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Using Facebook to Elicit Spontaneous Trait Inferences

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Even without conscious identity, observers can form impressions of individuals based on observing the individual's behavior. Research has shown that people can form impressions of others by viewing environmental information (Gosling, Ko, Mannarelli, & Morris, 2002). However, research has not examined whether non-behavioral, environmentally-cued impressions form spontaneously, as they do from behavior-cued impressions. One such non-behavioral source of information that observers may use to form impressions of others is a Facebook profile. In this study, college students viewed mock Facebook profiles that implied various personality traits. After viewing the profiles, participants completed filler tasks which degraded memory for specific details of the Facebook profiles. Participants then rated personality traits of each person whose photo accompanied each profile. Ratings were substantially increased on those traits implied by the information contained on the mock Facebook profiles. Moreover, because participants were not instructed to form impressions, these impressions emerged spontaneously. This supports the contention that perceivers often make spontaneous trait inferences about others and that such inferences can be prompted by non-behavioral information.

Keywords: social networking, spontaneous trait inferences, personality traits

Over the past decade, online social networking websites have become increasingly popular. Facebook, among the largest of the social networking websites, allows users to create their own online profiles. Those designated by a profile owner as Facebook friends have full access to these profiles. Profiles may include links to other websites, photographs, and messages. Thus, a Facebook profile is a rich source of personal information from which perceivers could potentially form impressions of a profile's owner. One as-yet unexamined area of research is whether or not people will form dispositional inferences about others even when the perceivers do not have a goal to form such inferences.

Past research has demonstrated that people can form trait impressions from personal websites when instructed to do so. For example, Vazire and Gosling (2004) instructed participants to use the content of the websites to rate personalities of personal webpage owners. The webpage owners also had the opportunity to rate themselves on specific personality traits (i.e., extraversion, agreeableness, conscientiousness, emotional stability, and openness to experience). Results showed that website viewers reported trait impressions of website owners, and that these impressions positively correlated with the owner's self-reported personality profile (Vazire & Gosling, 2004). This demonstrates that inferences can be fairly accurate when prompted. However, these results are silent as to whether or not viewers will form impressions of a personal webpage owner when uninstructed to do so. In other words, would viewers spontaneously form impressions of webpage owners if given the opportunity?

There is good reason to believe that people may form impressions of others spontaneously based on the content of a personal webpage or, as in the current experiment, a Facebook profile. Much of the extant research has detected spontaneous trait inferences (STIs) elicited by observations of behaviors or by descriptions of behaviors (e.g., Carlston & Skowronski, 1994). Inferences are defined as spontaneous if the inferences are not driven by conscious goals (e.g., as directed by experimental instructions) and people are

unaware of their intentions to make such inferences. People can also be unaware of the inference itself (Uleman, 1989). Carlston and Skowronski (2005) add that spontaneous inferences reflect judgments that are made about actors, and are not simply interpretations of behaviors that become associated with actors (as suggested by Bassili, 1989). Indeed, Carlston, Skowronski, and their associates have conducted an extensive series of studies designed to show that STIs have different psychological properties than associations (e.g., Crawford, Skowronski, Stiff, & Scherer, 2007).

For example, in conditions in which photographs of people (i.e., actors) are paired with trait-implicative behavior descriptions, perceivers will make inferences about the actors. These inferences are then encoded as a property of the actors. Results from trait rating studies have reliably shown that these inferences are about the actors' dispositions and are not merely actor-trait associations (e.g., Crawford, Skowronski, Stiff, & Scherer, 2007; Wells, Skowronski, Crawford, Scherer, & Carlston, 2011). A typical finding is that participants rate actors high on traits implied by behavioral descriptions that were previously paired with the actors, especially when the behavior was thought to be performed by the actor (as opposed to simply being randomly paired with the actor). Other characteristics of inference making are that perceivers will also provide: (a) slightly elevated trait ratings on other traits that are the same valence as the trait implied by the behavior previously paired with the actor, and (b) slightly lower ratings for traits that are the opposite valence of the behaviors paired with the actors.

Other evidence suggesting that these inferences are about actors' dispositions comes from research on behavior predictions (e.g., McCarthy & Skowronski, 2011a). This research shows that when participants are presented with actors paired with self-described behaviors, they will predict that the actors will also perform other, associated behaviors. These predictions occur even if participants are not instructed to form impressions of the actors, and even emerge in the absence of explicit recall for the behavioral information on which the inferences are based. Thus, in addition to implying that social perceivers can form spontaneous impressions of others traits, such results also imply that these impressions can exert a measurable influence in the absence of conscious awareness (e.g., McCarthy & Skowronski, 2011b).

Moreover, the results of these and many other laboratory studies suggest that spontaneous inference-making is ubiquitous (for overviews, see Uleman, Newman, & Moskowitz, 1996; Uleman, Saribay, & Gonzalez, 2008). Uleman et al. (1996) summarize this research-based conclusion quite forcefully when they write: "We are inveterate interpreters, habitually and routinely scanning the world around us and reading its meanings as naturally as we extract oxygen from the air" (p. 212).

However, one characteristic of the research demonstrating STIs that has been conducted so far is that it lacks mundane realism, which potentially limits its external validity. For example, in their research, Carlston and Skowronski (1994) provide a series of trials in which photos are paired with behavior descriptions—hardly the kind of presentation that one encounters often in a real world context. This is not the case in the present research. Our research employs more Facebook profiles, a type of stimulus that people encounter quite often in the real world. Hence, evidence of spontaneous inference-making using such stimuli would suggest that the data collected so far with respect to spontaneous inference-making is not simply a laboratory phenomenon, but instead, extends into real-world contexts.

Addressing the external validity of past STI research is not the only aim of the current study. It is also our goal to demonstrate that trait inference eliciting stimuli are not limited to behavioral information but could be any stimulus that provides information about an actor's characteristics. Given that past research has shown that people can infer trait information about others from their personal webpages when instructed to do so, it seems sensible that these same webpages might also prompt the generation of STIs.

To test these possibilities, we first developed stimuli that imply Facebook profile owners possess specific traits. This was accomplished by creating mock Facebook pages and pre-testing these pages for their trait-implicativeness using participants that intentionally formed impressions of the ostensible Facebook profile owners. We then used these trait-implicative mock Facebook profiles in our study.

Specifically, participants in our study saw these created Facebook profiles but were not instructed to form impressions of the ostensible profile owners. Later, participants rated the persons shown as the profile owners on different traits. Given the reasoning described in the paragraphs above, we expected the Facebook profiles to elicit trait inferences. This would be reflected in participants' trait ratings: The profile owners should be given especially high ratings on traits implied by the Facebook profiles.

We also took the experiment one step further. One hallmark of impressions is that people that attribute a trait to a person also believe the person is likely to have other similar traits and are unlikely to have other non-similar traits (e.g., Carlston & Skowronski, 2005). Such results are referred to as halo effects. For example, suppose that a person believes another person is honest, and provides a high rating on the trait scale assessing "honesty." Given this rating, one would also expect the rater to believe the other person is also "smart" and not "mean," and to provide trait ratings of the actor that reflect these perceptions. Typically, these halo effects (e.g., the heightened ratings for "smart" and lowered ratings for "mean") are considerably muted when compared to the ratings given to the actor on the implied trait (e.g., the rating for "honest").

It is important to keep in mind that our study does not test whether or not people spontaneously form accurate impressions of "real" Facebook profiles. Although this seems like a sensible hypothesis (and for evidence on this point, see Kluemper & Rosen, 2009; Kluemper, Rosen, & Mossholder, 2012), our aim is to demonstrate that such Facebook-elicited inferences can occur spontaneously. Thus, we decided to test our hypotheses in a laboratory setting with Facebook profiles for which we could control the content. If the hypotheses of the current study are supported, then it would be a logical next step to test whether or not real-world Facebook profiles elicit STIs. These possibilities are discussed in further detail in the discussion section.

Method

Participants

Eighty-eight undergraduate students participated in the study. There were 45 male (51%) and 43 female (49%) paricipants, and the median age was 19 years. They were recruited through the Northern Illinois University psychology subject pool and were compensated with credit towards fulfillment of a course research requirement.

Materials

The personal profiles used in this study were modeled after the social networking website Facebook. These profiles were created using Adobe Photoshop and were meant to closely resemble real Facebook profiles (see Figure 1). It should be noted that our stimuli were modeled after the appearance of Facebook profiles at the time of data collection; Facebook has since changed the appearance of owners' profiles.

The pages were created so that they could plausibly belong to either a male or a female. The mock Facebook pages included a space in which a male photograph or a female photograph could be inserted. This space can be seen in the upper-left corner in Figure 1. In the actual experiment, photographs inserted into these spaces were randomly selected for each participant.

For this study, the mock Facebook profiles contained sections possessing specific information. Each page stated that each person was from Chicago and attended Northern Illinois University, graduating in 2009. This information was included to add to the realism of each profile, but was also intended to be relatively non-diagnostic with regard to a profile owner's personality. The following information on each page was unique to an owner's profile: the owner's hobbies, music selection, books, quotes, and "bumper stickers." Each profile was customized to imply that the supposed owner had a specific disposition (e.g., lazy, honest, nice, etc.). For example, the profile in Figure 1 was intended to imply that the owner is a creative person. Cues to this trait are the icon stating that "without music there is no life" and the listed hobbies: art, sculpture, collage, and photography.

Twenty-four profiles were created and pretested to verify that each implied the intended trait. Nineteen students enrolled in a summer session research methods course participated in the pretest and were compensated with course credit. The pretesting was done on a computer using Direct RT software. After

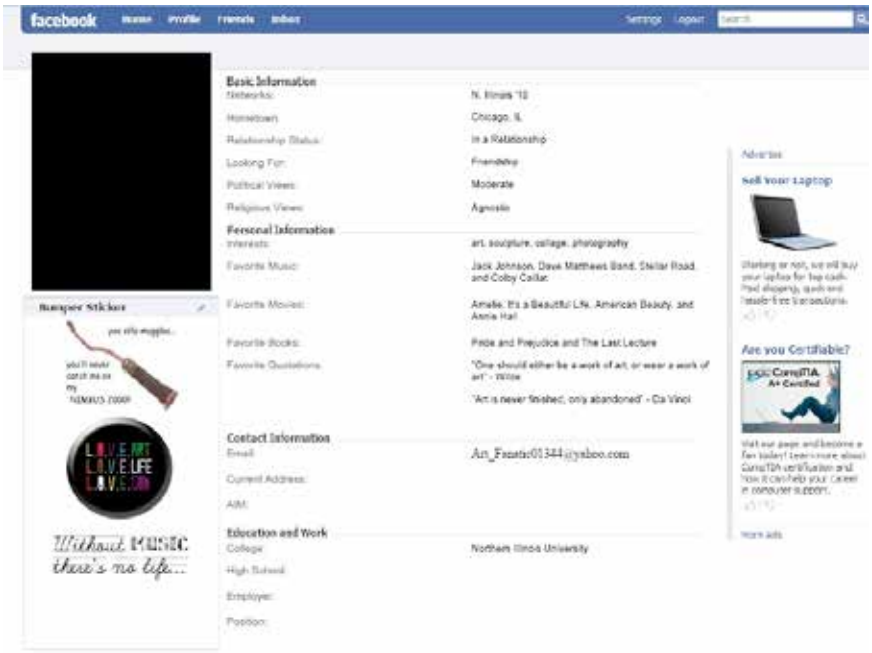

Figure 1. Example of Facebook profile used as stimuli. Photographs were shown in the black square in the upper-right of the profile.

consenting to participate, participants were told that they were going to rate the likelihood that an owner of a given Facebook profile would possess a given trait. The 24 Facebook profiles appeared one at a time on the upper half of a computer screen, and a trait word appeared on the lower half of the screen. Participants rated how well the trait described the owner by choosing a response from a response scale. The scale presented response options from 1 (not at all) to 7 (very much).

It is important to note that there were no photographs of owners appearing with the profiles during pretesting. This ensures the ratings that were provided during pretesting reflected only how much the content of the profiles implied the target trait. During the actual study (described below), photographs were randomly paired with profiles. Therefore, if any of the photographs that were shown during the study elicited an appearance-based trait inference, such inferences would be considered random error. In other words, only the trait content of the profiles could systematically affect trait inferences.

Of those 24 profiles, 12 were selected for our study, each having been rated highly on the trait intended to be implied by its corresponding Facebook profile. Six of these profiles implied positive traits (adventurous, creative, funny, social, intelligent, and dedicated), and six implied negative traits (arrogant, impatient, lazy, mean, nosy, and selfish). These traits were also thought to be semantically discrete from each other. In other words, no two stimuli were thought to imply the same trait, nor to imply traits that were synonymous. Past STI research similarly avoids semantic redundancy in the traits implied by the stimuli employed in a given experiment.

Procedure

After consenting to participate, each participant was brought into the laboratory and seated at a computer. A research assistant opened the Direct RT computer program, assigned each participant a participant number, and began the study.

Participants were told to follow the instructions presented on the computer screen. Participants were told they would be shown some stimuli. Participants were instructed to attend to the screen and familiarize themselves with the type of materials that would be

used in the experiment. Importantly, no instructions were provided instructing subjects to form impressions of the supposed owner of each Facebook profile (cf. Carlston & Skowronski, 1994; McCarthy & Skowronski, 2011a):

> "You will be shown a series of photographs paired with the people talking about themselves. Look at each photograph and read the behavioral description in order to familiarize yourself with the types of materials that will be presented in the experiment."

Because these instructions do not explicitly instruct participants to form impressions, any impressions reported by participants must have been generated spontaneously.

After receiving these instructions, participants then proceeded to press a key to advance to the next screen. At this time, participants were exposed to the 12 mock Facebook profiles. The order in which the Facebook profiles were presented was randomly determined at the time the experiment was programmed. Each participant saw the same random order of presentation.

During this presentation the computer randomly paired a photograph with each profile; these pairings were different for each participant. The photographs were selected from a pool of over 200 photographs. This pool contained approximately the same number of males and female photos, contained photographs of people of various ages, and contained photos of people of various ethnicities. Each photo and profile remained on the screen for 30 seconds. (In a pilot test, a research assistant, who was naïve to the study, ensured that 30 seconds was enough time to read the content of each page.) This continued until the participants saw all 12 Facebook profiles, each accompanied by a photograph.

Once this presentation was complete, the following message appeared on the computer screen:

> "You will be shown a series of words. You will have one second to decide if the word is a place or a thing. Press the "Z" button if it is a place and press the "/" button if it is a thing. Press any key to begin."

Once the participant finished this task, another instruction screen appeared:

> "You will be shown a series of words that are spelled backwards. Some of the words are colors and some are foods. Press the "Z" button if it is a color and press the "/" button if it is a food. Press any key to begin."

Both of the tasks described above were designed to degrade memory for the specific details of the Facebook pages. The amount of time (~10 minutes) that these tasks took to complete ensured that memory for the details of the Facebook should have passed from working memory. This makes it unlikely that the trait ratings reported by the participants were made by recalling the page details instead of using the trait inference made at encoding (see Carlston & Skowronski, 1994, for relevant evidence).

On completion of these filler tasks, the participant received the following instructions:

> "You will now be shown the photographs from earlier. Your task now is to decide how well each person is described by various traits by pressing a number between 1 and 7. A 1 means that you do not think the trait describes the person at all. A 7 means that the person is described by the trait very well. Press any key to begin."

The keyboard also contained labels with the 1 and 7 keys shown with the anchors "not at all" and "very well."

On each trial of this task, a photograph appeared in the upper half of the computer screen and a trait word appeared in the lower half. Each photograph appeared three separate times, each time appearing with a different trait word. The 12 photographs were each rated on three traits by the participants: the trait that was implied by the profile (i.e., trait-consistent), a trait that was the same valence as the implied trait (i.e., valence-consistent), and a trait that was the opposite valence of the implied trait (i.e., valence-inconsistent; see Carlston & Skowronski, 2005, for other STI research using this paradigm).

The specific photograph-trait pairing determined

if the subsequent rating was a trait-consistent, valence-consistent, or valence-inconsistent trial. The designation of a given trial using this trait word depended on the implications of the Facebook profile that was paired with the photograph. That is, creative would be a trait-consistent trial if the photograph previously paired with a profile that actually implied the owner was creative. However, creative could also appear as a valence-consistent trait (e.g., if the actor was originally paired with a profile implying honesty) or as a valence-inconsistent trait (e,.g., if the actor was originally paired with a profile implying meanness) on other trials.

During this rating task, 12 new randomly selected photographs were also rated on each of 12 traits; one of these traits was always implied by one of the Facebook profiles. These 12 photographs did not appear with a Facebook profile earlier in the study; thus, ratings for these photographs indicate how much of the trait an actor is perceived to have in the absence of any profile information. Thus, the trait ratings provided for these 12 photographs were used to compute our control ratings. These ratings provide a baseline against which the ratings of the mock Facebook profile owners were compared. After all of the ratings were made, participants provided their age and gender, and were thanked and debriefed.

Results

Planned Analyses

Our expectation was that participants would rate each profile owner especially high on the trait implied by the mock profile. Such a result would demonstrate that the profile prompted a spontaneous trait inference about the profile owner and that this trait inference affected the manner in which the owner was rated. We also expected profile owners to receive slightly elevated ratings on traits that were the same valence as the trait implied by the owner's profile, and to receive slightly lowered ratings for traits of valence opposite of that implied by the owner's profile. This halo effect pattern is characteristic of results obtained in other spontaneous inference studies.

The dependent variable was the average trait rating for each of the four trait rating types obtained from each participant: trait-consistent, valence-consistent, valence-inconsistent, and control (i.e., ratings of the novel photographs). In order to test these hypotheses, the trait ratings were analyzed in a within-participants ANOVA in which there was one variable (rating type) and four levels within that variable: trait-consistent, valence-consistent, valence-inconsistent, and control. A significant result was decomposed using pair-wise t-tests with $\alpha = .01$. Prior to analysis, the distribution for each trait rating was examined for skewness and kurtosis. All trait ratings data were normally distributed.

Main Results

The trait type effect accounted for 34% of the variance in trait ratings, $F(3, 261) = 44.37$, $p < .001$, $\eta 2 = .34$. Figure 2 presents the means for these four trait type conditions. The pattern of means observed signifies that the ratings provided by the participants differed depending on both the photograph viewed and the trait to be rated.

The first follow-up comparison to be examined was the extent to which exposure to the mock Facebook profiles elevated trait-consistent ratings above the control ratings. As expected, participants rated the photographed target as more likely to have a trait when it was implied by the mock Facebook profile ($M = 4.68$, $SD = 0.86$, 95% CI[4.50, 4.86]) than when no profile was presented ($M = 3.87$, $SD = 0.86$, 95% CI[3.69, 4.05]), $t(87) = 6.02$, $p < .01$, $g = 0.94$, 95% CI[0.61, 1.27].

The next diagnostic analyses tested for the presence of halo effects in the pattern of results. One comparison explored whether the elevated likelihood ratings for the consistent traits reflected a specific trait inference, or indicated a generally positive or negative inference about the profile owner. That is, one might wonder whether participants inferred specific trait information from the profile or whether they merely formed a global valenced (i.e., good/bad) impression of a person from their profile. The data suggest the former and not the latter: Participants rated the profile owners as more likely to have a trait that was implied by the Facebook profile than to have a trait that merely matched the valence of that profile-implied trait ($M = 4.19$, SD = 0.81, 95% CI[4.02, 4.36]), $t(87) = 4.573$, $p < .01$, g = 0.59, 95% CI[0.28, 0.89].

One additional diagnostic analysis examined the

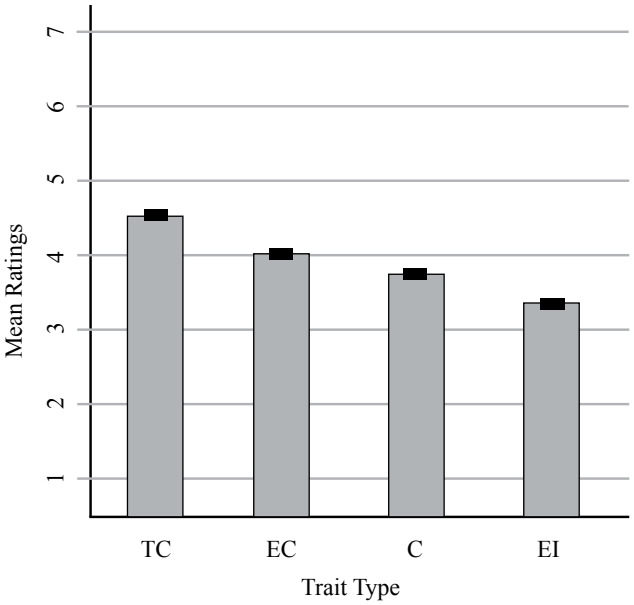

Figure 2. Mean values for the four trait types (TC = Trait Consistent, EC = Valence-Consistent, C = Control, EI = Valence-Inconsistent). Error bars represent one standard error of the mean. Pair-wise t tests indicated that mean ratings for all trait types significantly differ from one another, $p < .01$.

extent to which evaluation was involved in the trait ratings. It was thought that this might be reflected in a halo effect in the ratings, such that the likelihood of having a valence-consistent trait would be perceived as higher than the likelihood of having an valence-inconsistent trait ($M = 3.39$, $SD = 0.76$, 95% CI[3.23, 3.55]). Not only were the means in the expected order, but they greatly differed, $t(87) = 7.85$, $p < .01$, $g = 1.58$, 95% CI[1.24, 1.94]. Hence, the data suggest that perceivers did have evaluative responses to the owners of the Facebook profiles, but also suggest that such reactions were too modest to explain the extreme ratings provided on the trait that was directly implied by each Facebook owner's profile.

Effect size

What effect did exposure to the mock Facebook profiles have on subsequent trait ratings? The effect size comparing the trait-consistent ratings and the ratings of the control traits was nearly one standard deviation, $d = 0.94$, or four-fifths of a point on our rating scale. This is a large effect using Cohen's (1988) criteria. We also converted this effect size into a probability of superiority effect size (e.g., Grissom, 1994). The probability that a randomly selected participant's trait-consistent rating would be greater than his/her control rating is 0.75. These results suggest that the exposure to Facebook profiles not only has a statistically significant influence on subsequent trait ratings, but that this influence is non-trivial in magnitude.

Discussion

The goal of this study was to test whether examination of Facebook-like profiles would cause perceivers to make spontaneous trait inferences about the profile owners. To our knowledge, this is the first study to look for evidence of spontaneous trait inference generation in response to such profiles. The results from the current study provided strong support for the idea that perceivers made spontaneous trait inferences. As predicted, participants rated the owner of the Facebook profile as more likely to have a trait that was implied by the Facebook profile than an individual who was not described by the mock Facebook pages. Moreover, this elevation was not simply a valence effect, but was specific to the trait implied by an owner's Facebook profile. This specific effect occurred despite the clear presence of valence effects, as reflected in the halo findings.

The data confirm the notion that spontaneous trait inferences seem to be a ubiquitous way in which people think about the world. Moreover, the data show that evidence for such spontaneous inference-making can emerge in paradigms that use relatively rich real-world-like stimuli that go beyond the relatively impoverished stimuli that have characterized past laboratory research.

Although this study yielded results supportive of the hypotheses, some potential limitations must be considered. One possible limitation lies in the idea that the inferences were prompted by demand characteristics, i.e., an individual's need to respond to the trait questions that were posed to them. However, this should not be a serious concern. This possibility was a major concern in the existing program of research that explored the spontaneity of trait inferences, but it has conclusively been ruled out by the results provided by that research program (for a review, see Uleman, Saribay, & Gonzalez, 2008).

For example, that research has ruled out the possibility that the inference could have been substantially affected by memory for the specific details of the profiles. Instead, the data clearly show that inferences are formed on-line, as the stimuli are first being viewed. For example, many of the studies that examine the spontaneous trait inference phenomenon show that peoples' memories for the original stimuli are quite poor (McCarthy & Skowronski, 2011b). Such memory would be necessary if inferences were not formed during stimulus encoding, but were instead first formed in response to the trait questions. More importantly, mediational analyses also show that recall for the original stimuli does not mediate the evidence for STIs that emerges from various research studies (for a discussion, see Skowronski, Carlston, & Hartnett, 2008).

Given this evidence, one cannot easily make the argument that the trait judgments in this study were likely to have been memory-based, generated only at the time that the trait questions were asked. To do so, one would also need (a) to offer an argument for why participants would not spontaneously make judgments about the Facebook page owners when viewing the owners' Facebook pages when they do so using other kinds of stimuli, and (b) why participants may have good memory for the stimuli presented on the multiple Facebook pages viewed when they do not have good memory for the other kinds of laboratory stimuli that have been used. Nonetheless, because we did not assess stimulus memory in our study, this memory-based judgment mechanism remains remotely possible as an explanation for the trait judgments that were obtained.

Another limitation is that this study was conducted using mainly freshman college students. This sample may not accurately reflect the characteristics of those in the general population who use Facebook, or even the population of Northern Illinois University students who use Facebook. For example, the median age of students participating in this study was 19 years old, which may not adequately reflect the age of the general population of Facebook users. While Facebook is widely used among college students, its use is not limited to that population; it is becoming increasingly popular among older adults, as well. Moreover, many high school students are also becoming part of the growing Facebook-user population. Thus, future research should try to replicate our results with a sample that reflects these varying constituencies.

It is important to note that these results show that, in contrast to past STI studies, the Facebook-like profiles that we used contained no behavioral information. Despite the absence of behaviors, the profiles still elicited trait inferences. We do not believe that the exact form of the Facebook-like profile that we used was responsible for this effect; the effect was caused by the information in the profile. This is important to note because the appearance of Facebook pages is constantly evolving. Indeed, the appearance of Facebook pages has changed somewhat from when our stimuli were developed and used in our study. However, this format change should be immaterial to our results. That is, as long as the information contained in the templates was held reasonably constant, there is no reason to believe that our results would be any different if our stimuli used the new Facebook templates instead of the old ones.

Another direction for further research is to use real Facebook profiles as stimuli. In this regard, we note that for the current study we created Facebook profiles that would be considered extreme and consistent: The profiles each implied a single target trait, and all of the content in a profile was consistent with that trait. The use of such stimuli added to the study's internal validity, in that we could exert strong control over the profile content and format. Such control ensured that the effects obtained were due to the manipulated content, and not to other possible elements that might be able to vary on actual Facebook pages. One of the goals of research is to produce identical results across different methods. Accordingly, substantial convergent validity and external validity would be produced if results similar to those that we report were obtained in studies that used actual Facebook pages that varied in content and format, but that also conveyed a trait impression.

One additional suggestion for future research is to use the lab-created Facebook profiles, but to vary only a specific area of content (e.g., music interests) while keeping other content constant (i.e., vary the Facebook owner's music interests, while maintaining bumper stickers, movie interests, etc.). This would allow an examination of whether certain information

is especially potent when it comes to conveying trait information, or if it is the combination of many types of information that elicits spontaneous trait inferences.

Indeed, this distinction between a piecemeal approach to trait inferences and a holistic approach seems especially relevant to the present study. Research has shown that people can make rapid inferences from faces in the absence of any other information (e.g., Willis & Todorov, 2006). However, with Facebook profiles there is a large corpus of seemingly relevant information available that could serve as foundation for inferences. Future research could examine what happens when the inferences elicited by the face and the various types of information are congruent or discordant. For example, would an "honest" face and "honest" non-behavioral cues lead to an especially strong inference that the person is honest? Some models of attribution would suggest such possibilities (e.g., Trope, 1986). However, this issue has not been examined in the context of a spontaneous inference paradigm. Along these lines, it would also be interesting to know if discordant face-profile information (e.g., an honest face paired with dishonest profile content) would lead to a reduction of spontaneous inferences, or whether some information might be discarded or ignored so that a coherent impression of the owner can be inferred.

An additional issue for future consideration concerns the accuracy of the inferences that one might derive from Facebook profiles. This issue was raised by Vazire and Gosling (2004). They instructed participants to rate the personalities of the owners based on the content of the owner's website. The owners of the webpages also had the opportunity to rate themselves on specific personality traits, including extraversion, agreeableness, conscientiousness, emotional stability, and openness to experience. Vazire and Gosling's results showed considerable agreement between the webpage owner's self-reported personality ratings and the participants' ratings. This high level of agreement suggests that the content of real Facebook profile owners faithfully reflects the owners' personalities. Apparently, this occurs despite any false self-enhancing information that may appear on some profiles.

In this regard, inferences drawn from a personal website differ from inferences that might be drawn from other environments. For example, Gosling et al. (2002) conducted a study in which observers examined personal workspaces or offices of participants. During these observations, observers rated the participants on different personality traits, solely basing their ratings on what was seen. Gosling et al. (2002) found that perceivers used the state of the room to make inferences about the room's owner. However, they found that observers used both information that was unintentionally left by the owners—information they referred to as "behavioral residue"—and information that was intentionally left by owners for others to see—information they referred to as "directed cues." For example, behavioral residue, which is unintentional, may be a pile of clothes on the floor or food wrappers around the room, both implying that the participant is messy. A directed cue, on the other hand, is intentional and meant to be seen and is clearly as part of a person's identity. An example of a directed cue would be a poster of a specific sports team or a pennant from a particular school, which shows that the participant has some attachment to either of those objects and wants it to be known.

Funder's (1995, 1999) Realistic Accuracy Model (RAM) proposes that observer accuracy will be promoted when observers use good information. That is, accurate judgments should result when observers base their judgments on information that is actually related to the criterion (Funder, 1995, 1999; Gosling, & Ko, 2002). Thus, perceivers may know that some information in the environment is likely intentionally placed by the owner of that personal space. Perceivers also seem to know that the unintentionally placed information may be more informative than the intentionally manipulated information. Thus, if a perceiver is trying to determine if a personal-space owner is messy (or not), it may be especially informative to search for information that is ostensibly unintended for others to see.

While there is no current consensus about the extent to which people engage in online self-enhancement, personal websites, including Facebook, allow users to purposely post, or to omit, specific information regarding their personal lives, allowing for this to be a

seemingly ideal opportunity to engage in impression management and self-presentation (Chandler, 1998; Goffman, 1959; Krämer & Winter, 2008). Compared to face-to-face interactions in which a person cannot always show "their best side," owners of personal websites are able to adapt their profile to emphasize certain aspects of personality, while masking others. Users can choose the best pictures and behaviors to include on their profile page. These considerations would seem to suggest that the accuracy with which one can view a Facebook owner's personality traits may be compromised compared to other views of the owner's environments (e.g., their rooms).

However, these concerns may be overblown. As social networking sites become more common, the effort involved in self-enhancement may decline. Additionally, if social networking sites are seen by their owners as an extension of their real-world relationships, then self-enhancement may be unlikely. Indeed, recent research has verified these claims (Back et al., 2010). This research suggested that the owners of Facebook profiles were not using their profiles to create an "ideal virtual identity." Instead, as with the room studies, the owner trait ratings provided by perceivers were closely aligned with self-ratings provided by owners and were discrepant from the owners' ideal trait ratings.

One reason for this congruence is that a social networking website profile projects to a broad audience (Krämer & Winter, 2008; Ellison, Heino, & Gibbs, 2006). Because of this broad audience, a user might be more inclined to present information that is slightly more consistent with their off-line personality by including images and information that portrays him/her accurately. For example, research has shown that extraverted individuals are more likely to make use of multiple online forums, such as weblogs, to share their interests and opinions (Krämer & Winter, 2008; Marcus, Machilek, & Schutz, 2006).

If our research is correct in showing that people form spontaneous inferences from personal webpages, then the issue of the accuracy of such inferences is a logical next direction for research to take. Numerous questions can be asked about the conditions under which inferences might be accurate, about whether accuracy might be more likely on some traits than on others, about the extent to which intentional attempts at duplicity in website construction might succeed, and about the extent to which people might have the ability to detect duplicity in the construction of such websites.

In the final analysis, the construction of a website reflects an attempt on the part of one individual to convey information to others. The results of this study show that Facebook profiles can prompt inferences about profile owners—maybe even to a greater degree than the owners might realize.

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