	1	2	3	4	5	6	7

If you have never been exposed to either newspaper or TV news stories about online romantic relationships please skip to question 46.

Now, please indicate the extent to which you agree or disagree with the statements below:

News media stories about romantic relationships formed on the Internet:

	Strongly Disagree						Strongly Agree
38. Depict online romantic relationships in a negative way	1	2	3	4	5	6	7
39. Portray people who form online romantic relationships as faithful and committed to the relationship	1	2	3	4	5	6	7
40. Reveal only the dark side of online romantic relationships	1	2	3	4	5	6	7
41. Portray online romantic relationships as meaningful	1	2	3	4	5	6	7
42. Acknowledge the dangers and risks in online romantic relationships	1	2	3	4	5	6	7
43. Portray online romantic relationships as long-lasting and stable	1	2	3	4	5	6	7
44. Portray people who form online romantic relationships as losers and desperate	1	2	3	4	5	6	7
45. Portray people who form online romantic relationships as madly in love with each other	1	2	3	4	5	6	7

Next, think of **print and online advertisements**, specifically ads about online dating sites or matchmaker services. Indicate the extent to which you have been exposed to these ads.

	Not at all						A great deal
46. Print or TV ads about dating sites or matchmaker services	1	2	3	4	5	6	7
47. Online ads about dating sites or matchmaker services	1	2	3	4	5	6	7

If you have never been exposed to print, TV or online ads about dating sites or matchmaker services please skip to question 56.

Now, please indicate the extent to which you agree or disagree with the statements below:

Advertisements about online dating sites or online matchmakers:

	Strongly Disagree						Strongly Agree
48. Depict online romantic relationships in a negative way	1	2	3	4	5	6	7
49. Portray people who form online romantic relationships as faithful and committed to the relationship	1	2	3	4	5	6	7
50. Reveal only the dark side of online romantic relationships	1	2	3	4	5	6	7
51. Portray online romantic relationships as meaningful	1	2	3	4	5	6	7
52. Acknowledge the dangers and risks in online romantic relationships	1	2	3	4	5	6	7
53. Portray online romantic relationships as long-lasting and stable	1	2	3	4	5	6	7
54. Portray people who form online romantic relationships as losers and desperate	1	2	3	4	5	6	7
55. Portray people who form online romantic relationships as madly in love with each other	1	2	3	4	5	6	7

Finally, we need to know a few more things about you. We really appreciate your time!

56. What is your sex? _____ Male (0) ____ Female (1)

57. What is your age? _____

58. With which racial or ethnic group(s) do you identify? [Check all that apply]

____ 0. African-American/Black ____ 3. Native American

____ 1. Asian/Pacific Islander ____ 4. White/Caucasian

____ 2. Hispanic/Latino(a) ____ 5. Other: _____

59 What is your year in college?

____ Freshman (1) _____ Sophomore (2) ____ Junior (3) ____ Senior (4) ___Grad (5)

60. What is your major? _____

61. What is the highest level of education that you expect to attain?

___ Some college; will probably not graduate (0) ___ Law degree (3)

___ College graduate (1) ___ M.D. or Ph.D. (4)

___ Masters degree/MFA (2)

62. What is your current relationship status?

___ Single, not dating (0)
___ Single, casually dating one person (1)
___Single, casually dating different people (2)
___Committed relationship or engaged (3)
___ Married (4)
___ Other (5): _____
(*specify*)

63. In the past, which of the following sources have you relied on to meet potential romantic partners? (check all that apply)

___ Bars/Clubs (0)
___Family (2)
___ Friends (4)
___Internet (1)
___ Work (3)
__Other(5)_____
(*specify*)

Thank you so much for your help!
☺