Does Your Facebook Profile Help You or Harm You? 
Examining the Effect of Information Seeking Strategies on Relational Outcomes in Social Networking Sites

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Abstract

Social networking sites (SNS) are becoming popular platforms for initiating relationships with unknown others, and not just for maintaining online ties with existing friends and family. When initiating relationships, the primary need is to reduce uncertainty about unknown others by getting more information about them. In this study we examined which information seeking strategy was the most effective in reducing uncertainty about people in SNS. We also examined whether using different combinations of information seeking strategies resulted in different levels of uncertainty reduction, and feelings of liking and similarity experienced towards unknown others in SNS. 49 stranger dyads participated in an experiment where they had an online conversation with each other, either before or after accessing their conversation partners’ Facebook profiles. Results indicated a strong interaction effect of time and the combination of information seeking strategies used, on levels of uncertainty, liking and similarity experienced toward conversation partners. Facebook profiles resulted in increased levels of uncertainty reduction, liking and similarity only when the profiles were accessed before having an online conversation with partners. Accessing profiles after the online conversation heightened uncertainty, and reduced liking and similarity. The contradictory role of Facebook profiles on the three relational outcome variables is discussed in the context of uncertainty reduction theory (Berger & Calabrese, 1975), social penetration theory (Altman & Taylor, 1973), Snyder and Swan’s (1978) confirmation bias, and Walther’s (1997) hyperpersonal model. Effective strategies for using SNS for fostering new relationships, as informed by theory and empirical data, are proposed.

Keywords: Social Networking Sites; Facebook; Internet Research; Online Communication; Uncertainty Reduction; Netiquette; Liking; Perceived Similarity.

1. Introduction

The Internet presents an array of opportunities for people to meet others and initiate relationships online (Ellison, Heino, & Gibbs, 2006; Parks & Floyd, 1996; Walther, Van Der Heide, Hamel, &
Schulman, 2009). Meeting people and developing relationships online provides an interesting context for revisiting uncertainty reduction theory (URT) (Berger & Calabrese, 1975). Even though URT was originally formed to explain how strangers get to know each other in face-to-face communication, the theory has also been applied to explain the process of uncertainty reduction that transpires when strangers meet online (Antheunis, Valkenberg, & Peter, 2010; Gibbs, Ellison, & Lai, 2011; Tidwell & Walther, 2002).

According to URT (Berger & Calabrese, 1975), when strangers meet each other face-to-face, their main concern is to reduce uncertainty about each other. The primary way of reducing uncertainty is by information seeking—the more information people have about each other, the more certain they are about each other’s attitudes and behaviors. Berger (1979) claimed that there are three ways to seek information about each other. They are active, passive, and interactive uncertainty reduction strategies (URS). Active URS involve asking third parties about the target person. Passive URS involve unobtrusive observation of the target person preferably in public settings. Lastly, interactive URS involves interacting with the target person. Even though information seeking behaviors between strangers in face-to-face communication has been a widely researched topic (Berber & Kellerman, 1994; Douglas, 1991, 1994; Kellerman & Berger, 1984), none of these studies have compared the three strategies of information seeking with each other to investigate if the uncertainty reduction resulting from the use of one strategy is different from the other. Given that the nature or the process of information seeking that is facilitated by active, passive, and interactive URS is substantially different from each other (Berger, 1979), it should stand to reason that the amount and type of information gained about the target person as a result of using the three strategies should be different as well. This difference in the amount and type of information gained could, in turn, affect the reduction in uncertainty about the target person. This possible difference in the levels of uncertainty reduction as a function of using different URS has not been explored in previous studies in face-to-face communication.

One of the reasons that could explain the lack of research in comparing the three strategies of uncertainty reduction is that much of the research in this area has focused primarily on interactive strategies. This is because, in typical face-to-face encounters between strangers, it is easier and more feasible to implement interactive URS than active or passive URS. Asking the stranger questions and eliciting self-disclosures from him/her is more convenient and leads to more information about the stranger compared to unobtrusively observing the stranger or finding a third party and asking him or her about the stranger. This has ultimately led to the assumption that interactive URS is the most preferred and the most effective strategy for strangers to gain information about each other (Kellerman & Berger, 1984). The relative inconvenience of using active and passive strategies compared to interactive strategies during initial face-to-face conversations could have impeded efforts of comparing the three strategies on their effectiveness in reducing uncertainty.

However, recent trends in online communication, particularly social networking and dating websites like Facebook, Linkedin, and Match.com, have made it possible to overcome these challenges of face-to-face communication. These social networking sites (SNS) have made the use of active and passive URS as convenient as using interactive URS during initial interactions between strangers. In such websites, strangers can (a) directly interact with each other using the private messaging service like instant messaging, (b) unobtrusively glean information by perusing shared
photos and reading personal information provided in their’s partner’s profiles, and (c) find out if they have common friends whom they can talk with to gain information about their partners. Since all the three strategies can be used in such websites, SNS provides a perfect ground for comparing the three strategies to assess which strategy is the most effective in reducing uncertainty between strangers.

The study that has come closest to making this comparison between the three strategies is Antheunis et al’s (2010) study. In their study on URS in SNS, Antheunis et al. (2010) found that interactive URS was the only strategy that was effective in reducing uncertainty between partners. At first glance, these results seem to provide compelling evidence to corroborate the claim that interactive strategies of information seeking are more effective compared to passive and active URS (Berger & Kellerman, 1984; Tidwell & Walther, 2002). However, the methodological flaws of Antheunis et al.’s (2010) study compromise the validity of the claim that interactive strategies are the most effective URS for reducing uncertainty. Therefore, the first aim of the present study is to add to the body of research on uncertainty reduction theory (Berger & Calabrese, 1975; Berger, 1979) by comparing the URS with each other to understand which strategy is the most effective in reducing uncertainty about strangers using proper methodology.

Together with the lack of comparing the effectiveness of the URS on uncertainty reduction, one of the other issues that has been overlooked in previous research is the effect of the sequence or combination of the use of the URS on uncertainty reduction. Studies have shown that people not only use more than one URS to seek information about strangers, (Courtois, Anissa, & Hadewijch, 2012; Gibbs, Ellison, & Lai, 2011), but that the use of the three strategies are significantly correlated with each other (Antheunis et al., 2010). For instance, if person A wants to get to know person B, there are multiple combinations and sequences of URS that person A can use to gain information about person B. Person A can look up person B’s profile (passive URS) and then initiate a conversation with person B over private messaging (interactive URS), or person A can first chat with person B directly over private messaging (interactive URS) and then look up person B’s profile (passive URS). The effect of these possible combinations of URS on uncertainty reduction have not been explored by studies thus far. Therefore, the second aim of this study is to investigate if and how different patterns of information acquisition lead to different levels of uncertainty reduction.

An experimental design was used in this study wherein in one experimental condition, participants were asked to use passive URS followed by interactive URS, and in the other experimental condition participants were asked to use interactive URS followed by passive URS. This study focused on dyadic relationship and since active URS require acknowledgement of third parties which is beyond the purview of dyadic relationships, the study of active URS was excluded from the study. This method of studying two different combinations of using URS helped he understanding of t: (a) the unique effects of interactive and passive URS on uncertainty reduction thus aiding in the analysis of comparing which strategy leads to greater uncertainty reduction, and (b) the effect of the sequence of URS on uncertainty reduction. A summary of Antheunis et al.’s (2010) methodology and interpretation of results is provided to justify the revision of the methodology that was required to make a valid comparison of the two URS on uncertainty reduction. Also, a clear rationale supporting the importance of examining the sequence of URS and its effect on uncertainty reduction is provided. Finally, the role of similarity and social attraction on uncertainty reduction is also investigated.
2. Information Seeking during Initial Interactions in SNS

Antheunis et al. (2010) conducted a survey of approximately 700 users of the Dutch social networking site Hyves to find out about their use of the three URS, and the effect of these strategies on uncertainty reduction and social attraction. They found that participants used all three URS, but passive and interactive URS were the most frequently used. 98.9% of participants used one or more passive strategies, and 83.9% of participants used one or more interactive strategies. They also found significant correlations between the use of active, passive, and interactive URS, and uncertainty reduction. Furthermore, when they regressed interactive, passive, and active URS on uncertainty reduction, only interactive URS surfaced as a significant predictor of uncertainty reduction. Based on this finding, they concluded that looking at someone’s online profile (i.e., using passive URS) or asking a third person about their partners (i.e., using active URS) did not affect uncertainty reduction about the other person. Therefore, the only effective way of reducing uncertainty was using interactive URS.

There are two things that need to be considered before accepting the conclusion from the results of Antheunis et al.’s (2010) study. First, even though passive URS was not found to be a strong predictor of uncertainty reduction as compared to interactive URS, it does not mean that passive URS had no effect on uncertainty reduction. As a matter of fact, Antheunis et al. (2010) found a substantial positive correlation between passive URS and uncertainty reduction, $r(704) = .41$, $p<.01$. Second, a substantial correlation was also found between interactive URS and passive URS, $r(704) = .45$, $p<0.01$, two of the three independent predictor variables in their regression model. Norusis (2008) asserts that, in a regression model, if one independent variable is significantly correlated with another independent variable, then the information contributed by one of the independent variables may already be included. This means that the contribution of passive URS may be included within the contribution of interactive URS which resulted in interactive URS being a stronger predictor of uncertainty reduction. This correlation also suggests that individuals’ use of passive URS was associated with the use of interactive URS. For instance, one of the questions used for measuring interactive URS was, “When being on Hyves, how often have you asked questions to him/her about his/her education or work?”, and one of the questions used for measuring passive URS was, “When being on Hyves, how often have you read his/her weblog?” (Antheunis et al., 2010, p. 104). Given this design, there are two possible explanations for the correlation between interactive URS and passive URS: (a) the participants read about their partners’ work or education from their weblog and then asked them questions about it; or (b) the participants asked about their work or education and then checked their weblog to see if the information was present or consistent or not. Thus, it is possible that passively gained information affected the type and frequency of questions asked during interactions. It is also possible that the information gained during interaction was used to look up relevant information on the profile, which in turn reduced uncertainty. Antheunis et al. (2010) did not account for these possibilities that can show the potential, direct or indirect, effect of passive URS on uncertainty reduction. The present study explored these two possible sequences.
3. Examining the Effect of Passive Information Acquisition on Uncertainty Reduction

3.1 Comparing the Effectiveness of Passive URS with Interactive URS

Several studies have found empirical evidence supporting the claim that passive URS are frequently used by recruiters, online daters, and users of SNS to gather information about potential job candidates, dating partners, and social acquaintances (Antheunis et al., 2010; Berkelaar, 2010; Gibbs et al., 2011). However, these studies only reported the frequency of use of passive URS; they did not provide a measure for the subsequent uncertainty reduction as a result of using these passive URS. Antheunis et al. (2010) attempted to find out the effect of passively gained information on uncertainty reduction. But as previously discussed, the substantial correlation between passive and interactive URS in their study might have influenced the outcome of the effect of passive URS on uncertainty reduction. Therefore, the first task was to examine the exclusive effect of passive URS on uncertainty reduction by separating the effect of interactive URS from it. When comparing the effect of passive URS and interactive URS on uncertainty reduction, it was predicted that interactive URS (i.e., chatting with their partners) would lead to a greater reduction in uncertainty compared to passive URS (i.e., just looking at their partners’ profile and gaining information). This is in accordance with findings from previous research that have shown that interactive URS are most amenable in CMC (Tidwell & Walther, 2002), and strategies like direct questioning and self-disclosures are more effective for gaining information about others compared to just passively observing them (Kellerman & Berger, 1983; Berger & Kellerman, 1984).

H1: Individuals who use interactive URS (directly interact with their partners) report greater uncertainty reduction compared to individuals who use passive URS (gather information by looking at partners profiles).

3.2 Comparing the Effectiveness of Different URS Combinations

Ajzen (1974) claimed that when people are presented with information about another person, they are likely to use that information to get to know the other person better. Based on this claim, it was argued that even though passively gained information by itself may not reduce as much uncertainty as interacting with partners, the information gathered through passive URS would be used in subsequent interactive URS to reduce uncertainty. The effect of prior information on subsequent interaction has not been examined in SNS, but it has found support in research examining interviewing processes (Dipboye, Fontenelle, & Garner, 1984). Dipboye et al. (1984) conducted an experiment in an interview setting to test the effect of previewing candidates’ resumes versus not previewing candidates’ resumes on the interrogation process during interviews. Results showed that the interviewers who previewed candidates’ resumes tended to ask a greater number of follow up questions based on the information given in the resumes. These interviewers also gathered more information about candidates. This means that interviewers probed candidates on information present in the candidates’ resumes to elicit further information. These results can be extrapolated to predict information-seeking behavior in SNS because, previewing a resume followed by interviewing the applicant can be considered analogous to previewing an individual’s online profile followed by interacting with the individual. Even though the profile is more social in nature than a resume (which predominantly serves a more professional purpose), they are similar in a lot of ways. For instance, both resumes and profiles contain biographic and demographic
information, as well as hobbies and interests of individuals. Based on the findings from Dipboye et al. (1984), it can be assumed that when individuals have access to information about their partners from their online profiles, they will use the information gleaned from the profiles as conversation probes to ask them follow-up questions during the initial interactions to gather more information (Jablin & Miller, 1980).

According to Altman and Taylor (1973), profile information in SNS have low or peripheral level of intimacy. This means that people mostly share superficial information about themselves in their online profiles. However, such superficial information when used as conversation probes will elicit further information that will be more intimate in nature. For example, a participant reads in his/her partner's profile that he/she likes ice-cream, and on further probing discovers that his/her partner likes vanilla-flavored ice-cream or finds out that his/her partner's favorite ice-cream store is MSU Dairy. This information gathered after probing will be more intimate in nature compared to the information contained in the profiles. When individuals do not have access to any prior information on which they can probe their partners, they will use the initial interaction to ask questions and gather information about their partners (Altman & Taylor, 1973). Responses to these questions will, in turn, provide grounds for probing which will eventually lead to information that will be greater in intimacy. Therefore, individuals who have access to information prior to chat get a head start in the conversation which helps them gather more intimate information, compared to individuals who do not have access to such information prior to chat. McKenna, Green, and Gleason (2002) asserted that in online relationship formation, having access to relevant information about partners prior to chatting with partners expedites the development of intimacy and closeness compared to when partners get to know each other in more traditional ways, that is, without access to any information about each other prior to chat. Since intimacy is a positive predictor of uncertainty reduction (Berger & Calabrese, 1975), that is, the more intimate information individuals have about partners, the more they can predict partners’ attitudes and behaviors, it was predicted that individuals who would access partners' profiles before interacting with them would report greater uncertainty reduction as a result of having more intimate information about their partners, compared to individuals who would not access their partners’ profiles before interacting with them.

H2: Individuals who use passive URS followed by interactive URS report greater uncertainty reduction compared to individuals who use interactive URS followed by passive URS.

4. Perceived Similarity and URS Use

As mentioned before, individuals provide a lot of information about themselves in their online social networking profiles. However, not all profile information are used as conversational probes. Certain types of profile information have a higher probability of being used as conversational probes than others. Lampe, Ellison, and Steinfield's (2007) analysis of Facebook data indicated that profile elements that help establish common ground between people have a greater probability of being referenced during interactions. According to Lampe et al. (2007), information that suggests commonalities between people (for example, same high school, same hometown, same set of friends, etc.) increases the probability of friendship formation between two unacquainted individuals. Together with common ground, attitudinal similarity (Baron & Byrne, 1971), has been found to affect the choice of conversational probes. Hancock, Toma, and Fenner (2008) conducted a
study on SNS where they found that participants who had access to their partners’ profiles before interacting with them implicitly mentioned information from their partners’ profiles that made them seem more attitudinally similar to their partners. Using such profile information, which increases the feelings of similarity as conversation probes is in accordance with the predictions of URT (Berger & Calabrese, 1975). Specifically, the more one perceives one’s partner to be similar, the more one can accurately predict partner’s attitudes and behaviors. Since similarity is a positive predictor of uncertainty reduction, it makes sense that individuals will use information from profiles that increase the feelings of similarity with their partners in order to reduce uncertainty.

Antheunis et al. (2010) found a strong positive correlation between similarity and uncertainty reduction, which is consistent with the predictions of URT (Berger & Calabrese, 1975). Their results showed that similarity was substantially correlated with interactive URS and passive URS. Thus looking at partners’ profile information and chatting with partners each had a positive association with similarity. In the context of this study, it was interesting to examine if the order in which the strategies used had an effect on perceived similarity between partners. Was the level of perceived similarity going to be different for individuals who found out similarities with partners from their profiles (passive URS) and then used that information to probe further information in the subsequent conversation (interactive URS), compared to individuals who found out about similarities between each other during initial conversation (interactive URS) and then found out additional similarities from their partners’ profiles (passive URS)? Given the lack of empirical evidence and theoretical support in this context, a research question was proposed to investigate the potential order effects of URS on perceived similarity.

RQ1: Do individuals who access partners’ profile information before initial interaction perceive themselves as more similar to their partners compared to individuals who access partner’s profile information after initial interaction?

Antheunis et al. (2010) also found a positive association between uncertainty reduction and social attraction. In other words, the more individuals could predict their partners’ behavior by using different URS, the more they were socially attracted toward their partners. Given that the sequence of URS would affect uncertainty reduction, it should follow that the sequence of URS should also affect the social attraction between partners. Therefore, it was argued that individuals who would use passive URS before interactive URS would like their partners more compared to individuals who would use interactive URS before passive URS. However, since previous studies have not examined the order effect of URS on social attraction, instead of proposing a formal hypothesis, a research question was asked to address the potential relationship between the sequence of URS and subsequent social attraction toward partners.

RQ2: Do individuals who access profile information before initial interaction like their partners more compared to individuals who access partners’ profile information after initial interaction?

4. Method

4.1 Participants and Design
Participants were recruited at a large public university in midwestern United States. The participant characteristics is provided in Table 1. They either received monetary compensation or
extra credit for their participation. The only requirement to participate in the study was that participants needed to have a Facebook profile. The decision to use Facebook as the SNS prototype for this study is threefold. First, the penetration of Facebook is very high in the population from which the sample for the study is acquired. 89% of Facebook users between the ages of 18-29 have Facebook profiles (Pew Report, 2012). Second, the new privacy policy of Facebook allows anybody to look up anyone’s profile and unobtrusively gather information about them (Vangrove, 2013). Moreover, a longitudinal analysis of Facebook data conducted by Stutzman, Gross, and Acquisti (2012) revealed that a significantly high number of users publicly share social as well as personal information about themselves in their Facebook profile. Finally, previous researchers have shown that Facebook profiles serve as an effective source of passively gathering information about unacquainted individuals (Hancock, Toma, & Fenner, 2008; Martin, Jacob, & Gueguen, 2013).

The participation process for the study was divided into two steps. In the first step, the researcher sent out an email to the participants asking for the URL of their public Facebook profiles after making certain temporary changes to the privacy and content of their profiles. Public Facebook profile means the version of one’s Facebook profile that includes information that is considered as public information by Facebook’s privacy policies. For instance, an individual’s name, gender, and, school and work information are considered as public information. Together with these fields, participants were also asked to provide access to the following fields: their current location, hometown, high school, college, work, favorite music, movies, television shows, books, and sports teams. According to Stutzman et al.’s (2012) study, these fields of information have a higher tendency of being shared publicly by a majority of Facebook users. In order to control for the amount and type of information shared, participants were instructed to include at least one choice for the categories of movies, music, television shows, books, and sports teams. After the participants made the required changes to the accessibility of information and emailed their Facebook URL, the researcher took a screen-shot of the profiles and saved the screenshot as a jpeg file in a flash drive to be used later during the experiment. Any extra information captured from the profile was removed from the jpeg file. An example of the screenshot of a Facebook profile is presented in Figure 3. After this, the researcher proceeded to the final step of the recruitment process by sending an online link to the participants where they signed up for a one hour time slot with another person to participate in the experiment.

49 dyads (N=98) were formed, out of which, there were 20 same sex dyads, and 29 opposite sex dyads. After the dyads are formed, they were randomly assigned to one of the two online conversation conditions: chat-then-profile (CTP) or profile-then-chat (PTC). In the CTP condition, participants chatted with their previously unacquainted partner for fifteen minutes and then looked at their Facebook profile. On the other hand, in the PTC condition, participants looked at the Facebook profile of their previously unacquainted partner and then chatted with them for fifteen minutes. For the purposes of this study, looking at partners’ profile information was considered as using passive URS for information seeking, and chatting with partner was considered as interactive URS for information seeking.

Out of the 49 dyads formed, 4 dyads were excluded from the analysis because in two of the dyads, the participants knew each other from before, and in the other two dyads, the participants saw each other in the hall way while waiting for the study before the experiment started. Since the study required the participants to be previously unacquainted with each other as well as visually
anonymous to each other, these 4 dyads were excluded from the analysis to maintain the internal validity of the experiment. In addition to this, one more participant’s record was excluded from the analysis because of a data entry glitch. The final sample size of the study after excluding these cases was N=89, with 43 participants in the CTP condition and 46 participants in the PTC condition.

<table>
<thead>
<tr>
<th>Measures</th>
<th>Chat-then-Profile (CTP)</th>
<th>Profile-then-Chat (PTC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N = 89</td>
<td>43</td>
<td>46</td>
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<tr>
<td>Gender</td>
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<tr>
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<tr>
<td>Dyad Composition</td>
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<tr>
<td>Same-Sex Dyads (MM, FF)</td>
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<td>28 (8,20)</td>
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<tr>
<td>Opposite-Sex Dyads</td>
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<td>22-25</td>
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<td>26-30</td>
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<td>31 and above</td>
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<tr>
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<tr>
<td>Graduate</td>
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4.2 Procedure
All the participants reported individually to the researcher’s office where the researcher greeted them and ushered them to a separate room with a Windows-based laptop in it. The researcher made sure that the participants did not speak to each other or see each other before the start of the experiment. The researcher asked for the participants’ names and then mentioned the name of their conversation partners to check if they knew each other. If the participants indicated that they knew each other prior to the experiment their data were excluded from the study. The participants
then filled out the consent forms and received unique subject ID numbers. After this, the researcher gave them subsequent instructions depending on the experimental condition to which they were assigned.

In both the conditions, PTC and CTP, the researcher told the participants that their task today was to get to know their partner as much as possible. In the PTC condition, after this instruction, the participants were provided with the screen shot of their partner's Facebook profile and were given 3-5 minutes to view the profile. After they had viewed the profile they were instructed to answer the first survey based on the Facebook profile they just saw. Following the survey, the researcher informed the participants that they were now going to engage in a 15 minute online text-based conversation on the chat portal Chatzy.com with the person whose Facebook profile they just viewed, and that their task was the same—to get to know their partner as much as possible. At the end of the chat, the researcher came in and administered the final survey and instructed the participants to fill up the survey based on the profile they saw as well as the conversation they had with their partners. In the CTP condition, similar instructions were provided but the order of the instructions provided was reversed because the sequence followed in this condition was the reverse of the PTC condition. In the CTP condition, the participants chatted with their partners, then took the first survey, following which they looked at each other's Facebook profile, and finally took the second survey.

The first and the second surveys, in both conditions, contained questions that provided measurements for uncertainty reduction, similarity, and liking. Together with these items, the second survey consisted of additional demographic variables. In order to avoid fatigue and order effects that come with repeated items measurement, the ordering of uncertainty reduction, liking, and similarity measurement items was changed for the second survey. The average time for filling up each of the surveys was around 2-3 minutes. The average chat time varied between 15-17 minutes. At the end of the second survey, the participants were ushered back in to the researcher's office and were debriefed about the study. In addition to this, they were also asked to provide their permission to use their chat transcripts for post-conversation analyses.

4.3 Measures
The two experimental conditions, profile-then-chat (PTC), and chat-then-profile (CTP), was coded as a dichotomous variable with condition PTC being coded as 1 and CTP being coded as 0. The gender and dyad composition of participants were also dichotomously coded with males being coded as 0 and females being coded as 1, and same sex dyads being coded as 0 and opposite-sex dyads being coded as 1. Measurements of uncertainty reduction, similarity, and liking were taken twice for individuals in both the experimental conditions. In the PTC condition, the first measurement (time 1) of the above variables was taken after the participants viewed their partners’ profiles, and the second measurement (time 2) was taken after the participants chatted with their partners. In the CTP condition, the first measurement (time 1) of the three variables was taken after the participants chatted with their partners, and the second measurement (time 2) was taken after the participants looked at their partners’ profiles.

Uncertainty Reduction. Antheunis et al.'s (2010) schema of measuring level of uncertainty reduction was used in this study. Four of the five items from the CLUES 7 scale from Clatterbuck (1979): “I can predict very well how this person will behave”, “I can predict very well the things this
person finds important”, “I can predict very well this person’s attitudes”, and “I can predict very well this person’s feelings and emotions.”, together with one item from Kellerman and Reynolds (1990) “I understand this person very well” were used to measure uncertainty reduction. Participants responded on a 7-point Likert type scale ranging from 1(entirely disagree) to 7 (entirely agree) where higher scores indicated greater uncertainty reduction. An average of the responses to the items on this scale provided the aggregate uncertainty reduction score for each participant in the study.

Similarity. Similarity was measured by using the attitudinal homophily dimension from the revised and updated perceived homophily measure proposed by Mccroskey, Mccroskey, and Richmond (2006). The original scale (Mccroskey, Richmond, & Daly, 1975) was revised to increase the reliability estimates of the attitudinal and background homophily dimensions of the scale. Instead of just four items, the new scale has nine items and five reverse coded items that measure attitudinal homophily. Some of the new items include: “This person shares my values”, “This person has a lot in common with me”, “This person has thoughts and ideas that are similar to mine”, “This person expresses attitudes that are different from mine.” All the responses were measured on a 7-point Likert type scale ranging from 1(entirely disagree) to 7 (entirely agree) where higher scores indicated greater similarity. An average of the responses to the items on this scale provided the aggregate similarity score for each participant in the study.

Liking. Interpersonal liking was measured by using six items from the social attraction dimension of Mccroskey and McCain's (1974) interpersonal attraction scale. Sample items included “I think he/she could be a friend of mine.” All the responses were measured on a 7-point Likert type scale ranging from 1(entirely disagree) to 7 (entirely agree) where higher scores indicated greater liking toward partner. An average of the responses to the items on this scale provided the aggregate perceived liking score for each participant in the study.

Separate confirmatory factor analyses including all three measurement scales (uncertainty reduction, liking, and similarity) were conducted for time 1 and time 2. The initial models at times 1 and 2 yielded significant $\chi^2$ values and unacceptably high RMSEA index. Two problematic items were identified and eliminated from the two models. The first item was He/she behaves like me from the similarity scale, and the second item was We could never establish a personal relationship with each other from the liking scale. Eliminating these indicators and running the revised models yielded a non-significant $\chi^2$ for both the measurement models at time 1 and time 2 indicating good model fit. The $\chi^2/df$ for the two models were under the recommended threshold of 2 (Byrne, 1989). The RMSEA, CFI, and TLI indices for both the models satisfied the criteria suggested by Hu and Bentler (1999). The RMSEA was under 0.05, and the CFI and TLI indices were greater than 0.95. Taking all the fit indicators into consideration, the measurement models were judged to be acceptable. The indices are for both models are listed in Table 2.

<table>
<thead>
<tr>
<th>Model</th>
<th>$\chi^2$</th>
<th>$p$</th>
<th>df</th>
<th>$\chi^2/df$</th>
<th>CFI</th>
<th>TLI</th>
<th>RMSEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time 1</td>
<td>73.73</td>
<td>.146</td>
<td>62</td>
<td>1.19</td>
<td>.980</td>
<td>.975</td>
<td>.046</td>
</tr>
<tr>
<td>Time 2</td>
<td>76.93</td>
<td>.096</td>
<td>62</td>
<td>1.24</td>
<td>.978</td>
<td>.972</td>
<td>.052</td>
</tr>
</tbody>
</table>
5. Results

Both the hypotheses proposed in the study dealt with uncertainty reduction. More specifically, the hypotheses predicted how the use of different types of URS as well as the different sequence of using these URS would impact the reduction of uncertainty in computer-mediated communication. The first hypothesis predicted that using interactive URS would lead to greater uncertainty reduction compared to using passive URS. The second hypothesis predicted that the sequence of using passive URS followed by interactive URS would lead to greater uncertainty reduction compared to the sequence of using interactive followed by passive URS.

5.1 Hypothesis 1
The first hypothesis was assessed using univariate analysis of variance, with uncertainty reduction score at time 1 as the dependent variable and the condition type (CTP and PTC), gender (0 = male, 1 = female), dyad composition (0 = same sex, 1 = opposite sex), and age of participants as the independent variables. The analysis showed that the uncertainty reduction reported by participants in the CTP condition was significantly different from participants in the PTC condition (see Table 3 and Fig. 1). As predicted, participants in the CTP condition (n = 43) reported greater uncertainty reduction after using interactive URS, i.e., by chatting with their partners (M = 4.4, SD = 1.18) compared to participants in the PTC condition who used passive URS by looking at their partners' Facebook profile (n = 46; M = 3.64, SD = 1.25), F(1, 82) = 27.43, p<.001, $r^2 = .25$. Thus, hypothesis 1 was supported. No significant effects of dyad composition, age, and gender of participants were found.

5.2 Hypothesis 2
The second hypothesis was also assessed using univariate analysis of variance, with uncertainty reduction score at time 2 as the dependent variable and the condition type (CTP and PTC), gender and dyad composition as the independent variables. The analysis showed that the difference in uncertainty reduction scores reported by participants in the CTP condition and PTC condition approached statistical significance, F(1,82) = 3.87, p = 0.052, $r^2 = .045$. The uncertainty reduction score reported by participants in the PTC condition at time 2, (M = 4.11, SD = 1.14), was greater than the uncertainty reduction reported by participants in the CTP condition at time 2 (M = 3.91, SD = 1.15), but it did not reach statistical significance. Since the uncertainty reduction score at time 2 for PTC condition was not significantly greater than the uncertainty reduction score at time 2 for CTP condition, hypothesis 2 was not confirmed (see Table 3 and Fig. 1). No significant effects of dyad composition, age, and gender of participants were found.

Even though the final uncertainty reduction scores (of time 2) did not significantly differ, a repeated measures analysis of variance revealed an interesting trend in the uncertainty reduction scores across the two conditions. In the repeated measures analysis of variance, participants’ uncertainty reduction scores at times 1 and 2 were entered as the within subjects factor, and the experimental condition (PTC and CTP), together with dyad composition, gender and age of participants were entered as the between subjects factor. The analysis revealed a partially significant main effect for time (F(1,82) = 3.82, p = .054), a significant main effect of condition type, (F(1, 82) = 4.33, p<.05, $r^2 = .05$), and a large interaction effect between time and condition type (F(1,82) = 56.46, p<.001, $r^2 = .41$). This interaction effect suggested that the uncertainty reduction of participants in CTP and PTC condition changed over time, but they changed in different ways (see Fig. 4). A
paired-sample t test comparing the uncertainty reduction scores at time 1 and time 2 within each experimental condition, PTC and CTP, revealed that the uncertainty reduction scores significantly changed across time 1 and time 2 in CTP condition, t(42) = -3.19, p<.05, as well as the PTC condition, t(45) = 7.09, p<.001, but the direction of change of uncertainty reduction scores was opposite for CTP and PTC conditions. On average, participants in the CTP condition reported higher uncertainty reduction at time 1 (M = 4.4, SD = 1.18) and lesser uncertainty reduction at time 2 (M = 3.91, SD = 1.15). In other words, participants in the CTP condition became more uncertain (i.e., decreased predictability) about their partners overtime. On the other hand, participants in the PTC condition reported lower uncertainty reduction at time 1 (M = 2.93, SD = 1.25) and higher uncertainty reduction at time 2 (M = 4.31, SD = 1.14). In other words, participants in the CTP condition became more certain (i.e., increased predictability) about their partners overtime. Thus, the interaction effect of time and experimental condition together with the results from the paired sample t-test revealed that participants in the PTC condition reported greater uncertainty reduction in time 2 compared to time 1, whereas, participants in the CTP condition reported a lower uncertainty reduction in time 2 compared to time 1.

Table 3 Mean and Standard Deviations of Uncertainty Reduction, Similarity, and Liking scores for time 1 and time 2 in two conditions PTC and CTP

<table>
<thead>
<tr>
<th></th>
<th>Profile-then-Chat(PTC)</th>
<th>Chat-then-Profile(CTP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Time 1</td>
<td>Time 2</td>
</tr>
<tr>
<td>Unc. Redn.</td>
<td>M (SD)</td>
<td>M (SD)</td>
</tr>
<tr>
<td>Similarity</td>
<td>2.93 (.25)</td>
<td>4.31(1.14)</td>
</tr>
<tr>
<td>Liking</td>
<td>3.95 (.99)</td>
<td>4.24 (.99)</td>
</tr>
<tr>
<td></td>
<td>4.89 (.84)</td>
<td>5.11 (1.01)</td>
</tr>
</tbody>
</table>

Note: Unc. Redn. = Uncertainty Reduction

5.3 Research Questions 1 and 2
Finally, the two research questions were directed toward the differences in liking and perceived similarity scores of participants across the two experimental conditions and the extent to which liking and perceived similarity toward partner changed across time within both the experimental condition. Two separate repeated measures analysis of variance tests for liking and similarity were conducted with experimental condition (CTP and PTC) as the between-subjects factor, and the time of measurement (time 1 and time 2) of liking and similarity as the within-participant factor. For liking, the main effect of time was statistically significant, F(1,82) = 4.01, p<.05, \( \eta^2 = .047 \). However, the main effect of condition type (CTP and PTC) was not statistically significant, F(1,82) = .37, p = .546. The interaction effect of time and condition type, on the other hand, was found to be statistically significant, F(1,82) = 34.31, p<.001, \( \eta^2 = .30 \). In case of similarity, both the main effect of time, F(1,82) = 2.38, p = .127, and the main effect of condition type were not statistically significant, F(1,82) = 1.06, p = .31. However, the interaction effect of time and condition type was significant, F(1,82) = 15.31, p<.001, \( \eta^2 = .16 \). In other words, both liking and similarity increased from time 1 to time 2 for participants in the PTC condition. However, both liking and similarity decreased from time 1 to time 2 for participants in the CTP condition (see Table 3, Fig. 5, and Fig. 6).

A paired sample t-test was conducted comparing liking and similarity scores at time 1 and time 2 in both the PTC and CTP condition. Liking score for participants in the PTC condition at time 2 (M =
5.11, $SD = 1.01$) compared to time 1 ($M = 4.89, SD = .84$) was significantly higher, $t(45) = 5.83, p < 0.001$. Similarly, the perceived similarity score for participants in the PTC condition at time 2 ($M = 4.24, SD = .99$) compared to time 1 ($M = 3.95, SD = .99$) was significantly higher as well, $t(45) = 4.67, p < 0.001$. On the other hand, for participants in the CTP condition, only the liking scores between time 1 ($M = 5.13, SD = 1.13$) and time 2 ($M = 4.91, SD = 1.13$) were significantly different, $t(42) = -2.42, p < 0.05$; the scores on similarity did not show a significant difference between time 1 ($M = 4.16, SD = 1.11$) and time 2 ($M = 4.12, SD = 1.04$), $t(42) = -0.34, p = .736$. The important difference to be noted here is that, while the liking scores between time 1 and time 2 significantly differed in both PTC and CTP condition, the direction of change was opposite for PTC and CTP participants. While PTC participants reported a higher liking value at time 2, CTP participants reported a lower liking value at time 2 compared to time 1 (see Table 3, Figure 2, and Figure 3).

**Fig. 1.** Mean scores of uncertainty reduction for time 1 (blue bar) and time 2 (green bar) for both conditions CTP and PTC. Standard errors are represented in the figure by the error bar attached to each column.
Fig. 2. Mean scores of similarity for time 1 (blue bar) and time 2 (green bar) for both conditions CTP and PTC. Standard errors are represented in the figure by the error bar attached to each column.

Fig. 3. Mean scores of liking for time 1 (blue bar) and time 2 (green bar) for both conditions CTP and PTC. Standard errors are represented in the figure by the error bar attached to each column.
Fig. 4. Interaction effect of time and experimental condition on uncertainty reduction.

Fig. 5. Interaction effect of time and experimental condition on similarity.
6. Discussion

The first aim of the study was to compare the effectiveness of different URS in reducing uncertainty. Most of the prior studies that have made such a comparison between the different URS have used survey-based research design where the researchers have asked the participants close-ended questions (Antheunis et al., 2010) or open-ended reflexive questions (Emmers & Canary, 1996) about their level of uncertainty toward their partners after employing these URS, and most of these studies have been situated in face-to-face settings. This is the first study that compared the effectiveness of passive and interactive URS in reducing uncertainty between previously unacquainted individuals in a computer-mediated environment using an experimental design. For the purposes of this study, gaining information about another person through their Facebook profiles was considered as using passive URS for information seeking, and having an online real-time textual conversation with the other person was considered as using interactive URS for information-seeking. Consistent with previous research, it was found that individuals who used only interactive URS (i.e., had an actual conversation with their partners) reported greater uncertainty reduction about their partners compared to individuals who only used passive URS (i.e., passively looked up information about their partners from their Facebook profiles). The greater potency of interactive URS for reducing uncertainty can be attributable to the greater control that interactive URS provide on the information-seeking process compared to passive URS (Berger, 1979). When individuals use passive URS, they have less control over the information-seeking process because, they can only gain the amount and type of information that the other person voluntarily provides. On the other hand, when individuals use interactive URS, they are in control of the conversation where they can decide the type of questions to ask or disclosures to make to elicit certain information from the target persons to get to know them better.
The second aim of this study was to investigate if the sequence in which the URS used would affect the overall uncertainty reduction levels during initial encounters between previously unacquainted individuals. In order to examine the order effects of passive and interactive URS, an experimental manipulation was done whereby which, in one experimental condition, participants were asked to use passive URS followed by interactive URS (PTC), and in the other experimental condition, participants were asked to use interactive URS followed by passive URS (CTP). It was hypothesized that individuals who would chat with their partners after viewing their Facebook profiles would get to know their partners better than individuals who would chat with their partners before viewing their Facebook profiles. This hypothesis received partial support. Results showed that individuals who looked at their partners’ Facebook profiles and then chatted with them reported a higher uncertainty reduction score indicating that they could predict their partners’ attitudes and emotions better as well as understood their partners better compared to individuals who straight away chatted with their partners before looking at their Facebook profiles.

There could be two possible explanations for the greater reduction in uncertainty that resulted from the first sequence of URS use (PTC) compared to the second sequence (CTP). First, individuals who viewed their partners’ Facebook profiles gained some impersonal information about their partners before chatting with them. This impersonal information, in and by itself, might not have reduced uncertainty about their partners (as is exhibited by the first hypothesis), but this information provided grounds on which individuals could probe their partners to elicit further information. Probing of this nature could have led to deeper disclosures and exchange of information higher in intimacy from their partners. Since such informational probes were not available to individuals who had a conversation with their partners without looking at their Facebook profiles, their conversations might have been restricted to peripheral and superficial topics of discussion without getting an opportunity to probe deeper into these topics during initial interactions. Thus, Facebook profile information before chat provided means for developing intimacy between partners at a faster rate (McKenna, Green, & Gleason, 2002) that ultimately led to greater predictability and certainty about partners in the PTC condition compared to the CTP condition.

There could be an alternate explanation for the greater level of uncertainty reduction resulting from looking at Facebook profiles before chatting with partners versus after chatting with them. Extant literature on SNS (SNS) have established the fact that people infer personality characteristics and form impressions of others based on the information left in their social networking profiles (Antheunis & Schouten, 2011; Gaddis, Gosling, & Vazire, 2007; Utz, 2010; Walther, Van Der Heidi, Hamel, & Schulman, 2009; Walther, Van Der Heidi, Kim, Westerman, & Tong, 2008). Thus, it can be assumed that individuals in the present study also formed impressions about their partners based on their Facebook profiles. According to Snyder and Swann (1978), once an individual has formed an impression about someone, he/she will use subsequent interactions to ask questions that confirm the initial impression he/she had about the other person. This proclivity of seeking information so as to support and confirm pre-existing impressions about others has been referred to as confirmation bias. Thus, it can be contended that individuals who looked at their partners’ Facebook profiles before chatting with them were susceptible to this type of confirmation bias during their initial interactions with their partners. As a result of this, individuals could have purposefully selected certain lines of conversation based on known topics from the profiles that confirmed their prior impressions, which in turn, increased their confidence in predicting the
attitudes and emotions of their partners. On the other hand, individuals who looked at their partners’ profiles after chatting with them also formed impressions about their partners, but given that they could not chat with them afterwards deprived them of the opportunity to confirm their impressions. This could have led to lower levels of uncertainty reduction.

Confirmation bias could also explain the opposite trends of uncertainty reduction across the PTC and the CTP conditions. Results showed that individuals in the PTC condition who only viewed their partners’ Facebook profile at time 1 reported a much lower uncertainty reduction score compared to individuals in the CTP condition who chatted with their partners. However, at time 2, the individuals in the PTC condition who chatted with their partners after looking at their Facebook profile reported a higher uncertainty reduction score compared to participants in the CTP condition. Moreover, participants in the CTP condition reported a decrease in the level of certainty, from time 1 to time 2, i.e., they got more uncertain about their partners when they viewed their profiles after the conversation.

This contradictory effect of passively gained information from Facebook profiles on uncertainty reduction can be explained through the theoretical framework of impression formation and exposure to conflicting information. As discussed earlier, after viewing someone’s Facebook profile, individuals form an impression about that person. In the PTC condition where participants chatted with their partners after viewing their profile, they used the initial interaction to confirm the impression they had formed about their partners prior to the interaction (Snyder & Swann, 1978). Thus the information gained from the Facebook profile and the information gained from the chat session converged which increased the level of certainty that individuals felt toward their partners. On the other hand, in the CTP condition, when individuals chatted with each other first, they formed an impression about their partners based on the conversation they had with them. After the conversation, when they viewed their partners’ Facebook profile, the information contained in the profile may or may not have converged with the impression they had formed during the chat session. If it had converged then they would have reported an equal or higher level of uncertainty reduction. However, given that they had reported lower levels of uncertainty reduction, it can be deduced that the information gained from the Facebook profiles might have led to an impression about their partners, which was in conflict with the impression they had formed about their partners after chatting with them. This conflicting information could have led to a sense of ambiguity and confusion that ultimately increased their levels of uncertainty. This finding has a major implication on uncertainty reduction theory (Berger & Calabrese, 1975), because unlike the core tenet of the theory, which proposes that more information equates more certainty, the finding from this study suggests that it is important to understand if the information gained has a confirming or disconfirming effect on the pre-existing impression that individuals have about others.

Lastly, the two research questions concerned if the amount of liking and similarity participants felt toward their partners varied as a function of the sequence of URS use. Results indicated that participants who viewed their partners’ Facebook profiles before chatting with them reported a higher degree of liking and similarity with their partners across time. On the contrary, feelings of liking and similarity decreased with time for participants who viewed their partners’ profile after chatting with them. Higher levels of liking and similarity in the PTC condition can be explained by elaborating on the confirmation bias proposed by Snyder and Swann (1978). When individuals are
aware of certain topics on which they are similar and compatible with each other by perusing their partners’ Facebook profile, they tend to navigate their conversation in such a way so as to talk about those known and similar topics instead of talking about random unambiguous topics (Finkel, Eastwick, Karney, Rice, & Sprecher, 2012). Discussing similar topics and probing on such information as a result of confirmation bias might have inflated the feelings of similarity and liking toward their partners in the PTC condition. On the other hand, the deteriorating level of liking and similarity in the CTP condition can be explained by Walther’s (1997) hyperpersonal model. According to this model, when individuals interact with each other in computer-mediated environments which are bereft of social cues, they tend to form over-exaggerated attributions about each other. These overattributions often relate to inflated feelings of similarity and liking toward each other. The boundary condition of this model is that such attributions are formed and maintained only in the absence of contradictory information. Thus, given that individuals had reported lower level of liking and similarity after viewing their partners’ Facebook profile, it can be argued that their partners’ Facebook profile might have acted as a source of contradictory information which negated such over attributions which in turn dampened feelings of similarity and liking that they felt toward their partners. Moreover, since liking and similarity have been shown to be positive predictors of uncertainty reduction, the fact that uncertainty reduction about their partners decreased can also be attributed to the deteriorated feelings of liking and similarity toward their partners as a result of viewing their Facebook profiles after chatting with them.

In conclusion, based on the empirical evidence and the theoretical underpinnings of the same, certain practices for using SNS as an effective tool for initiating relationships are proposed. First, SNS users must remember that gleaning a large body of information from new acquaintance’s social networking profiles does not necessarily help them in knowing the person. Information is only advantageous when utilized. This brings us to the second practice—using information from profiles in initial conversations with new acquaintances so that it can lead to favorable outcomes. Knowledge about the other person from social networking profiles can help guide the conversation in terms of common interests, help in probing on the superficial information available in profiles which could lead to more intimate topics, and also help avoid awkward conversation pauses that are a common occurrence during initial conversations with an unknown other. Guiding conversations in these ways can also foster feelings of similarity and liking, thus leading to more fruitful relationships. Finally, if SNS users access or “stalk” their acquaintances’ profiles after having a conversation with them, and find some information that is dissonant with their impressions of their acquaintances, they should address those issues. This can be done either explicitly by mentioning to their acquaintances that they looked up their profiles and found something that does not match their impression of them, or they can surreptitiously introduce those issues in the conversation, similar to the strategy adopted by the participants in the Hancock et al. (2008) study. Doing this will help users gain more confidence in their attributions of their acquaintances which will eventually lead to favorable relational outcomes with them.

7. Limitations and Future Directions

One of the procedural limitations of the present study is that in the PTC condition no specific instructions were given regarding whether the Facebook profile screen shot should be kept open or closed during the interaction. Even though the lack of these instructions compromises a clear delineation of the source of information based on which the participants reported their final
uncertainty reduction score, not telling the participants if they could have the profile page closed or open made the set-up of the study more realistic. This is because, in real life, users of SNS can choose to or not choose to keep the profiles of their chat partners open, and it depends on individual jurisdiction which option they choose to go for.

Furthermore, the present study was conducted using an experimental design. Therefore, a number of components were controlled to preserve the external validity of the study. For instance, the operational definition of passive URS was restricted to viewing information from the “About Me” section of the Facebook profile. Photos, videos, and interactive information (e.g., the Timeline) were excluded to control for the variability that is inherent among these sources of information. Future research should extend the definition of passive URS to include such information to increase the generalizability of the study’s results. In addition to this, future studies should include measurements of impression formation and the intimacy of information exchanged in the surveys administered that were not present in the present study to validate the explanations put forth for the hypotheses of the study. These measurements will be able to validate if the uncertainty reduction, liking, and similarity resulting from seeing profiles before chatting with partners is a result of the intimacy of information exchanged or the confirmation of impressions formed, or both.

References


