Target-Uncertainty and Initial Romantic Attraction: For Whom is the Unknown More Alluring than the Known?

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This dissertation titled
Target-Uncertainty and Initial Romantic Attraction: For Whom is the Unknown More Alluring than the Known?

by

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ABSTRACT

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There are infinite possibilities when two people meet for the first time. Is uncertainty ever alluring? Are mysterious people more romantically enchanting than well-defined people? There is a great deal of evidence that uncertainty contributes to negative psychological outcomes, however the present research hypothesized that some perceivers would actually feel enhanced initial romantic attraction towards targets imbued with uncertainty. Importantly, target-uncertainty should only increase attraction among perceivers with chronically low levels of aversion to uncertainty—i.e., those with lower personal need for structure (PNS). Conversely, high PNS perceivers should be repelled by uncertain targets, thereby displaying the opposite pattern. Two different research paradigms were consistent with the hypothesized interaction between target-uncertainty and PNS. In both, participants were induced to experience more (less) uncertainty about an opposite-sex stranger whom they would ostensibly be interacting with for a “conversation task.” Consistent with expectations, participants with lower PNS were generally more attracted to the target when he was made more uncertain. Contrariwise, higher PNS perceivers reported less attraction to uncertain targets, but more attraction to comparatively well-defined targets. To further investigate, a third study utilized a more self-relevant form of target-uncertainty (i.e., target’s degree of attraction...
to the perceiver). The target-uncertainty by PNS model did not replicate under these circumstances. However, participants’ wondering and curiosity about the target’s opinion of them predicted attraction later in the experiment, even when controlling for a variety of confounding variables. Collectively, these studies suggest that uncertainty can be positively or negatively related to attraction, though this relationship appears to be quite nuanced. It may depend on PNS in some circumstances. It may also depend on whether uncertainty translates to feelings of being unsure versus curiosity and wondering.
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OVERVIEW

Are mysterious strangers magnetic? Is uncertainty enthralling? If social scientists were listing predictors of initial romantic attraction, intuitive predictors such as physical attractiveness would likely be the first to spring to mind. There is good reason for this as physical attractiveness explains massive amounts of variance in romantic attraction (for a review of attraction predictors see Finkel & Baumeister, 2010; Finkel & Eastwick, in press). Nevertheless, the proposed research aims to explore an almost completely overlooked predictor of initial romantic attraction—uncertainty about the target of attraction. Although uncertainty is frequently associated with very negative and psychological outcomes (e.g., pathological worry), the current study belongs to a growing body of literature suggesting that sometimes uncertainty is more pleasurable than certainty (e.g. Wilson, Centerbar, Kermer, & Gilbert, 2005). The broad questions of the present research were: (a) does uncertainty about the target of attraction ever amplify a perceiver’s initial romantic attraction to him; (b) for what types of perceivers does uncertainty make the target of attraction more (less) alluring? Evidence will be presented from two experiments suggesting that uncertainty is more alluring for people who have a low desire for structure and predictability in the social world (i.e., people with lower personal need for structure). Conversely, people with higher personal need for structure appear to be more attracted to well-defined targets. Notably, a third study will suggest that the model by which uncertainty about the target of attraction interacts with a perceiver’s personal need for structure to predict attraction does not apply in all circumstances. Despite the null findings, third study presents interesting exploratory
evidence suggesting that target-uncertainty is more attractive when it contributes to curiosity or wondering about the uncertainty, but is less attractive when it contributes to feelings of being unsure. Collectively, the three studies paint a picture of uncertainty about the target of attraction playing a role in the perceivers’ attraction to him. This role is important, yet nuanced. This nuanced relationship between uncertainty about an individual and attraction to them will be explored in depth.

This is an important venture because questions about uncertainty and attraction could help improve psychology’s understanding of how close relationships are initiated. This is important because close relationships are linked with central features of human life. Indeed, research suggests that close relationships have powerful and positive effects on physical health, mental health, and subjective well-being (Baumeister & Leary, 1995; Uchino, Cacioppo, & Kiecolt–Glaser, 1996). Another benefit is that exploring these questions can improve psychology’s understanding of how people are influenced by uncertainty. Like close relationships, uncertainty is powerfully linked with mental and physical health. With their large brains, humans can simulate a seemingly infinite variety of possible future outcomes in the social world. Indeed, managing this uncertainty is argued to be a significant, ubiquitous and fundamental challenge of the human condition (Gordon, 2003).

It will be argued that uncertainty does amplify initial romantic attraction, but this effect is attenuated by person and situation variables. The specific person variable that is the focus of the present research was the epistemic motive to simplify the social world, reducing uncertainty, ambiguity and imposing structure. This motive has been well-
established within social psychology, and is referred to as personal need for structure (PNS; Neuberg & Newsome, 1993). Notably, PNS is unfamiliar within the empirical literature on initial romantic attraction, however it is expected that a perceiver’s level of PNS will moderate the influence that target-uncertainty has on the target’s perceived romantic desirability. In other words, mysterious people may be alluring, but probably only to people or perceivers with lower PNS.

This notion that uncertainty is attractive to some types of people may not be surprising to readers of romance novels. Indeed, alluring images of sexy and mysterious strangers are replete in popular fiction. Take, for example, Meyer’s (2005) extremely successful series of *Twilight* novels (and the film adaptations) about a mysterious vampire. Another recent example is E.L. James’ (2012) enormously popular erotic novel *50 Shades of Grey* about a mysterious entrepreneur. Both of these stories involve a sexually attractive target who is portrayed as mysterious to the female perceiver/protagonist. Importantly, within both novels, the prospect of solving the mystery surrounding the target of attraction is alluring to the women.

Although a positive link between uncertainty about an individual and attraction to her/him may seem intuitive to a consumer of romance novels, a great deal of evidence from psychology suggests that uncertainty about a target should be quite unattractive. If anything, social psychology literature extolls the desirability of familiar, predictable targets. Surveying the present literature on attraction and uncertainty, is hard to avoid the conclusion that uncertainty is bad within the context of attraction. First, humans seem to naturally desire the removal of uncertainty. Indeed, from an evolutionary or survivalist
perspective, reducing uncertainty is critical. Increasing the comprehensibility and predictability of the environment is critical if an organism is to thrive, or even if it is to survive at all (James, 1907/1992; Thompson, Naccarato, Parker, & Moskowitz, 2001). Anticipating dangers and rewards is critical to survival Consequently, uncertainty reduction has been viewed by many psychologists as a fundamental epistemic need (Thompson et al., 2001). On the face of it, this naturally selected aversion to uncertainty and desire to get rid of uncertainty makes it seem that uncertainty could not possibly enhance romantic attraction.

In addition to the survival benefits of reducing uncertainty, it should be noted that the presence of uncertainty has been linked to considerable amounts of human suffering. Phenomenologically, uncertainty is often experienced as an extremely aversive state. For example, uncertainty is at the root of serious psychological disorders such as generalized anxiety disorder and obsessive compulsive disorder (e.g.,Buhr & Dugas, 2002; Gordon, 2003; Holaway, Heimberg, & Coles, 2005).

The broadly negative effects of uncertainty make the present hypothesis that uncertainty can amplify initial romantic attraction sound surprising. Even worse, uncertainty has been linked with negative outcomes specifically within the attraction literature. For example, the “familiarity breeds attraction effect” (FBA) is among the most well-established effects within attraction research (for an excellent demonstration, see Reis, Maniaci, Caprariello, Eastwick, & Finkel, 2011). Essentially, mere exposure to another person can increase her attractiveness, even within natural settings that are replete with environmental noise (Moreland & Beach, 1992). One of the leading
explanations for why familiarity breeds attraction is that familiarity reduces uncertainty about the target (Lee, 2001). In addition to evidence that familiarity attracts, there is also evidence that target-uncertainty repels. For instance, comparative psychologists note that humans and other animals often feel “on guard” around targets who are imbued with uncertainty (Rajecki, 1985).

Another reason to doubt that uncertainty amplifies attraction are the many demonstrations in which people are more attracted to targets when they know that the target likes them. This is known as the reciprocity of attraction effect. For example, in a recent demonstration, Luo and Zhang (2009) found support for the reciprocity of attraction effect within the naturalistic setting of a speed dating event.

Despite this seemingly consistent message that “uncertainty is bad,” a recent and creative line of research has begun to suggest that uncertainty can—under some circumstances—produce more lasting pleasure than certainty (for reviews see Wilson & Gilbert, 2008; Wilson, Ndiaye, Hahn, & Gilbert, in press). Even more critically, results were recently presented from an experiment where uncertainty about an opposite-sex target increased perceivers’ romantic attraction to him. Specifically, Whichurch, Wilson, and Gilbert (2011) found that female participants preferred male targets when they were uncertain about how attracted the men were to them. This was compared to when they were certain that the men liked them a great deal, or when they were certain that the men liked them average. The mechanism explaining this attraction amplification appeared to be that perceivers dwelled on the men more when the men were imbued with uncertainty. Increased thinking about uncertain targets, thereby enhancing attraction.
The present series of studies built off the findings of Whitchurch, et al.’s (2011) experiment. There were several goals in this undertaking. The first goal was to replicate the positive effect of target-uncertainty on initial romantic attraction with different operational definitions of target-uncertainty. Importantly, the hypothesized effect whereby uncertainty increases attraction will be referred to as the “uncertainty amplifies attraction effect” or “UAA”. The second goal was to demonstrate that whether a perceiver is enticed or repelled by a mysterious target depends on the perceivers’ trait level of personal need for structure (PNS).

Whether or not uncertainty is attractive should depend on the chronic epistemic motives that a perceiver brings into her social world. High PNS perceivers are generally averse to uncertainty, whereas those with low PNS are less averse to uncertainty. Indeed, low PNS perceivers may even seek out uncertain circumstances (Neuberg & Newsom, 1993; Thompson et al., 2001). Thus, it was predicted that UAA would only replicate for perceivers with low PNS. In contrast, perceivers with higher PNS should be significantly less attracted to uncertain targets, thereby failing to replicate UAA and exhibiting an opposite pattern of attraction. Three studies will be presented exploring this hypothesized interaction. The first two studies found evidence supporting the hypothesized model. The last study failed to replicate the model, but did present some intriguing exploratory findings that are pertinent to the hypothesized link between uncertainty and attraction. Before explaining the three studies that were conducted, literature that is pertinent to the present hypotheses about uncertainty, attraction and PNS will be reviewed in greater depth.
UNCERTAINTY

There is only one published experiment (Whitchurch et al., 2011) with data strongly asserting that uncertainty can amplify initial romantic attraction (but see also Norton, Frost, & Ariely, 2007). Nevertheless, a great deal of background literature is relevant to the hypothesis that uncertainty should interact with PNS to predict initial romantic attraction. Although it may sound grandiose, uncertainty is a fundamental aspect of human experience (Gordon 2003; Berger & Bradac 1982; Beger & Clabrese, 1975). Uncertainty pervades the past, present and future of the social world. For example, when reflecting on the past (e.g. a breakup), people cannot be certain about the meaning of what happened. Also, in the present moment, social behavior is complex and there are multiple explanations to make sense of others’ ambiguous behavior (e.g. “maybe her comment was just a joke?”). Perhaps the ultimate source of uncertainty is the future. After all, the future contains an infinite amount of potential outcomes (e.g. “maybe he will ask me to marry him someday, or maybe I will just have to move on...”).

Although the current research program argues that uncertainty about targets makes them more romantically appealing to low PNS perceivers, most people appear eager to remove uncertainty. Even apologists for uncertainty will admit this. For example, while introducing research on the emotional pleasures of uncertainty Wilson et al., (2005) stated that “the human mind is designed to eradicate it.” Still, this desire exists along a continuum. For instance, a signature feature of those with high PNS is the desire to resolve uncertainty quickly. Even though low PNS perceivers may ultimately want to resolve uncertainty as well, they tend to feel less urgency about accomplishing this goal.
People can be uncertain about if they will receive a job offer, if they have a disease, etc. but the present research is focused on social uncertainty. It has also been argued that the motive to reduce uncertainty is fundamental within social interactions. Noted communication researcher Charles Berger (1986) stated: “What could be more basic to the study of human communication than the idea that communicative action aids in the reduction of uncertainty so that social systems can adapt and survive in the face of change?” (p. 38). Empirically, a large body of literature suggests that perceivers desire to reduce uncertainty about targets that are potentially self-relevant (for review see Knoblach & Miller, 2008). Given the high self-relevance of romantic relationships, it should be especially adaptive to eradicate uncertainty about potential romantic partners. After all, as uncertainty about a potential romantic partner declines, perceivers should become better prognosticators about whether pursuing initiating a relationship with her will produce positive rewards or aversive consequences (Berger, 1986, Sunnafrank, 1986).

In summary, uncertainty is a pervasive part of the overall human experience and the social world. The urge to reduce uncertainty is likewise pervasive. Nevertheless, the hypothesis underlying the present research was that target-uncertainty should be beneficial to initial romantic attraction for those with low PNS, but harmful for attraction if a perceiver is higher on PNS. To conceptually argue the case that uncertainty can reduce or amplify attraction depending on the perceiver, the negative and positive consequences of uncertainty will be surveyed. Also, the Whitchurch et al. (2011) experiment suggesting that uncertainty can amplify attraction will be carefully reviewed.
Negative Consequences of Uncertainty

Evidence attesting to the negative psychological consequences of uncertainty increases the counterintuitive nature of the hypothesis that low PNS perceivers will find uncertain targets more romantically alluring. On the other hand, this evidence enhances the plausibility of the hypothesis that high PNS perceivers will be repelled by uncertain targets compared to less ambiguous targets. Accordingly, negative consequences of uncertainty will be overviewed.

If uncertainty were put on trial, then a jury would probably convict it of crimes against humanity. After all, uncertainty has been directly implicated in misery-causing psychological disorders such as pathological worry (Buhr & Dugas, 2002; Carleton, Norton, & Asmundson, 2007; Gordon, 2003). For example, Holaway, Heimberg and Coles (2005) found that those with a lower tolerance for uncertainty experience more signs of generalized anxiety disorder, pathological worry, and symptoms of obsessive compulsive disorder. In the realm of health psychology, uncertainty has been associated with a variety of problematic outcomes. For instance, Mullins, Chaney, Pace and Hartman (1997) found that patients’ uncertainty about their asthma independently contributed to poor psychological adjustment. These harmful effects remained significant, even when controlling for variables pertaining to severity of the asthma, demographics and patients’ attributional style.

In a striking study, patients who learned that they were likely destined to receive a debilitating and fatal illness—Huntington’s disease—ultimately measured lower (at a 12-month follow up) on depression and higher on subjective well-being than patients for
whom genetic testing was inconclusive (Wiggins et al., 1992). It may seem shocking that a patient would find higher certainty about a terrible outcome more therapeutic than uncertainty about it (e.g. “Maybe I will develop Huntington’s, or maybe I will remain healthy…”). However, the fact that uncertainty about a dreadful prognosis was more harmful to psychological adaptation than the dreadful prognosis itself illustrates uncertainty’s negative power.

An explanation of Wiggins’ et al.’s (1992) findings was that patients who were under conditions of uncertainty were less able to psychologically adapt than those who were certain about the bleak future of their health (Wilson & Gilbert, 2008). This finding speaks to the psychological power of uncertainty. Notably, however, Wiggins et al., (1992) were studying uncertainty about an extremely negative event. In contrast, the present studies investigated uncertainty revolving around a more positive object (an attractive target).

Also, the current research was focused on more socially oriented uncertainty rather than uncertainty about health. Still, there is documented evidence of uncertainty being harmful to relationships. Uncertainty in the social world has been associated with negative relationship outcomes such as lower liking, jealousy, negative emotions, etc. (for review, see Knobloch and Miller, 2008). Notably, when considering the harmful effects of uncertainty on romantic relationships it is important to keep the stage of the relationship in mind. For example, a person who seems mysterious may seem intriguing at early stages of a relationship, but she may seem distant and unwilling to “open up” in later stages. Consequently, evidence that uncertainty is harmful within established
relationships is less relevant to the present hypothesis that low PNS perceivers’ are more initially attracted to target-uncertainty. After all, the current study looks at initial romantic attraction. Early stages of relationships may be the place where uncertainty about the object of attraction can actually enhance her allure for some perceivers.

Still, even with initial attraction, there is evidence that certainty is more appealing than uncertainty. For instance, the notion that uncertainty could amplify initial attraction stands in opposition to the familiarity breeds attraction effect (FBA). FBA relates to the mere exposure effect (Zajonc, 1968, 2001). It has been repeatedly demonstrated that perceivers’ feel increased positivity towards a person as a consequence of repeated exposure, even when the exposure is not reinforced (for a review of the mere exposure effect, see Bornstein, 1989). Thus, if Jim saw an unfamiliar woman on his walk to work for several days, then—on average—Jim would experience more attraction towards her when he spots her in the future at a nightclub (as compared to if Jim had never seen her at all). There has been much research on FBA and the mere exposure effect. It has even been argued that target-familiarity belongs among a pantheon of reliable attraction predictors which includes such critical variables as physical attractiveness and similarity (Reis, Maniaci, Caprariello, Eastwick, & Finkel, 2011).

In a striking field experiment on the familiarity breeds attraction effect, Moreland and Beach (1992) employed four female confederates (who had comparable physical attractiveness) to attend an introductory psychology course. Familiarity was manipulated by having the women sit in for zero, five, 10, or 15 classes. For the purposes of capturing the effects of pure exposure and holding extraneous variables constant, confederates
avoided any interaction with the students. They merely attended the lectures. When the academic term concluded, 130 students were asked to rate the attractiveness of the women. Despite the (likely huge) level of error variance created by conducting an experiment in a natural setting (e.g. environmental distractions in the classroom), as exposure increased, attraction increased.

It is relevant to the current study on the uncertainty amplifies attraction effect (UAA) to note the authors’ speculation that “a more accurate interpretation of this finding might be that these women seemed less unfamiliar to the students” (p. 272). Consistent with this speculation, Lee (2001) presented experimental evidence that mere exposure promotes attraction by reducing uncertainty about a stimulus. Given their preference for predictable and familiar social situations, one might expect FBA effects to be especially strong among perceivers with higher PNS. This connects with the present hypothesis that high PNS perceivers will be more attracted to unambiguous targets. Indeed, research on the familiarity breeds attraction effect and on harmful social consequences of uncertainty support the theme that uncertainty about the target of attraction should have important consequences for how much (little) attraction is experienced. Also, they support the hypothesis that target-uncertainty likely reduces attraction in many cases.

In summary, it isn’t difficult to find evidence supporting the hypothesis that some perceivers’ should find target-uncertainty unattractive. However, an empirical case can also be made that uncertain targets should be more attractive than more well-defined targets for perceivers with lower PNS. To make this case, it is important to review recent research pertaining to the upsides of uncertainty. For example, some research suggests
that uncertainty about positive events can produce more enduring pleasures than closure about positive events. There is even one recent experiment where target-uncertainty was associated with increased attraction. After reviewing positive consequences of uncertainty, the construct of PNS will be reviewed in order to justify the prediction that whether target-uncertainty attracts or repels depends on a perceivers’ trait levels of PNS.

**Happy Upsides of Uncertainty**

Despite the avalanche of evidence that uncertainty is psychologically harmful, there has been recent research suggesting that uncertainty prolongs positive emotions derived from pleasurable experiences (for reviews see Wilson et al., in press; Wilson & Gilbert, 2008). Uncertainty’s seemingly dual ability to amplify both positive and negative emotions is explained by Wilson and Gilbert’s (2008) AREA model of affective adaptation. In this model uncertainty is metaphorically like the volume control on a music player. The type of song being played (e.g. happy or sad) is like the valence of the emotions produced by a positive or negative event (or potential events). Thus, uncertainty does not determine whether the song is happy or sad. Escalating uncertainty just turns up the volume. Uncertainties can something that was already upsetting more upsetting. Contrariwise, uncertainty can make a happy event happier.

How does uncertainty amplify emotions? Wilson and Gilbert (2008) argued that uncertainty about a self-relevant event increases thinking about that event. After all, the human mind is designed to explain away uncertainty. Increased thinking about an uncertain event prolongs the mood that is associated with the event. Thus, the delights of a positive event can be prolonged as uncertainty about the event increases. This occurs
because the mind is dwelling on and replaying the positive thing as it tries to resolve uncertainty. For example, if Kim is unexpectedly asked on a date by her attractive acquaintance Stan, then she will likely wonder and speculate about it (e.g., “Maybe Stan started liking me after he realized that we have so much in common, or perhaps Stan always had a crush on me after our fun conversation at the staff party, or perhaps Stan noticed how good of a listener I am, etc.…”). Thus, uncertainty about Stan’s date request should increase Kim’s pleasure by increasing her positive thoughts as her mind seeks an explanation for his courtship behaviors. In contrast, if Stan explained exactly why he asked Kim on a date, then she might spend less time thinking about this exciting surprise. Likewise, if Kim were unexpectedly rejected by a potential romantic partner, then uncertainty about the rejection should prolong her negative emotion as she replays it in her mind to find an explanation.

Another aspect of uncertainty that the AREA Model deals with is novelty and surprise. If Stan is imbued with uncertainty, then he is likely a more novel, unfamiliar person. This means that more cognitive resources are needed to make sense of Stan’s behaviors, thereby increasing the pleasure of a positive social interaction with Stan. Wilson et al., (in press) argue: “The first time something happens we have fewer cognitive structures in place to understand it than we do the 20th time it happens. This is why novel events have more impact and are more memorable than repeated events (e.g., our first kiss as opposed to our 20th kiss).” Familiarity may breed attraction under some circumstances; but novelty and uncertainty can enhance and/or prolong pleasure. The
present study argues that those who are more open to ambiguity (low PNS perceivers) should be especially likely to enjoy these upsides of uncertainty in the social world.

A flurry of recent studies has supported the AREA Model’s assertion that uncertainty magnifies the emotional consequences of an event—be they positive or negative (for review see Wilson & Gilbert, 2008; Wilson, Ndiaye, Hahn, & Gilbert, in press). Evidence that uncertainty increases pleasures derived from social experiences will now be specifically reviewed since this is especially relevant to the present hypothesis that low PNS perceivers’ will prefer uncertain targets. Finally, positive emotion and initial romantic attraction are overlapping constructs, but they are not at all identical. Thus, extending the AREA model beyond positive emotion to initial romantic attraction is an important step (Whitchurch, 2009) for making the conceptual case that target-uncertainty interacts with PNS to predict attraction.

**Positive effects of uncertainty in social interactions.** There is some evidence that uncertainty can increase the positive emotional consequences of social interactions with strangers. Wilson et al. (Study 3, 2005) increased the pleasure derived from positive social feedback by ambiguating the source of the feedback. The researchers had participants assess the social attractiveness of three (actually fictitious) opposite-sex students from different universities on the basis of profiles they wrote. Participants were then led to believe that all three of the students had chosen them to be a potential best friend on the basis of a personal profile they generated. The opposite-sex students also wrote (actually bogus) explanations about why the research participant was chosen as a potential best friend. Naturally, these explanations made the participants feel good. The
uncertainty manipulation in this case was that the specific source of the flattering feedback was obscured (made clear).

For participants in a certainty condition, the written explanations of the positive feedback were directly tied with its author. Hence, a participant might think: “I know that it was Emily who was impressed by the values and interests I expressed on my profile.” Critically, participants in an uncertainty condition were not told the sources of these flattering explanations. Although participants knew that each student had written something nice about them, they were uncertain about who wrote each explanation (e.g. “I know that someone was impressed by my values and interests, but I’m not sure who if it was Emily, Jane or Claire. Perhaps it was Emily because we are both drawn to the outdoors…”). According to the AREA Model, this ambiguity should have increased the participants’ thinking about the positive feedback as they tried to make sense of it (e.g. “Maybe Claire was the one who was impressed by my values and interests, since her personality sounds so similar to mine...”). Wondering about the positive feedback, should have kept it at the top of participants’ minds, thereby prolonging the pleasure. As the AREA model would predict, participants in the uncertain group were significantly happier at the end of the experiment than participants who knew the sources of the flattering explanations. A critical implication of this study is that the pleasure derived from a positive social interaction can be increased by uncertainty. Consequently, it is not a huge step to argue that attraction may also be increased when an attractive target is imbued with uncertainty. This positive outcome may be especially likely if the perceiver is low on PNS.
There is one study that is especially critical for arguing that whether uncertainty about the target of attraction increases or decreases attraction depends on the perceivers’ standing on PNS. This study was based on the AREA Model which directly suggests that uncertainty can increase initial romantic attraction. Specifically, Whitchurch, et al. (2011) presented data from an experiment suggesting that uncertainty about opposite-sex targets increased thinking about them, thereby amplifying initial romantic attraction. Because of this experiment’s extreme relevance to the present hypothesis that low PNS perceivers will be more attracted to uncertain targets, Whitchurch et al. (2011) will be discussed in depth.

Whitchurch, Wilson and Gilbert (2011) and UAA. In the procedure of Whitchurch et al.’s (2011) study, female participants granted the investigators access to their facebook profiles two weeks before they arrived for a laboratory session. The cover story was that participants were involved in a study to evaluate the use of facebook as a dating website. Presumably the participants’ profiles had been previously assessed by males and females from another university. Critically, uncertainty about the males’ impression of the women was manipulated to influence the women’s’ attraction to the men.

When the women arrived at the lab they were randomly assigned to three social-feedback conditions. The participants believed that 15-20 males had viewed their profiles. Participants in the “liked best” condition were told that they would have a chance to rate the profiles of the four men (out of about 20) who had liked them the best. In the “liked average” condition, participants ostensibly viewed profiles of the four men
who liked them average. Finally, in the critical condition (uncertainty), participants were told: “For reasons of experimental control neither you nor the experimenter knows the condition you have been randomly assigned to. The profiles you will see might be the participants who saw your profile and liked you the most. Or, the profiles you see might be the participants who saw your profile and gave you an average rating” (Whitchurch, 2009, p. 22). The women then viewed the men’s profiles.

After filling out a variety of questionnaires (some of which were filler items) participants then rated their attraction to the four men, and how much they had been thinking about them. Intriguingly, participants were most attracted to the men in the uncertainty condition, even though they were certain that the men liked them best in the certainty condition. This is currently the only demonstration of UAA (but see also Norton, Frost, & Ariely, 2007). Notably, UAA was partially mediated by increased thinking about the men in the uncertainty condition. Whitchurch (2009) also reported that she tested affect as a potential mechanism to explain the uncertainty-attraction link. However, there was not statistical evidence that affect played a role in enhancing attraction to the uncertain target.

In discussing the implications of this experiment, Whitchurch et al. (2011) and Whitchurch (2009) connected the results of their study with the popular advice about “playing-hard-to-get.” Playing hard-to-get refers to the advice that suitors should make potential romantic partners’ temporarily uncertain about how attracted they are to them. This uncertainty presumably keeps the potential partner intrigued or attracted (see Fein & Schneider, 1995).
The present study also hopes to build off of Whitchurch et al., (2011) and find corroborating evidence that uncertainty can amplify attraction. Unfortunately, the paradigm used by Whitchurch et al. (2011) has low ecological validity for making a generalization about playing-hard-to-get. For example, in that paradigm attraction referred to the average attractiveness of a group of targets (four men) rather than an individual target. Actual cases of playing hard to get likely involve one mysterious suitor rather than a mysterious collective. In that aspect, the current line of research improves ecological validity by measuring initial romantic attraction to a single target who is manipulated to be imbued with more (less) uncertainty. Also, to assess the robustness of UAA, the current research operationalized uncertainty about the target of attraction differently.

Notably, the mechanism underlying Whitchurch et al.’s (2011) demonstration of UAA is important for the present argument that the influence of target-uncertainty on attraction should be moderated by PNS. In her dissertation, Whitchurch (2009) predicted that increased thoughts about a target could enhance romantic attraction towards him through attitude polarization or self-perception mechanisms.

First, dwelling on someone can polarize attitudes towards that person—regardless of whether the attitude is positive or negative. For example, in an experiment on polarized attitudes, Sadler and Tesser (1973) induced participants to think about a male confederate or they distracted participants from thinking about the confederate via a reading task. Previously, the confederate had described himself positively (or negatively) via an audio recording. Importantly, thinking about the confederate polarized pre-existing
positive (negative) attitudes about him relative to the condition where participants were
distracted. Thus, a positive attitude about a partner was polarized through dwelling.
Notably, uncertainty should enhance thinking about a target relative to closure. This
should especially be true for those with lower PNS as they are more drawn and less
repelled by uncertainty.

There is also a self-perception theory account of UAA. This states that
participants inferred their attraction for the targets by noticing that they were having a
large amount of positive thoughts about them. Self-perception theory states that people
understand their attitudes through self-observation, but only when their attitudes are
uncertain (Bem, 1965, 1972). Attitudes about unfamiliar targets of attraction are unlikely
to be crystalized. Consequently, it makes sense that self-perception mechanisms could
explain how thinking more about a target could enhance attraction to them in early stages
of a relationship.

From the perspective of self-perception theory (Bem, 1965, 1972) perceivers in
Whitchurch et al.’s (2011) uncertain-feedback condition noticed their large volume of
thoughts about the targets. Then the perceivers inferred that they must be attracted to the
men. Importantly, this assumes that the thoughts were mostly positive. For example,
Kathleen’s attractive new acquainted, Jon, seems like he may have a crush on her.
However, his behavior is ambiguous. If she is lower on PNS, then this ambiguity may be
alluring. The ambiguity could cause Kathleen to be curious and wonder about Jon more.
If Kathleen observes herself dwelling on Jon, then she should infer that she is especially
attracted to him. Kathleen’s implicit reasoning might be as follows: “I keep having thoughts about Jon, so I must really like him.”

In recognition of Whitchurch et al.’s (2011) encouraging demonstration of UAA, the current study hypothesized that those who are willing to dwell for longer on uncertainty (i.e. low PNS perceivers) should exhibit increased thinking and increased attraction to an uncertain target. On the other hand, what about those who are uncomfortable with uncertainty, avoiding it in their thoughts and daily lives (i.e. people with a high personal need for structure)? It was expected that UAA effects like those demonstrated by Whitchurch et al. (2011) should not generalize to those perceivers. Instead, high PNS perceivers should be repelled by uncertain targets. In summary, the present research built off Whitchurch et al. (2011) by investigating a personal quality that should moderate the UAA effect.
PERSONAL NEED FOR STRUCTURE AND THE UNCERTAINTY
AMPLIFIES ATTRACTION EFFECT

To understand how target-uncertainty will influence a perceivers’ thinking and attraction, the present research contends that it is important to remember that there are powerful individual differences in how people respond to uncertainty. In particular, the attraction amplifying effects of uncertainty should be moderated by an individual difference variable called personal need for structure (PNS; Neuberg & Newsome, 1993). This construct will be reviewed in depth to justify hypotheses about the relationship between uncertainty about the object of attraction and a perceivers’ level of PNS. It was expected that, for low PNS participants, uncertainty about the target of attraction increases her/his allure. Contrariwise, high PNS participants should find uncertainty repellent.

Although Whitchurch et al.’s (2011) data displayed an intriguing main effect of target- uncertainty on attraction (UAA), uncertainty should not be a magic bullet for increasing a perceiver’s attraction to a target. Like many effects in the social sciences, UAA is likely moderated by a variety of factors. For example, Whitchurch (2009) speculated that the UAA effect should be moderated by the valance of the event underlying the uncertainty. After all, in Whitchurch’s study, the valance of the uncertainty was mostly positive—participants were wondering if the four college students they were viewing had been the ones who reported liking them most or the ones who liked them average. Importantly, participants across conditions could enjoy the flattering
feedback that four peers had rated them very highly (the uncertainty was just a question of who had rated them highly).

Valence of the uncertainty is a situational variable, but person variables should moderate the effect as well. PNS reflects chronic tendencies in how perceivers manage uncertainty, and is measured with the Personal Need for Structure Scale (Neuberg & Newsom, 1993; Thompson et al., 2001). Scores on the Personal Need for Structure Scale reflect an individual’s standing on a continuum of responses to uncertainty. High and low points of the continuum will be explained to help characterize the construct.

Perceivers at high levels of the PNS continuum more urgently seek a social world that has little uncertainty. Instead they prefer a social world that is characterized by clarity, simplicity, and predictability. Thus, if they encounter ambiguity or uncertainty, then they seek to quickly and permanently resolve it. For example, when presented with ambiguous actions from an outgroup member, a high PNS perceiver might quickly bring closure to the ambiguity by employing a stereotype to account for her behavior. The high PNS perceiver should then be relatively closed-minded to alternative explanations in order to preserve the permanency of closure. In contrast, perceivers at lower ends of the PNS continuum are less urgent in their efforts to resolve uncertainty. This makes them more willing to entertain novel hypotheses and to remain in doubt. Indeed, low PNS perceivers may delay the cessation of doubt. Low PNS perceivers may even seek out novel situations.

It should be noted that personal need for structure was initially conceptualized as a subcomponent of a broader construct referred to as need for closure (NFC). NFC and
PNS are very similar, and may even reflect the same construct. Need for closure was conceived an epistemic motive by Kruglanski (1988, 1989) in his theory of lay epistemology. Lay epistemics addressed how motivational factors influence perceivers’ quest to manage a social world that is ever-changing, complex and uncertain. At the heart of NFC (and PNS) is the notion that perceivers vary in how much time and energy they are willing to invest in explaining the social world. Those lower in PNS (NFC) are willing to invest more energy in explaining ambiguities, whereas high PNS (NFC) perceivers want to achieve closure with less energy.

Notably, Kruglanski and Freund (1983) first conceptualized PNS/NFC as a situational variable. High NFC should be exhibited in a situation where perceivers are induced to pragmatically focus on resolving uncertainty, even if quick closure comes at the expense of thoroughly analyzing the data afforded by social context. For example, Kruglanski and Freund manipulated time pressure in their studies as an operational definition of NFC. Making a social judgment under high time pressure may also be a situational inducement of high personal need for structure. Kruglanski and Freund found that participants were more likely to make snap-judgments about others based on initial information (primacy effect), and were more likely to apply ethnic stereotypes when under increased time pressure. In other words, a situationally induced need to quickly resolve uncertainty (high PNS), led to increases in mental shortcuts like stereotyping and primacy effects.

Notably, however, situations are not the only predictor of how urgently people will seek closure. People may also want to quickly resolve uncertainty because of their
disposition. The current study utilizes PNS as a person variable rather than a situation variable. Thus, it is important to discuss the PNS construct as an individual difference variable. Graduate students that Kruglanski worked with (Neuberg & Newsome, 1993) published evidence that NFC also manifested as chronic personal propensity that varied on a continuum between individuals. They called this construct personal need for structure.

To assess PNS as a dispositional construct, Neuberg and Newsome (1993) developed the Personal Need for Structure Scale (see also Thompson et al., 2001). This is a 12-item self-report measure. Importantly, this scale was used in all three of the present studies. Scores on the Personal Need for Structure Scale were expected to statistically moderate the influence of target-uncertainty on attraction in the present studies.

The Personal Need for Structure Scale displays excellent convergent, discriminant and predictive validity (Neuberg & Newsom, 1993; Thompson et al., 2001). As conceptualized by Neuberg and Newsome, those who score higher on trait PNS are especially uncomfortable with uncertainty, and they tend to quickly dispel it by imposing incomplex meaning, routine, and order into their social world. Those measuring lower on the trait may be more spontaneous and less averse to uncertainty. Trait levels of PNS are assessed through self-reported level of agreement (disagreement) with statements such as: “It upsets me to go into a situation without knowing what I can expect from it;” “I enjoy having a clear and structured mode of life;” “I hate to change my plans at the last minute;” “I find that a consistent routine enables me to enjoy life more;” “I don’t like situations that are uncertain.” Extent of agreement (disagreement) with these items is
assessed via a six-point scale (1=Strongly Disagree, 2=Moderately Disagree, 3=Slightly Disagree, 4=Slightly Agree, 5=Moderately Agree, 6=Strongly Agree). In recognition of high PNS perceivers’ self-reported (a) discomfort with uncertainty, and (b) efforts to avoid uncertainty; it is reasonable to hypothesize that they will be significantly less attracted to uncertain targets compared to well-defined targets. Thus, UAA effects such as those observed by Whitchurch et al. (2011) should fail to replicate among high PNS perceivers.

Importantly, the influence of low PNS on attraction to an uncertain target should be opposite. Although low PNS perceivers also wish to inject the social world with meaning, they are more willing to tolerate uncertainty and entertain novel hypotheses. On average, perceivers think more about uncertain than certain events (e.g. Wilson & Gilbert, 2008), and this effect should be augmented by low PNS. Importantly, Whitchurch et al.’s (2011) data specifically suggested that perceivers think more about opposite-sex targets under conditions of uncertainty compared to conditions of certainty. Given their less pressing need to achieve closure, low PNS perceivers should replicate this effect of thinking more about an uncertain target than a well-defined target. Because increased thinking mediated UAA in Whitchurch et al.’s research, it is reasonable to hypothesize that UAA will replicate among perceivers with lower PNS. In other words, low PNS perceivers should think about uncertain targets the most, and experience heightened attraction to them.
High PNS Hinders Attraction to Uncertain Targets

At the inception of the PNS Scale’s development, Neuberg and Newsom (1993) inferred that perceivers with higher PNS should be less drawn to mysterious others: “Thus, these individuals may gravitate toward predictable social situations; interactions with familiar individuals should be preferred to interactions with strangers” (p. 127). Indeed, an item on the Personal Need for Structure Scale directly reflects this aversion to uncertain targets (“I hate to be with people who are unpredictable”). The more an individual agrees with such an item, the less one would expect her to be attracted to an uncertain target.

Consistent with the sentiment expressed by this self-report item is research suggesting that those with high need for closure (which is very similar to high PNS) have a bias against unfamiliar others. More specifically, Shah et al. (1998) found across three studies that those with higher need for closure displayed bias against out-group members and favoritism for members of their own group. Bias was displayed regarding ethnic groups. Also, in two follow-up studies, bias was even displayed regarding minimal groups generated in the lab. This evidence that high PNS perceiver’s have a negative bias towards unfamiliar groups while preferring familiar groups is pertinent to the present hypotheses. It suggests that high PNS individuals may be less attracted to individual targets imbued with uncertainty.

Secondly, high PNS may derail the mechanism by which uncertainty was found to amplify attraction. Recall that Whitchurch et al. (2011) presented evidence that the attraction-amplifying effect of uncertainty was partially mediated by increased thinking
about the target (“I must really like Craig because I’m thinking about him so much.”). If thinking about the target is a mechanism underlying UAA effects, then those with higher PNS should not demonstrate UAA. After all, high PNS individuals avoid dwelling on uncertainty.

Kruglanski and Webster (1996) characterized this cognitive avoidance of uncertainty as a process of “seizing” and “freezing.” Seizing refers to the tendency of a high PNS (or NFC) perceiver to quickly seize upon a reasonable-enough explanation of ambiguous social information. Seizing is caused by a sense of urgency to achieve closure. After seizing, the mind of a high PNS perceiver then freezes further enquiry. In other words, alternative explanations are no longer entertained. Freezing maintains the just-established settlement of uncertainty. Ultimately, seizing and freezing are processes in the service of achieving a quick and permanent end to feelings of uncertainty. For the present study it is critical to note that seizing and freezing processes should undermine UAA. After all, the positive link between uncertainty and increased attraction in Whitchurch et al. (2011) was partially mediated by increased thinking about the mysterious target. However, seizing and freezing processes could prevent high PNS perceivers from thinking more about uncertain targets. This supports the notion that high PNS perceivers should be less likely to be attracted to targets of attraction who are imbued with uncertainty.

There have been empirical demonstrations of high PNS perceivers cognitively avoiding dwelling on ambiguous targets. High PNS perceivers have shown their avoidance of thinking about ambiguous targets by attempting to quickly demystify
them with stereotypes and spontaneous trait inferences. For example, a perceiver could resolve uncertainty about a target with greater speed and efficiency by explaining her behavior with a stereotype. However, this quick explanation may come at the expense of accuracy. As one might expect, research suggests that those with higher PNS try to quickly demystify ambiguous targets through the utilization of stereotypes (Kruglanski & Freund, 1983; Neuberg & Newsom, 1993; Schaller, Boyd, Yohannes, & O’Brien, 1995).

Another way to demystify someone is to explain their behaviors via a trait rather than processing contextual variables. For instance, reasoning that: “she cheated on the exam because she is a dishonest person” is a simpler explanation than trying to explore the ambiguities of how her personality and the situation may have interacted. Moskowitz (1993) found that those with higher PNS tried to resolve ambiguity about a target by more readily inferring that the target possessed a trait. This occurred even though the trait could only be inferred on the basis of limited information. In summary, laboratory demonstrations of high PNS perceivers using stereotypes and spontaneous trait inferences suggest that they quickly demystify the social world with simple explanations that offer feelings of certainty and comprehensibility. Demonstrations of high PNS perceivers cognitively avoiding target-uncertainty is pertinent to the present hypotheses. Given this evidence, it is reasonable to speculate that high PNS perceivers should prefer well-defined targets of attraction to targets imbued with uncertainty.

Indeed, individuals with high PNS are so averse to ambiguity that they may even avoid ambiguity about their own sexual orientation. For example, Preciado and Peplau (2011) found evidence that women with higher personal need for structure avoided
ambiguity in classifying their own sexuality. In contrast, lower PNS women were more likely to acknowledge gray areas in their sexual orientation. This reinforces the theme of high PNS individuals seeking clarity and certainty in the social world. Thus, it is reasonable to expect that a target imbued with uncertainty would be less appealing to them.

Finally, many of the present studies’ dependent measures assessing attraction assessed hypothetical behaviors. For example, one attraction item reads: “If I were single, then I would go on a date with someone like the man from the interview” ($1 = \text{Disagree Strongly}$, $7 = \text{Agree Strongly}$). However, high PNS individuals self-report behavioral avoidance of uncertainty. Indeed, several items on the PNS Scale refer to constructing a life that is as devoid of uncertainty as possible. Example of such items include: “I enjoy having a clear and structured mode of life;” “I'm not bothered by things that interrupt my daily routine [reverse scored].” “I like to have a place for everything and everything in its place.” “I find that a consistent routine enables me to enjoy life more.” Higher endorsement of such items reflects an attempt to use routine and structure to behaviorally avoid uncertainty in daily life. In recognition of this behavioral avoidance of uncertainty, it is reasonable to infer that high PNS perceivers would report less attraction to uncertain targets in the present studies.

To review, there are four main reasons to suspect that those with higher PNS should be significantly less attracted to uncertain targets compared to well-defined targets. First, those with higher PNS show a tendency to cognitively avoid uncertainty and ambiguity in the social world. Therefore, they should fail to think more about
uncertain targets, thereby derailing the mechanism which mediated UAA in Whitchurch et al.’s (2011) demonstration. Secondly, those with higher PNS self-report behavioral avoidance of situations that are uncertain. Therefore, they should be less likely to endorse attraction items in the present studies such as: “I would enjoy going on a date with someone like the man from the interview.” Third, perceivers with higher PNS show bias against unfamiliar groups—thus, an individual imbued with uncertainty may likewise be the recipient of bias relative to a well-defined target. Indeed, high PNS perceivers more strongly endorse items such as “I hate to be with people who are unpredictable.” Fourth, high PNS perceivers self-report an emotional discomfort with uncertainty (e.g. “I become uncomfortable when the rules in a situation are not clear.”). Thus, it seems unlikely that a high PNS individual would be drawn to a target of attraction who was mysterious, ambiguous or uncertain.

**Low PNS Perceivers Should be More Attracted to Uncertain Targets**

In contrast to those who are high in PNS, low PNS perceivers were expected to conceptually replicate the UAA effects found in Whitchurch et al.’s (2011) experiment. Low PNS perceivers do not seek clarity and predictability as urgently as their high PNS counterparts. For example, on the PNS Scale, low PNS individuals more highly endorse items about embracing uncertainty such as “I enjoy the exhilaration of being in unpredictable situations” (Neuberg & Newsome, 1993). Someone who more highly endorses such an item should be especially likely to find a mysterious target intriguing rather than repellent.
Rather than avoid uncertainty, those with low PNS may even seek it out. Given low PNS perceivers’ tendency to explore, it is not unreasonable to infer that uncertain targets should be more alluring to them than well-defined targets. For example, Vess, Routledge, Landau and Arndt (2009) presented evidence that those with lower PNS responded to mortality threats with an enhanced desire to explore unfamiliar situations. Specifically, in Vess et al.’s second study, those with lower PNS who experienced a mortality salience manipulation expressed more interest in documentaries that presented unfamiliar topics.

A follow-up study found that as thoughts about death became more accessible, low PNS individuals’ urge to explore novelty increased. Specifically, low PNS individuals with more accessible death-related cognitions agreed with items on an exploration scale more highly (Green & Campbell, 2000). This exploration scale included several items that are pertinent to the current hypothesis that low PNS perceivers should be drawn to uncertain targets (e.g. “I would like to have a chance to meet strangers;” ”I would enjoy being introduced to new people;” “I would like to go to a party if I didn’t know very many of the people.”).

A second reason to think that low PNS should be associated with enhanced attraction to mysterious targets is that those with lower PNS should think more about uncertain targets than well-defined targets. Whitchurch et al. (2011) presented evidence that people think more about uncertain targets which, in turn, creates greater attraction. This mediating mechanism should be especially relevant for low PNS perceivers because research suggests that those with low PNS are willing to expend more cognitive energy
thinking about unfamiliar people. For example, Schaller, Boyd, Johannes, and O’Brien (1995) created a fictional outgroup for a laboratory experiment on stereotyping. This bogus group was equally unfamiliar to all participants in the study. Schaller et al. found that low PNS individuals were less likely to form faulty stereotypes about the unfamiliar group, and their thinking about the unfamiliar group was less simplistic. In other words, low PNS individuals displayed more complex thinking about the outgroup than high PNS individuals.

Recall that high PNS perceivers tend to seize upon any plausible closure to uncertainty. Then they freeze further enquiry to prevent loss of closure. Conversely, those with lower PNS do not employ seizing and freezing processes as readily. Thus, those with low PNS should be the most likely group to replicate Whitchurch et al.’s (2011) effect whereby perceivers had more thoughts about uncertain targets than well-defined targets. After all, thinking more about uncertainty is a general human tendency (Wilson & Gilbert, 2008), and this should be especially true among those with lower PNS. Low PNS individuals’ increased thinking about uncertain targets may, in turn, amplify interest or attraction.

In summary, there are three reasons to infer that low PNS perceivers should replicate the UAA effect. First, low PNS perceivers report being more tolerant of uncertainty, and they may even seek out opportunities to explore uncertain social situations. This means that they might be more drawn to a target imbued with uncertainty. Secondly, low PNS perceivers’ do not cognitively avoid uncertainty in the social world. Thus, they should replicate the general human tendency to dwell on uncertain events
more than certain events (Whitchurch et al., 2011; Wilson & Gilbert, 2008), by dwelling more on mysterious targets. Increased dwelling may, in turn, increase attraction (Whitchurch et al., 2011). Third, low PNS perceivers’ disagree more with items expressing aversion to uncertainty. Conversely, they generally agree more with items related to the enjoyment of unpredictability and novelty. This makes it more likely that Whitchurch et al.’s (2011) UAA effects will replicate among low PNS perceivers.
OVERVIEW OF STUDIES

The experiments in the present research project explored the interaction between target-uncertainty and PNS on initial romantic attraction. For all three studies only heterosexual females were used as research participants. Research on the AREA model and positive emotional responses to uncertainty has not uncovered gender differences (Whitchurch et al., 2011). However, females were still chosen as research participants for several reasons. For one, there is still only one published study showing evidence of UAA, and this study involved female participants. In other words, investigations on UAA are quite preliminary. Hence, it seemed wise to use female research participants in an attempt to replicate the effect.

Also, there are gender differences in terms of target factors that promote attraction. For example, males and females differ in the nature of their sexual fantasies (Ellis & Symons, 1990). Male sexual fantasies were more focused on graphic sexual images. Female sexual fantasies incorporated more emotional states and ambiance. Given the difference between male and female sexual psychologies, males may be drawn to different expressions of target-uncertainty than women. Thus, given that UAA is not a well-established effect in the attraction literature, it was decided that these early investigations would only use female research participants. However, if or when UAA effects have a more established research base, then it will be important to see whether or not the effect generalizes to males.

The present research had two broad goals. The first goal was to see if the uncertainty amplifies attraction effect that was uncovered by Whitchurch et al. (2011)
would replicate with different operational definitions of uncertainty. This in and of itself is a good goal. After all, the effect whereby uncertainty amplifies attraction has only been demonstrated in one experiment (but also see Norton, Frost, & Ariely, 2007). Also, replicating UAA with a different methodology is needed to enhance confidence in the effect, and alleviate concerns that Whitchurch et al.’s results merely represent a Type I Error.

A second goal of these experiments was to show the moderating effect of a perceivers’ personal need for structure on whether she is attracted (repelled) by a target of attraction who is imbued with uncertainty. Uncertainty shouldn’t be a “magic bullet” that amplifies attraction for everyone. For all three studies, it was predicted that Whitchurch et al.’s (2011) effect should only replicate among a subset of people (those with low PNS). As scores on the PNS Scale (Neuberg & Newsom, 1993) increase, scores on self-reported initial romantic attraction to an uncertain target should decrease. Indeed, uncertain targets should be repellent to high PNS perceivers compared to more well-defined targets. However, it was predicted that the opposite pattern of attraction should emerge for those with lower PNS.

Studies 1 and 2 did show some support for this hypothesized target-uncertainty by PNS interaction. However, this model failed to replicate in Study 3. Nevertheless, understanding why the interaction didn’t replicate in Study 3 may be informative. Also, Study 3 presented some interesting exploratory evidence suggesting that uncertainty about the target of attraction can amplify attraction when it translates into curiosity or wondering. However, exploratory evidence from Study 3 also suggested that uncertainty
can hinder attraction if it translates into feelings of being unsure. All three experiments and their implications are discussed in detail.
STUDY 1 OVERVIEW

Female participants in Study 1 listened to an audio recording of a personal interview with a male confederate named Derek. Participants were told that the bogus cover story that they would be interacting with Derek in the future. Derek was made either more or less mysterious by manipulating the content of his dialogue with the interviewer. Specifically, Derek either explained an interesting event from his past (lower-uncertainty condition), or he stated that he would “rather keep it a secret” (greater-uncertainty condition). After the interview, participants responded to filler items, individual difference measures (including the PNS Scale), and self-report measures of initial romantic attraction towards the target.

Method

Participants. 49 participants were recruited from a psychology department pool of undergraduate research participants at Ohio University. This participant pool is composed primarily of students enrolled in introductory psychology courses. All participants were female.

Design. The design of the first study was a 2 (uncertainty: higher or lower) X 2 (PNS: high or low) between-subjects factorial design. A composite of items assessing self-reported attraction to Derek served as the primary dependent variable.

Uncertainty manipulation. Uncertainty was manipulated by changing the conclusion of Derek’s personal interview. The context of this manipulation was a fictitious study on “first impressions and personality traits.” For the first impression study, participants were told that they would engage in a 5-minute discussion task with
another research participant towards the end of the session. However, before meeting Derek face-to-face, participants were to listen to an audio recording of a personal interview (about 10 minutes long) that Derek conducted with experimenters. The alleged purpose of listening to Derek’s interview was to compare participants’ initial impression of Derek (based on listening to the interview) with their impression of Derek following a face-to-face encounter. Notably, the actual rationale for including the bogus face-to-face encounter within the cover story was to make participants care more about listening to Derek’s interview.

Uncertainty was manipulated in Study 1 by altering Derek’s last statement on the recorded interview. Several aspects of Derek’s past came up during the interview, including a backpacking trip. Uncertainty revolved around Derek being secretive about an event from the backpacking trip compared to explaining the event.

Backpacking in another country is a common and attractive activity for undergraduate college students. Thus, Derek’s interview ended with him discussing his backpacking trip in Asia. On this trip, Derek randomly met a person with a reputation for wisdom—a “wise man” whom local residents sought out for advice. Intrigued, the interviewer asked Derek about the specific content of his conversation with the wise man. Critically, for those in the greater-uncertainty condition, Derek said: “I’d rather keep that a secret. But I will say that I learned a lot.” In contrast, for those in the lower-uncertainty condition, Derek briefly explained that the wise man extolled the virtues of positive thinking and mindfulness. In both conditions, the interview concluded after this
uncertainty manipulation. It was hoped that these alternative endings to Derek’s interview would generate relative group differences in uncertainty about Derek.

**Personal need for structure.** Participants in this study completed the PNS Scale (Neuberg & Newsom, 1993), which classified them as being high and low on this individual difference. The PNS Scale possesses impressive predictive, convergent, and discriminant validity (Neuberg & Newsom, 1993; Thompson, et al., 2001). The scale contains 12 self-report items assessing the desire for certainty, routine, and predictability. Examples of items include: “I don't like situations that are uncertain;” “I find that a consistent routine enables me to enjoy life more.” Extent of agreement is rated on a 6-point scale (1 = Strongly Disagree, 2 = Moderately Disagree, 3 = Slightly Disagree, 4 = Slightly Agree, 5 = Moderately Agree, 6 = Strongly Agree). Notably, the original PNS Scale was composed of 12 items, but Neuberg and Newsome (1993) ultimately omitted an item (“I enjoy being spontaneous.”) from their final version due to social desirability concerns. Thus, for each participant, 11 of the 12 items on the PNS Scale were averaged together to measure her trait level of PNS.

Within the sample, the average score on PNS was 3.36 or “Slightly Disagree” (SD = .76, Chronbach’s Alpha = .792). Importantly, participants classified as higher on PNS within this experiment (one standard deviation above the mean or more) expressed, on average, at least slight agreement with items conveying discomfort and avoidance of uncertainty. In contrast, participants classified as lower on PNS (one SD below the mean or lower) expressed, on average, a minimum of at least slight disagreement to items
reflecting aversion to uncertainty. High and low PNS participants were expected to exhibit opposite patterns of attraction to Derek by condition.

Procedure. Participants arrived at the lab and filled out an informed consent document for research participation. All participants completed the study on computers that were located in private cubicle rooms. The experimenter set the stage of Study 1 by orally explaining the cover story. Notably, this cover story was later repeated (using different words) via automated instructions on a computer screen.

The experimenter delivered a standardized (and false) speech explaining to participants that they were enrolled in a study on “first impressions and personality traits.” After answering questionnaires about their personality, participants would listen to an interview conducted with another research participant who was present that day (Derek). Participants would then rate their impression of him. Later, participants would actually meet Derek for a “5-minute discussion task.” The experimenter explained that the researchers were interested in comparing the women’s first impression of an opposite-sex target—based on his self-description in an interview—with their impression of him following a face-to-face encounter.

After explaining the cover story, the experimenter left participants so they could answer questionnaires on the computer privately. Participants first responded to a variety of individual difference measures including the Curiosity and Exploration Inventory (Kashdan, Rose, & Fincham, 2004). Participants also answered a question regarding their sexual orientation. This was assessed so that women who may not be attracted to males could be excluded from analyses. After answering a variety of questions about their
personality, the women were prompted by the computer to find the experimenter. The experimenter returned to the room and set participants up with headphones. Additionally, the experimenter gave participants a transcript of the interview. To increase interest in the interview, participants were reminded that they would eventually be meeting Derek.

Participants began listening to the interview after the experimenter left the room. The content of the recorded interview was personal, and it lasted about 10 minutes. Derek answered a variety of questions about himself, discussing his family, goals in college, his past relationship experience, his love of sports, favorite movie, etc. Derek was portrayed as a typical, yet attractive male college student. For example, Derek’s answers to questions revealed that he was athletic, had experience in romantic relationships, was motivated to perform well at Ohio University, and had positive plans for his future career. As noted, the end of the audio recording served as the uncertainty manipulation as Derek was either secretive or non-secretive about what a “wise man” said to him during his backpacking adventure in Asia.

After listening to the interview, participants answered a few questions regarding romantic attraction to Derek such as: “The man sounded like a sexually attractive person” (1 = Not at all, 9 = Definitely). Participants then answered questions about their mood, completed the Personal Need for Structure Scale (Neuberg & Newsom, 1993; Thompson et al., 2001), completed a demographic questionnaire (filler), and they answered more questions about impressions of Derek. At the end of the study, participants answered more items pertaining to initial romantic attraction towards Derek such as: “The man sounded sexy” (1 = Disagree Strongly, 2 = Disagree Moderately, 3 =
Disagree Slightly, 4 = Neither Agree nor Disagree, 5 = Agree Slightly, 6 = Agree Moderately, 7 = Agree Strongly). After self-reporting their level of initial romantic attraction to Derek, participants were debriefed, thanked, and dismissed.
RESULTS

First, seven cases were excluded because they were flagged by research assistants as problematic. In some cases a participant was flagged as problematic simply because research assistants made errors while running the study. In other cases, participants disobeyed instructions or showed an extreme lack of attentiveness and/or comprehension of the instructions. Additionally, two more cases were excluded because the participants indicated in a debriefing question that we ought to exclude them (i.e., because they heard about the study from a friend, because they were not paying attention, etc.). After these exclusions, there were 23 people in the “greater-uncertainty condition” (where Derek kept his conversation a secret), and there were 21 participants in the “lower-uncertainty” condition (where Derek briefly explained what the wise man told him).

Creating dependent measures. First, a composite measure of attraction to the target was created. Attraction measures were embedded throughout the study following the audio interview with Derek (which manipulated uncertainty). Two of these attraction items followed shortly after participants listened to Derek’s interview, and the others were asked towards the end of the study. An average of the attraction items served as the primary dependent measure in this study. Specifically, this dependent variable was composed of the following 6 items. “The man who was interviewed sounded like an attractive person” ($1 = \text{Very Little}, \ 9 = \text{Very Much}$). “If I were single, then I would go on a date with someone like the man from the interview” ($1 = \text{Not at all}, \ 9 = \text{Definitely}$). “At this moment, I feel like the man from the interview is an attractive person” ($1 = \text{Very Much}, \ 9 = \text{A Great Deal}$).“The man sounded sexy” ($1 = \text{Disagree Strongly}, \ 2 = \text{Disagree}$
Moderately, 3 = Disagree Slightly, 4 = Neither Agree nor Disagree, 5 = Agree Slightly, 6 = Agree Moderately, 7 = Agree Strongly). “The man sounded like a sexually attractive person” (1 = Not at all, 9 = Definitely). “Based on what I know about the man: if I were single, then I would give the man my phone number (if he asked for it)” (1 = Disagree Strongly, 2 = Disagree Moderately, 3 = Disagree Slightly, 4 = Neither Agree nor Disagree, 5 = Agree Slightly, 6 = Agree Moderately, 7 = Agree Strongly).

Internal reliability of the attraction measure was assessed with Chronbach’s alpha (alpha = .864). Standardized scores for each item were also created and a mean of the standardized scores was created. Chronbach’s alpha was .868 when the six items were standardized and averaged. Importantly, all analyses utilizing the primary dependent measure (self-reported initial romantic attraction to the target) replicated regardless of whether the mean of the standardized items or the original (unstandardized) items was used. Thus, results reported below used the mean of the unstandardized scores as the primary dependent variable.

**Main effects.** To assess main effects, a one-way analysis of variance was conducted with uncertainty (higher, lower) as the independent variable. The composite measure of attraction served as the dependent variable (DV). The level of the independent variable (IV) in which the character kept his conversation a secret was coded as 1; the level of the IV where participants learned about the character’s conversation with the wise man was coded as 2. Results showed a non-significant main effect of uncertainty on attraction to the target $F(1,42)=.009, p > .10$. In other words, there was no main effect of uncertainty on attraction.
To test for the potential main effect of personal need for structure on attraction, PNS (continuously measured) was entered into a regression equation as a predictor variable with attraction serving as the criterion variable. Results showed a non-significant main effect of PNS on attraction to the target $F(1,42)=.023$. Thus, neither the uncertainty manipulation nor the PNS Scale was significantly related to attraction as a main effect.

Finally, it was worrisome that PNS Scale was administered in a period after the independent variable manipulation. Fortunately, an analysis of variance revealed that scores on the PNS Scale did not differ between conditions $F(1,42)=.859$. In other words, the manipulation did not appear to influence PNS.

**Uncertainty by PNS interaction with attraction as the dependent measure.**

Next, the potential interaction between target-uncertainty (higher, lower) and personal need for structure (continuously measured) on attraction was assessed. The interaction was assessed with a linear regression analysis. Uncertainty condition was entered as the focal predictor of attraction and personal need for structure was entered as the moderator variable. The outcome variable for the linear regression analysis was the composite measure of initial romantic attraction. An SPSS macro was used for this analysis which mean centered the predictor variables to reduce the risk of multicollinearity.

Notably, regression analyses revealed a significant interaction between condition and personal need for structure (see figure 1).
Figure 1. The significant interaction of target-uncertainty and personal need for structure from Study 1. The dependent variable is a composite of six self-report items that assessed initial romantic attraction to the target.

First, there was a significant change in $R^2$ when the target-uncertainty X PNS interaction term was included in a model that already contained target-uncertainty (higher, lower) and PNS, $F_{change}(1,40) = 6.49, p = .015$. Notably, the model that included the uncertainty X PNS interaction term explained about 14 percent of the variance in attraction to the target ($R^2=.141$). Also, within the model, target-uncertainty X PNS was significantly related to attraction ($B = 1.15, SE = .45$), $t(40) = 2.55, p = .015$.

In order to interpret the meaning of the Uncertainty X PNS interaction, personal need for structure’s influence was investigated at high levels and low levels of the continuum (this means ±1 standard deviation from the statistical average). Notably, marginally significant slopes at both high and low levels of PNS were found.
At one standard deviation below the mean (low PNS), the character in the greater-uncertainty condition was considered more attractive as compared to the character for whom uncertainty about the “wise man” conversation was resolved ($B = -0.82$, $SE = 0.47$), $t(40) = -1.75, p = 0.088$. In other words, perceivers who were lower in personal need for structure appeared more attracted to the target when his past experience was mysterious compared to when it was explained.

Conversely, the effect was opposite for those with higher PNS. One standard deviation above the mean (high PNS), the target in the lower-uncertainty condition was regarded as significantly more attractive than the character in the greater-uncertainty condition ($B = 0.91$, $SE = 0.48$), $t(40) = 1.89, p = 0.067$. In other words, those with higher PNS reported higher romantic attraction to the character when he explained his conversation with the “wise man” compared to when he kept it a secret. To summarize, marginally significant slopes for those with higher and lower PNS demonstrated a crossover interaction. Although participants who were low in personal need for structure preferred the character when he had an aura of uncertainty surrounding his past, perceivers with high personal need for structure preferred the character when he disclosed his past.

Within-condition differences also supported the hypothesis that (a) those with higher PNS are repelled by targets imbued with uncertainty, while (b) those with lower PNS are more likely to prefer mysterious targets. For example, within the lower-uncertainty condition, as PNS increased attraction increased in step ($B = 0.60$, $SE = 0.33$), $t(40) = 1.79, p = 0.079$. This may be attributable to the fact that Derek was portrayed as
stereotypically attractive. In contrast, the slope was opposite when the target was imbued with greater uncertainty. In the greater-uncertainty condition as PNS decreased, attraction to the target increased \( (B = -.55, SE = .30), t(40) = -1.82, p = .076 \). Thus, PNS was positively associated with attraction under conditions of lower uncertainty, but PNS was negatively associated with attraction under conditions of greater uncertainty. This finding was consistent with the PNS construct.

Although we did observe differences in attraction between conditions, there was not an observed difference in reported thoughts about Derek. To assess thinking about the target, we adapted the thinking item from Whitchurch, et al.’s (2011) study on uncertainty and attraction. Specifically, we created the item “Thoughts about the man from the interview keep popping into my head.” \( (1 = \text{Disagree Strongly}, 2 = \text{Disagree Moderately}, 3 = \text{Disagree Slightly}, 4 = \text{Neither Agree nor Disagree}, 5 = \text{Agree Slightly}, 6 = \text{Agree Moderately}, 7 = \text{Agree Strongly}) \). This item was placed after several other questionnaires that followed the uncertainty manipulation. This period of time should have given participants ample time to think (or not think) about Derek. Unfortunately there was not a significant target-uncertainty X PNS interaction on thinking about Derek, \( F_{\text{change}}(1,40) = .878 \).

**Uncertainty and PNS interaction with “interestingness” as a dependent measure.** Finally, it should be noted that uncertainty may be experienced as cognitively aversive to those who are high in PNS but cognitively engaging to those who are low in PNS. For example, Whitchurch et al. (2011) found that the significant effect of uncertainty on attraction was partially mediated by enhanced thinking about the target.
Unfortunately, as noted, our participants did not report a higher volume of thinking about the target in the greater-uncertainty condition. However, we did find evidence suggesting that participants found the target more interesting under conditions of greater uncertainty compared to conditions of lower uncertainty, but only if the participant was low on PNS.

There was an item to assess how interesting Derek was perceived to be “The man sounded like an interesting person” (1 = Disagree Strongly, 2 = Disagree Moderately, 3 = Disagree Slightly, 4 = Neither Agree nor Disagree, 5 = Agree Slightly, 6 = Agree Moderately, 7 = Agree Strongly). In terms of the character’s interestingness, there was a significant target-uncertainty x PNS interaction (see Figure 2).

![Figure 2](image-url)

*Figure 2.* The significant interaction of target-uncertainty and personal need for structure on the target’s perceived interestingness in Study 1.
When target-uncertainty \( X \) PNS was entered into a model already containing target-uncertainty and PNS, there was a significant change in the amount of variance explained, \( F_{change}(1,40) = 5.26, p = .027 \). This model explained about 15% of the variance in perceived interestingness of the target (\( R^2 = .146 \)). Finally, the target-uncertainty \( X \) PNS interaction term was significant (\( B = 1.11, SE = .48 \), \( t(40) = 2.29, p = .027 \)).

Although the slopes between conditions were not significant, the trend which they exhibited was consistent with predictions. The trend was that those with a lower personal need for structure appeared to find the character more interesting in the greater-uncertain condition compared to the lower-uncertainty condition (\( B = -.82, SE = .51 \), \( t(40) = -1.62, p = .11 \)). Conversely, there was an opposite trend in which those with higher personal need for structure found the character more interesting when his secret was disclosed (lower-uncertainty condition) compared to the greater-uncertainty condition (\( B = .85, SE = .52 \), \( t(40) = 1.64, p = .11 \)). In other words, the nearly marginal trends were that those low in personal need for structure found uncertainty more interesting whereas those with high personal need for structure found targets imbued with uncertainty less interesting.

Finally, there was a significant simple slope within the lower-uncertainty condition. Within the lower-uncertainty condition, as PNS increased, the targets’ perceived interestingness increased (\( B = .90, SE = .36 \), \( t(40) = 2.53, p = .01 \)). This may be due to the fact that the target was portrayed as stereotypically attractive. However, this association between increasing PNS and interestingness was not observed when the target was imbued with uncertainty \( t = -.622 \). Thus, inserting the aura of uncertainty (by making
the man secretive about his conversation) may have shut down the positive linear relationship between PNS and interestingness.
DISCUSSION

Study 1 had two specific aims. First, Study 1 aimed to conceptually replicate and extend Whitchurch et al.’s (2011) finding that uncertainty increased thinking and attraction to a target. This was attempted by using a novel operational definition of uncertainty. Secondly, we wanted to provide evidence that the UAA effect is moderated by personal need for structure. Consistent with these goals, evidence was obtained suggesting that greater uncertainty was associated with increased attraction, but only for those who were low in personal need for structure. In contrast, for perceivers with a higher personal need for structure, greater uncertainty reduced the target’s attractiveness.

Is mysteriousness romantically enchanting?—data from the first study suggests that this depends on the perceiver’s standing on personal need for structure.

Reflecting on the Uncertainty by PNS Interaction on Attraction

The obtained interaction from Study 1 makes sense conceptually. It makes sense that the uncertainty amplifies attraction effect uncovered by Whitchurch et al. (2011) would only replicate among lower PNS perceivers. After all, this is a group of people who are more willing to think about uncertainty. They feel less discomfort with uncertainty, and may even gravitate towards uncertainty under some circumstances (Neuberg & Newsom, 1993; Thompson et al., 2001).

Importantly, the hypothesized target-uncertainty by PNS interaction was supported by slopes between-groups, and slopes within-groups. Between groups, there was a marginally significant slope whereby romantic attraction was higher in the greater-uncertainty group, but only for those with lower PNS. Also, within the greater-
uncertainty group, as PNS decreased, attraction increased. This within-condition effect directly implicates variance in PNS with variance in attraction. Perhaps as PNS declined perceivers felt less uncomfortable and more intrigued by the uncertainty about Derek’s secret story.

The data depicted a cross-over interaction as the behavior of high PNS perceivers stood in stark contrast to the data of low PNS perceivers. For high PNS perceivers, the effects of uncertainty on attraction were opposite. Invidious influences of high PNS on attraction to uncertain targets was suggested by marginally significant slopes between conditions and within conditions. It seemed that those who are motivated to perceive the world as simple, certain and predictable (high PNS) reported more romantic attraction for the confederate under conditions of lower-uncertainty compared to conditions of greater-uncertainty.

Also, within the condition of lower-uncertainty, as PNS increased attraction increased as well. Why would attraction increase in-step with PNS under conditions of lower-uncertainty? This effect is likely due to the fact that the target was portrayed as stereotypically attractive in the interview (i.e., athletic, motivated in school, friendly). Thus, higher PNS perceivers likely used some of these cues as a heuristic to quickly make the stereotype-based judgment that Derek was romantically alluring.

Uncertainty and PNS on Thinking and Interest Variables

Finally, this study was largely influence by Whitchurch, et al.’s (2011) experiment which found evidence that uncertainty about a target increased thinking about him, thereby amplifying attraction. The explanation for why increased thinking increased
attraction is likely based on self-perception principles (e.g. “I’m thinking about him so much that I must be enchanted with him.”) Unfortunately, we did not find significant differences between conditions on thinking about the target, nor did we find a significant target-uncertainty X PNS interaction on thinking about the target.

These null findings may be due to the fact that our measure of thinking was different. As previously noted, we asked participants to rate how much they agreed with the statement “Thoughts about the man from the interview keep popping into my head.” This was assessed on a 7-point scale. In contrast, Whitchurch et al. (2011) used a more straightforward item that asked participants to report how often they had been thinking about the group of men during the experiment (1 = Not at all, 10 = Extremely Often). It might have been easier for participants to rate the frequency of thinking about Derek with a more straight-forward item that directly enquired about how much they were thinking about him. Also, Whitchurch et al. (2011) used a 10-point scale which may have captured more fine-grained distinctions in thinking than the 7-point scale used in this paradigm.

The null finding could also be due to the fact that Study 1’s uncertainty manipulation was probably less self-relevant than the manipulation used by Whitchurch et al. (2011). After all, ambiguous evaluative feedback should inspire more thinking than an unexplained event from a stranger’s past. Nevertheless, there was alternative evidence of a target-uncertainty X PNS interaction on the cognitive-engagingness of Derek with the interestingness item.

Almost by definition, people tend to think more about targets who are interesting. This makes it relevant that we found a significant target-uncertainty X PNS interaction
with Derek’s perceived interestingness as the DV. Indeed, the (non-significant) trend was that those with lower PNS found Derek more interesting under conditions of greater uncertainty. In contrast, those with higher PNS found the target more interesting under conditions of lower uncertainty. Unfortunately, this trend was also non-significant. Still the pattern was consistent with Study 1’s attraction data. The $p$-values were so close to marginal significance that perhaps a significant crossover interaction would have been obtained if sample sizes had been larger. Nevertheless, one should be cautious in speculating about the pattern given the fact that it did not surpass the threshold of statistical significance.

Importantly, there was also a significant within-condition slope whereby, increasing PNS was associated with higher perceived interestingness under conditions of lower uncertainty. In contrast, the positive effect of increasing PNS on attraction was wiped out under conditions of greater uncertainty. Perhaps discomfort with uncertainty wiped out any positive influence that PNS might have had on Derek’s perceived interestingness within the greater-uncertainty group.

**Operational Definition of Uncertainty**

In addition to investigating the moderating role of PNS on UAA, Study 1 used a novel operational definition of uncertainty. This study manipulated relative differences in uncertainty that focused on mysterious aspects of the target (i.e., whether he kept his past conversation with the wise man a secret or not). This manipulation is very different from Whitchurch et al. (2011) who operationalized uncertainty as ambiguity about a target’s level of attraction to the perceiver.
Our uncertainty manipulation was arguably more subtle and less self-relevant than Whitchurch et al.’s (2011) uncertainty manipulation. Thus, it is impressive that we obtained significant results with less attention-grabbing uncertainty. Indeed, a stranger ending a personal interview with “I’d rather keep that a secret” (compared to an explanation of his conversation) is a more subtle way to induce relative differences in uncertainty between conditions than explicitly withholding (disclosing) information about target’s ranking of the participant. The uncertainty in Study 1’s paradigm revolved around a mysterious incident in a stranger’s past. This is less self-relevant than uncertainty about a group’s impression of you after evaluating your facebook profile. In closing, even though the uncertainty manipulation was probably less self-relevant for participants, we still found a significant target-uncertainty X PNS interaction that explained 14 percent of variance on initial romantic attraction to the target.

However, one troublesome methodological issue with manipulating uncertainty about aspects of a target is that there is a seemingly inherent confound. The inherent confound is that the certainty condition must always seemingly have additional information about the target which the uncertainty condition cannot have. Was it just the additional information (rather than differences in uncertainty) about Derek in the lower-uncertainty condition that changed his attractiveness relative to the greater-uncertainty condition? Was attraction actually being influenced by uncertainty itself? For example, perhaps Derek’s explanation about the wise man giving him advice made him seem more attractive. We were aware of this danger when writing the script for the interview. Consequently, the interview was designed so that additional information provided by
Derek would not imply additional characteristics. The additional information in the lower-uncertainty condition should not have led people to strongly infer additional characteristics about Derek. After all, Derek was merely stating what someone told him rather than discussing his own actions.

Worries about this methodological conundrum were partially alleviated by the fact that results revealed a significant target-uncertainty X PNS interaction on attraction, rather than a main effect of condition on attraction. For example, if additional information made Derek less attractive, then one would anticipate a main effect, not an interaction effect with a measure that assesses discomfort with uncertainty/desire for structure. Within-condition differences also point to the notion that uncertainty itself was interacting with PNS to influence attraction. Most notably, under conditions of greater-uncertainty, as PNS decreased attraction increased (whereas the opposite pattern emerged in the lower-uncertainty condition). Thus, a parsimonious explanation is that the target-uncertainty manipulation imbued Derek with more uncertainty when he ended the interview with being secretive rather than when he ended the interview by disclosing his experience.

**Building off of Study 1**

Nevertheless, it would be reassuring to find a target-uncertainty manipulation in which every feature of the target is held constant. To achieve this goal, another manipulation of uncertainty was created in which participants were exposed to an identical stimulus (a new version of Derek’s interview) across conditions. With all
participants listening to the same interview, uncertainty was manipulated by changing the mindset of participants.

Also, the previous target-uncertainty manipulation compared two experimental conditions. A situation with greater uncertainty was compared to a situation with lower uncertainty. For study 2, three experimental conditions were created. Specifically, we created a control condition where the effect of the interview on attraction could be assessed. An uncertainty condition was created where participants were encouraged to speculate about the unknown. We also created a condition that should be especially appealing to those with higher PNS. This was a condition where participants were instructed to focus on black-and-white facts and avoid uncertainty.

Overall, there were three goals of Study 2. First, we wanted to replicate the target-uncertainty X PNS interaction using a different operational definition of uncertainty in order to enhance confidence in the effect. Secondly, we wanted replicate the target-uncertainty X PNS interaction on romantic attraction using different comparison conditions—an uncertainty condition, a control condition and a condition where uncertainty was explicitly undermined. Third, we wanted the features of the target to be identical across conditions, with only the aura of certainty-uncertainty shifting between levels of the independent variable.
OVERVIEW OF STUDY 2

Study 2 utilized a cover story that was similar to Study 1’s cover story. Female participants in Study 2 listened to an identical recording of an opposite-sex stranger named Derek describing himself in a personal interview. Participants believed that they would be meeting Derek. Uncertainty was manipulated varying instructions about how to listen to the interview, and how to write about the interview after it concluded. In the certainty condition, participants were instructed to avoid speculating about Derek and focus on objective facts about him. In the uncertainty condition, participants were instructed to speculate about Derek. Also, there was a condition with instructions to simply write thoughts about Derek (control). After the interview, participants completed filler items, individual differences measures (e.g., the PNS Scale), and items to assess initial romantic attraction towards Derek.

Method

Participants. Participants were 111 female undergraduate students drawn from a psychology department recruitment pool at Ohio University. Most participants from this pool are students enrolled in introductory psychology courses. As compensation, participants received course credit for being in the experiment.

Design. The design of the second study was a 3(target-uncertainty: control, certainty, or uncertainty) X 2(PNS: high or low) between-subjects factorial design. A composite of self-report items assessing initial romantic attraction to Derek served as the primary dependent variable.
**Personal need for structure.** The Personal Need for Structure Scale (Neuberg & Newsom, 1993) was again administered. Within Study 2’s sample, the average score on the PNS Scale was 3.54 or “Slightly Agree” ($SD = .69$, *Chronbach’s Alpha* = .802). Thus, participants classified as higher on PNS in the second study (one SD above the mean or higher) expressed at least slight agreement with items indicating discomfort and avoidance of uncertainty. In contrast, participants classified as lower on PNS in the second study (one SD below the mean or lower) expressed at least slight disagreement with items that conveyed aversion to uncertainty. It was expected that those with low PNS would be most drawn to the target in the uncertainty condition, whereas those with high PNS would be most drawn to the target in the certainty condition.

**Uncertainty manipulation.** The stage was set for the uncertainty manipulation in Study 2 by telling participants that they were enrolled in an experiment on “first impressions and personality traits.” Participants were instructed to listen to an interview with an opposite-sex research participant named Derek (actually a confederate) whom they would supposedly meet later for a 5-minute conversation task. Uncertainty about Derek was manipulated via writing and listening instructions pertaining to the interview. Participants received instructions for how to listen to Derek’s interview, and how to complete a post-interview writing task. These instructions varied by condition and were meant to induce different mindsets about Derek. In the uncertainty condition, the instructions were intended to make uncertain aspects of Derek more salient. In the certainty condition, the instructions were intended to make well-defined features of Derek (i.e. concrete facts) salient. In the control condition, the intention was to create a mindset
about Derek that was neutral in regards to the certainty-uncertainty spectrum. Experimental control was achieved by using precisely the same interview across conditions, the only thing that varied were the instructions featured below:

- **Control Condition**

  *Listening Instructions (pre-interview)*: Please listen carefully to the audio recording. You will be asked to write about thoughts that you had about the man after the recording ends.

  *Writing instructions (after listening to interview)*: Please write about any thoughts that you had about the male research participant while you listened to the interview.

- **Certainty Condition**

  *Listening Instructions (pre-interview)*: Please listen carefully to the audio recording. As you listen, please pay attention to the facts that you learn about the research participant. Do not try to speculate about what he might be like. Instead, just pay attention to the facts. You will be asked to write some facts that you learned about the man after the recording ends.

  *Writing Instructions (after listening to interview)*: Please write about facts that you learned about the male research participant from listening to the interview.

- **Uncertainty Condition**

  *Listening Instructions (pre-interview)*: Please listen carefully to the audio recording. As you listen, please use what you hear to speculate about the research participant. You can speculate about a variety of things. For example, you could
speculate about the nature of his personality, his goals, what he would be like to interact with, etc.

**Writing Instructions (after listening to interview):** Please write about the speculations that you had about the male research participant while you were listening to the interview.

**Procedure.** Women were greeted by an experimenter who told them that they would be involved in an experiment on “personality traits and first impressions.” The study was completed in private, individual rooms on a computer. To establish the cover story, the experimenter was trained to recite a standardized script to participants. Also, the cover story was later repeated via automated instructions on the computer. The experimenter explained to the women that they would listen to an interview that was conducted with another (opposite-sex) research participant. After listening to the interview, participants would then engage in a writing task about it, and answer questions about their initial impression of the man. Afterwards, participants would engage in a 5-minute conversation task with the man. The rationale for including this bogus conversation task in the cover story was to make participants care more about listening to the interview. Within the context of the cover story, the purpose of the conversation task was so that first impression researchers could compare participants’ initial impression of the target with the impression participants formed after meeting him.

After explaining the cover story to participants and obtaining informed consent, the experimenter set participants up on a computer located in a private cubicle room. After the experimenter left the cubicle room, participants began answering individual
difference questionnaires (ostensibly for the “personality” portion of the study). Participants also responded to an item assessing sexual orientation that was buried among filler items.

After responding to individual difference questionnaires, participants were prompted by the computer to find the experimenter. The experimenter returned and prepared participants for listening to the interview. Participants were given a transcript of the interview, and instructed to put on headphones. After the experimenter left, participants listened to the interview. The first part of the uncertainty manipulation occurred just before the interview as participants were given automated listening instructions by the computer. Participants were instructed to listen carefully to the interview and write their thoughts afterward (control); to focus on listening for facts about Derek and avoid speculating about him (certainty condition); or to speculate about Derek (uncertainty condition).

After the instructions instilled one of these mindsets, the interview began playing. The content of the interview was meant to convey that Derek was a normal, attractive undergraduate student. For example, Derek discussed his love of playing basketball, favorite movies, goals in life, etc. Derek was portrayed as friendly, athletic, academically successful, and motivated. When the interview concluded, participants were prompted by the computer to write about it. They were instructed to either write their thoughts about Derek (control condition); to write facts they learned about Derek and avoid speculation (certainty condition); or to write any speculations they had about Derek (uncertainty condition). Participants could write for as much (or for as little) time as they pleased.
Participants then responded to items assessing how attractive they perceived Derek to be such as: “If I were single, then I would go on a date with someone like the man from the interview” (1 = Disagree Very Strongly, 2 = Disagree Strongly, 3 = Disagree Moderately, 4 = Disagree Slightly, 5 = Neither Agree nor Disagree, 6 = Agree Slightly, 7 = Agree Moderately, 8 = Agree Strongly, 9 = Agree Very Strongly). Attraction items were followed by questions assessing mood, and filler items about participants’ demographics. Participants then completed the Personal Need for Structure Scale (Neuberg & Newsom, 1993), and they responded to an item assessing amount of thinking about Derek.

Finally, towards the end of the study, participants answered additional dependent measure questions regarding how romantically attractive (unattractive) they perceived Derek to be (e.g. “The man sounded like a desirable person;” “I anticipate that the man will be a sexually attractive person.”). All attraction items utilized the same 9-point scale. After answering the final attraction items, participants were thanked, debriefed and dismissed.
RESULTS

Nine participants were excluded from analysis because of problems documented by undergraduate research assistants (e.g. failure to follow instructions, the researchers made an error in the procedure, etc.). Five participants were excluded because they indicated that we should discard their data during a debriefing question (participants were probed for whether or not they had already heard of the study, if they had randomly answered questions, etc.). Finally, two participants were excluded because they indicated during the independent variable writing task that they did not follow instructions. Following these exclusions, the final sample was comprised of 95 female participants (33 in the control condition, 29 in the certainty condition and 33 in the uncertainty condition).

Creating the Measure of Initial Romantic Attraction

First, a composite measure of initial romantic attraction to the ostensible “future discussion partner” was created. This attraction composite served as the primary dependent measure in Study 2. Two of the attraction items came shortly after the writing task, three others were completed after filler questions, and the rest were answered towards the end of the experiment. Specifically, the dependent variable was composed of the following nine items: “The man sounded like a desirable person;” “If I were single, then I would enjoy going on a date with someone like the man from the interview;” “I have a lot in common with the man;” “I anticipate that the man will be a sexually attractive person;” “The man did NOT sound like an interesting person (reverse scored);” “I expect that I would enjoy spending time with the man; ”I imagine that the man and I will have a lot in common;” “If I were single, then I would go on a date with someone
like the man from the interview. “My personality is similar to the man.” All items were assessed using the same 9-point scale (1 = Disagree Very Strongly, 2 = Disagree Strongly, 3 = Disagree Moderately, 4 = Disagree Slightly, 5 = Neither Agree nor Disagree, 6 = Agree Slightly, 7 = Agree Moderately, 8 = Agree Strongly, 9 = Agree Very Strongly). Combining these items created an attraction scale with excellent internal validity (Chronbach’s alpha = .91). In recognition of this high internal validity, the items were averaged to create the primary dependent variable—self-reported initial romantic attraction to the target \(M = 5.67, SD = 1.13\).

**Main Effects**

A one-way analysis of variance was conducted with uncertainty condition (control, certainty, uncertainty) as the independent variable and romantic attraction as the dependent variable. Results revealed a non-significant main effect of uncertainty condition on attraction to the target \(F(2,92) = 1.69, p = .189\). Additionally, we ran an analysis to confirm that PNS did not differ between conditions. It was worrisome that the PNS Scale was administered after the independent variable manipulation. Fortunately, a one-way analysis of variance revealed that personal need for structure did not significantly differ between conditions \(F(2,92) = .47, p = .629\).

**Target-uncertainty X PNS Interaction with Attraction as Dependent Measure**

Next, the potential interaction between uncertainty condition (control, certainty, uncertainty) and PNS (continuously measured) on romantic attraction was explored with linear regression analysis. In the first step, PNS (centered) and two dummy coded variables (representing comparisons between experimental conditions) were entered. The
dummy coded variables were entitled “dummy coded uncertainty condition 1” (control = 1, certainty condition = 0, uncertainty condition = 0); and “dummy coded uncertainty condition 2” (control = 0, certainty condition = 1, uncertainty condition = 0). PNS was significantly related to attraction in the first step of the analysis. As PNS increased, so did attraction to the discussion partner ($B = .337, SE = .164$), $t = 2.051, p = .043$. Critically, however, the main effect of PNS on attraction was qualified by significant target-uncertainty X PNS interactions in the second step of the analysis (see figure 3 for a graph depicting the interactions).
Figure 3. The significant target-uncertainty and personal need for structure interaction on attraction from Study 2. A composite of nine items assessing initial romantic attraction to the target served as the dependent measure.

Target-uncertainty X PNS (centered) was investigated in the second step of the regression analysis by entering two interaction terms. These were the interaction terms of PNS (centered) with each of the two dummy coded experimental condition variables (“dummy coded uncertainty condition 1 X centered PNS,” and “dummy coded uncertainty condition 2 X centered PNS). When those interaction terms were entered in the second step of the model, there was a significant change in $R^2$, $F_{change}(2, 89) = 4.15, p$
= .019. Overall, the model explained about 16 percent of the variance in initial romantic attraction to the target ($R^2 = .157$).

The interaction term “Dummy coded experimental condition 1 (control, uncertainty) X PNS” had a significant relationship with attraction ($B = .818, SE = .387$), $t(89) = 2.112, p = .037$. Similarly, the second interaction term—“dummy coded uncertainty condition 2 (certainty, uncertainty) X PNS”—was significantly related to attraction ($B = 1.054, SE = .386$), $t(89) = 2.73, p = .008$.

**Probing the Uncertainty X PNS Interaction between Experimental Conditions**

Next the significant target-uncertainty X PNS interaction was probed at high and low levels of PNS (one standard deviation above and below the centered mean). First the effects at low levels of PNS will be reported.

Probing low levels of PNS uncovered a trend whereby participants appeared to be more romantically attracted to the man in the uncertainty condition compared to any other condition in the experiment. Specifically, the man was considered significantly more attractive in the uncertainty condition compared to the control condition, but only for those with low PNS ($B = -.994, SE = .385$), $t(89) = -2.58, p = .012$. Additionally, there was a marginally significant effect whereby participants were more attracted to the man in the uncertainty condition than the man in the certainty condition, but this pattern was only found among those with a low personal need for structure ($B = -.639, SE = .384$), $t(89) = -1.66, p = .10$. Notably, there was no difference in attraction between the control condition and the certainty condition for those with low PNS $t(89) = -.954, p = .343$. In summary, those with low PNS had more romantic attraction for Derek when they were
put into an uncertain mindset about him compared to a more certain mindset or a control mindset.

Next the patterns of attraction will be discussed for high PNS perceivers. In contrast to the patterns of attraction observed at low levels of PNS, at high levels of PNS, the pattern was opposite. At high levels of PNS, participants significantly preferred the man when they focused on facts about him, and were explicitly instructed to avoid uncertainty. First, participants expressed more attraction (marginal significance) to the man when they wrote facts about him and explicitly avoided uncertainty compared to when they recorded their thoughts about him ($B = -.684$, $SE = .401$), $t(89) = -1.71$, $p = .091$. Similarly, at high PNS, participants expressed significantly more attraction to the man when they wrote facts about him compared to when they focused on uncertainties about him ($B = -.828$, $SE = .382$), $t(89) = -2.167$, $p = .033$. Notably, there was no significant difference in attraction among those with high PNS when the control condition and the uncertainty condition were compared ($B = -.144$, $SE = .369$), $t(89) = -.391$, $p = .697$. In summary, high PNS perceivers were most attracted to the man when they were able to avoid uncertainty about him and focus on black-and-white facts, rather than focus on thoughts about him or speculations about him.

**Investigating the Influence of PNS on Attraction within Experimental Conditions**

Next slopes that appeared within experimental conditions will be discussed. The notion that mysterious targets are repellent to high PNS perceivers was further reinforced by slopes that were observed within experimental conditions. These were observed while testing the target-uncertainty X PNS model. Within conditions, PNS was positively
associated with attraction except in the uncertainty condition. Perhaps escalating PNS was associated with increased attraction because those with higher PNS prefer to make quick, stereotype-based judgments, and Derek was portrayed as stereotypically attractive (e.g. athletic, friendly, motivated). First, there was a marginally significant effect in the control condition whereby the higher the PNS, the greater the attraction \((B = .549, SE = .28), t(89) = 1.96, p = .053\). Likewise, within the certainty condition, attraction increased in step with PNS \((B = .785, SE = .279), t(89) = 2.82, p = .006\). In contrast, there was not a significant relationship between PNS and attraction within the uncertainty condition. Indeed, the (non-significant) slope in this condition was actually in the opposite direction \((B = -.269, SE = .267), t(89) = -1.01, p = .317\). Perhaps discomfort with uncertainty wiped out any positive effects that increasing PNS had on attraction within the uncertainty condition. In summary, greater PNS was associated with greater attraction within experimental conditions unless the perceiver was focusing on uncertainty about the target.

**Uncertainty and PNS Interaction with Thinking as Dependent Measure**

Previous researchers have found evidence that uncertainty increases thinking about the target of uncertainty. Indeed, Whitchurch et al. (2011) found that responses to the item “How often did thoughts about the people in the profiles pop into your head?” \((1 = \text{Not at all}, 10 = \text{Extremely Often})\) partially mediated the relationship between uncertainty and attraction.

Accordingly, this question was adapted for the current study “Thoughts about the man from the interview keep popping into my head” \((1 = \text{Disagree Very Strongly}, 2 = \ldots)\).
Disagree Strongly, 3 = Disagree Moderately, 4 = Disagree Slightly, 5 = Neither Agree nor Disagree, 6 = Agree Slightly, 7 = Agree Moderately, 8 = Agree Strongly, 9 = Agree Very Strongly). First, we investigated main effects of target-uncertainty on thinking using a one-way analysis of variance. This revealed that thinking about the man was unrelated to condition $F(2, 92) = .10, p=.904$.

However, there was a significant target-uncertainty X PNS interaction on thinking about the man (see figure 4), $F_{\text{change}}(2,89)=5.29, p=.007$. Overall, the model—which included the two dummy coded uncertainty condition variables, PNS (centered), and the two target-uncertainty X PNS interaction terms—explained 11 percent of the variance in thinking about the man ($R^2=.11$).
**Figure 4.** The significant target-uncertainty and personal need for structure interaction on thinking about the target from Study 2.

Within the model, there was a significant interaction between dummy coded uncertainty condition 2 (certainty, uncertainty) X PNS (continuously measured) \( (B = 2.203, SE = .678), t(89) = 3.252, p = .002) \). However, there was not a significant interaction between dummy coded condition 1 (control, uncertainty) X PNS (continuously measured) \( (B = 1.05, SE = .68), t(89) = 1.55, p = .125) \).
Probing the Uncertainty by PNS Interaction on Thinking

Probing the target-uncertainty X PNS interaction on thinking about Derek suggested that high PNS perceivers thought more about him in the certainty condition, relative to the uncertainty condition. Conversely, low PNS perceivers thought most about Derek in the uncertainty condition compared to the certainty condition.

The target-uncertainty X PNS interaction was probed at one standard deviation above and below the mean of the centered PNS variable. First, those with lower (one standard deviation below the mean) PNS thought significantly more about the target in the uncertainty condition compared to the certainty condition ($B = -1.593$, $SE = .675$), $t(89) = -2.360$, $p = .02$). The behavior of those with low PNS was consistent with Whitchurch et al.’s (2011) study where participants’ dwelled on uncertain targets more.

Also, there was a non-significant trend in which those with low PNS thought more about the target in the uncertainty condition than in the control condition ($B = -1.03$, $SE = .676$), $t(89) = 1.52$, $p = .132$). Finally, within the uncertainty condition itself, as PNS decreased, thinking about the man significantly increased ($B = -.942$, $SE = .469$), $t(89) = -2.009$, $p = .048$). In summary, those with lower PNS appeared to think most about the target under conditions of uncertainty. Also, when under conditions of uncertainty, participants thought progressively more about Derek as PNS declined.

In contrast, high PNS perceivers (one standard deviation above the mean) exhibited the opposite pattern of thinking. They thought less about the target under conditions of uncertainty. Those with higher PNS thought significantly less about the target in the uncertainty condition compared with the certainty condition ($B = 1.474$, $SE$
= .671), t(89) = 2.198, \( p = .031 \). Similarly, there was a non-significant trend in which those with higher PNS thought more about the target in the certainty condition compared to the control condition (\( B = -1.036, SE = .703 \), \( t(89) = -1.473, p = .144 \)). Finally, within the certainty condition itself, there was a significant PNS slope. In other words, under conditions of certainty, as PNS increased thinking about the stereotypically attractive target increased in step (\( B = 1.261, SE = .489 \), \( t(89) = 2.579, p = .012 \)). Thus, there was consistent evidence suggesting that those with higher PNS thought most about the target when they were induced to reflect on black-and-white facts and avoid uncertainty about him. Also, there was evidence that, in the context of certainty, as PNS increased, thinking about Derek increased.

It was speculated that thinking about Derek may mediate attraction. Specifically, the interaction between “dummy coded uncertainty condition 2 (certainty, uncertainty)” by PNS on attraction should be mediated by thinking about Derek. To assess this, Study 2’s data was evaluated with the criteria for establishing mediated moderation as outlined by Muller, Judd, and Yzerbyt (2005). Unfortunately, the criteria for saying that thoughts about Derek mediated the effect of dummy uncertainty condition 2 (certainty, uncertainty) x PNS were not satisfied.
DISCUSSION

The primary aim of the second study was to replicate the target-uncertainty and PNS interaction on initial romantic attraction using a different operational definition of uncertainty. This goal was largely satisfied as uncertainty was related to greater romantic attraction, but only for those with low PNS. Conversely, for those with high PNS, target-uncertainty was less attractive than focusing on certain, black-and-white facts about the target. Additionally, there was evidence that low PNS individuals though about the uncertain target most, whereas those with higher PNS thought about the target in the certainty condition most. Also, escalating PNS promoted more thinking under conditions of certainty, but it reduced thinking under conditions of uncertainty. Overall, target-uncertainty generally promoted thinking and attraction to the target, but only for those with low PNS. On the other hand, for high PNS perceivers, the effect was opposite. For them, focusing on the certainties about a target of attraction generally made him more alluring and it generally promoted more thinking.

Operational Definition of Uncertainty in Study 2

In Study 2 the target-uncertainty X PNS interaction was replicated using a different operational definition of uncertainty than was used in Study 1. In study 2, uncertainty about Derek was induced via instructions to speculate about him. Speculation is, by definition, focused on the unknown. Conversely, in the certainty condition, participants were explicitly instructed to avoid speculating about Derek and “stick to the facts” about him. Also, speculating about Derek should have generated greater uncertainty relative to recording one’s thoughts about him (control).
One strength of the present operational definition of uncertainty is that it afforded high levels of experimental control. Everyone listened to precisely the same interview. Every detail about Derek was kept identical across conditions. The only feature that varied was the lens through which Derek was viewed (control, certainty, uncertainty). Alterations to the lens through which participants’ heard the interview—neutral, certain, uncertain—had significant influences on romantic attraction, but only when this variable was crossed with an individual difference about how people interact with uncertainty (PNS). Indeed, confidence in the construct validity of the target-uncertainty manipulation should be strengthened by the finding that the between-condition effects and within-conditions effects of target-uncertainty were moderated (in a predictable way) by an individual difference variable that directly pertains to how perceivers respond to uncertainty.

Overall, finding a significant target-uncertainty x PNS interaction across two different research settings enhances the external validity of the effect. More broadly, it enhances confidence in the notion that uncertainty can increase romantic attraction under some conditions. After all, Whitchurch et al. (2011) published evidence that uncertainty amplifies attraction with just one experiment and with just one operational definition of uncertainty. The present studies suggested that UAA effects generalize to other operational definitions of uncertainty, but only when the important moderator variable of PNS is assessed.
Target-Uncertainty and PNS Interaction on Attraction

Consistent with Study 1, participants who were low in PNS generally replicated the effect uncovered by Whitchurch et al. (2011) in which uncertainty was associated with higher levels of romantic attraction to a target. An implication of this data is that mysterious targets should only be more attractive to those who are not uncomfortable with uncertainty—e.g., those with low PNS.

As expected, the behavior of high PNS perceivers was inconsistent with Whitchurch et al. (2011), but it was consistent with the PNS construct. Those who were higher in PNS were most attracted to the target when they were induced to focus on unambiguous, black-and-white aspects of him while avoiding uncertainty. This is consistent with previous research indicating that those with high PNS are generally averse to uncertainty and seek to avoid it (see Neuberg & Newsome, 1993; Thompson et al., 2001). Moreover, under conditions of certainty, as scores of PNS increased, so did attraction to the target. Why would increasing PNS be associated with increasing attraction to the target within the certainty condition? This may have occurred because the target was portrayed as stereotypically attractive. He was portrayed as friendly, athletic, motivated, experienced in relationships, etc.). Thus, high PNS participants likely seized upon the stereotype and quickly inferred that he was attractive (see Kruglanski & Webster, 1996).

Finding a significant target-uncertainty X PNS interaction is impressive for several reasons. First, it should be noted that uncertainty is not an attraction predictor that is as intuitive as physical attractiveness or similarity. Furthermore, I am not aware of a
study applying the PNS construct to initial romantic attraction. Thus, two predictors that are unfamiliar within the domain of research on initial romantic attraction were found to significantly interact and explain a respectable amount of variance. Indeed, dealing with romantic attraction as an outcome measure is tricky due to the large amounts of error variance (e.g. people’s preferences may vary a great deal). Thus, the fact that the target-uncertainty X PNS interaction explained 16 percent of the variance in attraction is impressive.

**Target-Uncertainty and PNS Interaction on Thinking**

Why are mysterious targets more attractive?—Whitchurch et al.’s (2011) answer was that people think about mysterious targets more. Data from the current study is consistent with the idea that perceivers think about targets more, but this depends on PNS. Indeed, within the experimental conditions that activated certainty and uncertainty, the pattern of thinking more about uncertain targets was fully replicated—but only among those with low PNS. An implication of this is that the effect whereby target-uncertainty increases thinking about the target should only hold among those who are low in PNS.

Quite the opposite, high PNS perceivers thought significantly less about the target under conditions of uncertainty as compared to conditions of certainty. This is inconsistent with Whitchurch et al. (2011). More generally, it is inconsistent with the notion that people generally think more about uncertain events (Wilson & Gilbert, 2008). However, this finding is consistent with the construct of PNS, since high PNS represents a discomfort and desire to avoid uncertainty. Research on seizing and freezing (e.g., Kruglanski & Webster, 1996), suggests that those with higher NFC/PNS desire to quickly
and permanently shut down thoughts about uncertainty through the speedy achievement of closure.

Also, within the condition where certainty was activated, there was a significant PNS slope on thinking. As PNS increased thinking about the target increased. Perhaps conditions of certainty provided a comfortable setting for high PNS perceivers to think about the target. Thus, for those with higher PNS, a mysterious target may actually inspire less thought because of their discomfort with uncertainty and their epistemic need to quickly resolve it.
Study 3 aimed to incrementally build off of Studies 1 and 2. First, Study 3 aimed to replicate the target-uncertainty X PNS interaction on attraction within a different research paradigm. Replicating the interaction with a third operation definition of uncertainty was expected to enhance the external validity of the target-uncertainty X PNS interaction on attraction. The operational definition of uncertainty that were utilized in Study 3 were similar (though not identical) to Whitchurch et al.’s (2011) manipulation of uncertainty. That is, the uncertainty manipulation pertained to ambiguity about a target’s liking for the participant on the basis of a personal profile the participant created. Specifically, to induce uncertainty, female participants were made uncertain about whether a confederate ranked them first or in the middle.

Notably, the operation definition of target-uncertainty in Study 3 was intended to improve upon Whitchurch et al.’s (2011) operational definition in some respects. In the Whitchurch et al. study, participants knew that four men had ranked them best and four men had ranked them average. The uncertainty was about whether or not the women were presently viewing the group of men who liked them best or the group of men who liked them average. The current study’s operational definition of uncertainty differs in two ways.

First, the target of attraction in the proposed study is an individual rather than a collective group. This should enhance ecological validity. Whitchurch et al. (2011) and Whitchurch (2009) speculated that the UAA results of their experiment implied that “playing hard-to-get” is an effective tactic in relationship initiation. However, this tactic
has not been supported by previous empirical research (for research on playing hard-to-get, see Eastwick, Finkel, Mochon, & Ariely, 2007; Walster, Walster, Piliavin, & Schmidt, 1973). Also, Whitchurch et al.’s (2011) research paradigm is different from real-world instances of playing hard-to-get in important ways. For one, their results actually speak to group attraction, whereas instances of playing hard-to-get outside of the laboratory are more likely to involve a single target. To correct for this problem, participants in the proposed study will assess a single target (Derek) rather than a group.

Secondly, in Whitchurch et al.’s (2011) uncertainty manipulation, the participants were certain that there was a group of men who liked them a great deal. Participants were just unsure about which group they were currently viewing (e.g. “I wonder if these are the men who liked me best or the men who liked me average?”). Participants’ knowledge that some group liked them the best renders Whitchurch et al.’s (2011) uncertainty manipulation relatively benign. After all, participants did not experience the self-esteem threat that nobody liked them best. Indeed, even if participants learned that the four men they were viewing were just the group who liked them average, they would still know that another group of men ranked them highly. This uncertainty manipulation is likely dissimilar from the uncertainty that arises in contexts where a target is actually playing hard-to-get with a person. The present study attempted to remedy this by making the uncertainty about whether an individual ranked the participant as his favorite or in the middle. This is significantly different from the situation of being unsure about if you are viewing the four men who ranked you best or the four men who ranked you average.
A third issue is that participants in the Whitchurch et al. (2011) study believed that the four male evaluators were students at different universities whom they would never meet. In actual cases of playing-hard-to-get, people probably expect to interact with the target in the future. Thus, in Study 3’s paradigm, participants were expecting to meet the person who evaluated their profile.

In summary, for Study 3’s uncertainty manipulation, participants were made uncertain about whether a single target ranked them highest or in the middle. This paradigm should more closely resemble real-world instances of playing-hard-to-get where the focus is likely on an individual, the uncertainty is more threatening, and people expect to interact with the target in the future.

Resolved-Uncertainty Comparison Condition

Uncertainty is often a dynamic rather than a static state. For example, sometimes when people are wondering about whether someone is attracted to them, this uncertainty is eventually resolved. In the case of almost any successful long-term romantic relationship, this uncertainty was resolved in a positive way. The present program of research is focused on the positive effects of uncertainty on attraction, so we explored the question of what would happen when uncertainty is resolved in a positive way.

Accordingly, a comparison condition was added whereby target-uncertainty existed but was later resolved in a positive way. Participants were made temporarily uncertain about how Derek ranked them compared to other participants (i.e. “Did Derek rank me at the top or in the middle?”). Later these participants had their uncertainty positively resolved through feedback that the target ranked them as his favorite. The
uncertainty manipulation in Study 3 contained three levels in total: certainty, resolved-uncertainty, and permanent-uncertainty. In the certainty condition, participants were told that the target liked them best early in the experiment and prior to learning more about him through his audio interview. In the permanent uncertainty condition, the confederate’s degree of liking the participant was ambiguous for the entire experiment. Thus, it was always unclear about whether the target ranked the participant highest (best) or in the middle.

There were several expected benefits of adding the resolved-uncertainty comparison condition. After all, uncertainty is often a dynamic, and the resolution of uncertainty is a critical process in the development of a romantic relationship. For example, one way that uncertainty is resolved about an individual is through self-disclosure. Collins and Miller (1994) conducted a meta-analytic review and found that self-disclosure was positively related to liking.

It was predicted that resolving target-uncertainty would be particularly pleasurable for high PNS perceivers. After all, bringing closure to uncertainty is an especially urgent epistemic need for them. Thus, it was expected that resolving target-uncertainty would have very positive effects on attraction for those with higher PNS, but a less positive effect on attraction for those with lower PNS. Also, data from the second experiment suggested that high PNS perceivers thought about targets more under conditions of certainty. Thus, resolving target-uncertainty was expected create a setting whereby high PNS perceivers might also think more about the target compared to conditions of uncertainty.
Obtaining this result would have added an intriguing twist to the story about attraction, target-uncertainty and PNS. If higher PNS individuals had been most attracted to the target under conditions of resolved-uncertainty, then such a finding would have suggested that target-uncertainty can actually amplify attraction for high PNS perceivers, but only if the uncertainty is short lived. In other words, high PNS perceivers may be seduced by mysterious targets, provided the mystery is temporary.

In contrast, it was expected that those with low PNS would continue to be most attracted to the target under conditions of uncertainty. Thus, low PNS perceivers were expected to report the most attraction to targets in the permanent-uncertainty condition, thereby conceptually replicating the effect uncovered by Whitchurch et al. (2011). Also, some of Study 2’s data suggested that low PNS perceivers’ think more about targets under conditions of uncertainty. Thus, it was expected that low PNS perceivers would think more about the target in the permanent-uncertainty condition. However, they should think about him less in the resolved-uncertainty condition because closure had already been achieved. In other words, they should adapt to Derek’s positive feedback in the certainty and resolved-uncertainty conditions. This was expected to make them stop thinking about him as much and be less attracted by him.

**Added and Improved Measures**

A third contribution of the third study was that it included several improved measures of constructs, and it included important new measures. First, manipulation check items were added that directly related to the uncertainty manipulation. For example, one item read: “There is uncertainty about where Derek ranked me” \( I = \)
Disagree very strongly, 9 = Agree very strongly). These more direct manipulation checks were expected to successfully capture differences in uncertainty between experimental conditions.

Because the confederate was a stranger to every participant in all three experiments, it was hard for manipulation checks to show between-conditions differences on uncertainty. Even if the uncertainty manipulation in these paradigms creates relative differences in experienced uncertainty, participants across the experiment might similarly endorse an item such as “Aspects of Derek are mysterious.” After all, Derek is still a stranger whom they have yet to meet. The third study remedied this issue by using manipulation check items that were more directly related to the manipulation. Also, concerns about demand characteristics were managed by including a great deal of filler items around such questions.

Measures of general positivity about Derek were also included. Including the general positivity scale was meant to show that the target-uncertainty by PNS interaction was manipulating attraction rather than general positivity about Derek. General positivity items assessed characteristics that are generally valued in society such as being hard-working, creative, goal oriented, etc., Notably, people tend to idealize those whom they are attracted to. For example, Murray and Holmes (1997) presented evidence suggesting that those in successful romantic relationships overestimated their partners’ positive qualities. Thus, the constructs of general positivity about Derek and initial romantic attraction to Derek were expected to overlap to some degree, yet they should also be distinctive. Somebody might have a highly positive impression of an individual without
feeling romantic attraction towards them. Importantly, the uncertainty by PNS interaction was expected to predict attraction but be less useful for predicting general positivity.

Finally, a behavioral measure of attraction was added in addition to self-report measures of attraction. At this stage of the research program, it was important to show that the target-uncertainty by PNS interaction predicts actions in addition to subjective feelings of romantic attraction. The behavioral indicator of attraction was assessed by having participants commit 0 – 30 minutes to an online conversation with Derek in the future. In summary, Study 3 offered several potential contributions to the present line of research. The potential contributions of Study 3 were: (a) exploring the target-uncertainty by PNS interaction on attraction with a more self-relevant uncertainty manipulation; (b) the addition of a comparison condition where uncertainty is positively resolved; (c) adding measures such as an improved manipulation check, general positivity about the target, and a behavioral measure of attraction.
STUDY 3

In the third study, female participants completed the ostensible “First Impressions and Personality Traits” study by creating a personal profile so that opposite-sex participants (who were presumably present during the session) could form a first impression of them. After writing profiles for the men to evaluate, the women likewise rated and ranked the bogus male research participants’ on the basis of the men’s profiles. In the next phase of the experiment, the women were “randomly assigned” to form a more detailed impression of a specific male (Derek) whom they had just rated. This was accomplished by (a) learning about Derek’s first impression of them; (b) listening to Derek describe himself in an audio interview; (b) meeting Derek for a brief conversation task. Notably, the conversation task was part of the cover story and never occured.

The uncertainty manipulation pertained to Derek’s ranking of the participant on the basis of her profile. In the certainty condition, women immediately learned that Derek ranked them as his favorite after they were randomly assigned to meet him. In the resolved-uncertainty condition, participants were made temporarily unsure about whether Derek ranked them as his favorite or in the middle. Later uncertainty was resolved in a positive way after the women listened to Derek’s interview (i.e., they learned that Derek ranked them as a favorite). Finally, participants in the permanent-uncertainty condition were permanently kept guessing about the extent to which Derek liked them (“was I the favorite or middle?”). A plethora of filler items (mostly drawn from personality scales), mood, uncertainty about Derek’s opinion of them, self-reported thinking about Derek, wondering about Derek’s opinion of them, self-reported attraction, a behavioral measure
of attraction, and general positivity items about Derek were administered following the uncertainty manipulation.

**Method**

**Participants** Participants were 112 heterosexual females whose first language was English. Recruitment occurred through a psychology department recruitment system at a rural midwestern university. This participant pool was composed primarily of students enrolled in introductory psychology courses. Participants received course credit for their participation.

**Design.** Broadly, the third study investigated how uncertainty about an opposite-sex target’s opinion of the perceiver and the perceiver’s trait levels of PNS interact to influence her attraction to the target. This was investigated with an IV X PV design—3 (Target-Uncertainty: certainty, resolved-uncertainty or permanent-uncertainty) X 2 (PNS: high or low) between-subjects factorial design. The primary dependent measures were (a) self-reported initial romantic attraction to the target of attraction; (b) the perceivers’ self-reported thinking about the target; (c) a behavioral measure of attraction to the target; (d) general positivity items about the target.

**Uncertainty manipulation.** Uncertainty in Study 3 was intended to be more self-relevant to participants. Also, Study 3’s uncertainty manipulation should conceptually replicate the uncertainty manipulation from Whichurch et al.’s (2011) demonstration of UAA. Uncertainty was manipulated by making some women uncertain about the extent to which an opposite-sex target was attracted to them based on personal information they self-disclosed in their profile (e.g., their goals, hobbies, etc.). Women were either: (a)
always certain about the target’s high ranking of their personal profile; (b) temporarily uncertain about the target’s high ranking—which was suddenly and positively resolved after listening to his interview; (c) permanently uncertain about the target’s ranking.

The context of the uncertainty manipulation was ostensibly a study on “first impressions and personality traits” where men and women formed first impressions of each other on the basis of personal profiles. After the women rated and ranked men’s profiles (including Derek’s profile), they were “randomly” assigned to form a more detailed impression of one of the men, Derek, by listening to his self-description in an audio interview and through a face-to-face conversation task with him. Notably, the conversation task would never actually occur.

Before participants listened to Derek’s interview, they received feedback regarding Derek’s rankings. Participants in the control group were informed that they were ranked as Derek’s favorite person. In contrast, the other two groups (permanent-uncertainty, resolved-uncertainty) were told that:

“For reasons of experimental control, you cannot know Derek's exact ranking of your profile...However, you can receive some limited information. You were either ranked as Derek's favorite or you were ranked in the middle. In other words, you might be his favorite or you might be in the middle.”

After listening to Derek’s interview, half of the women who were made uncertain about Derek’s ranking were told: “We can now disclose to you that Derek ranked your profile as his favorite” (resolved uncertainty condition). In contrast, the other two groups (control and permanent-uncertainty) did not see any new feedback. Instead, they merely
saw the same feedback repeated a second time. “…you will again see the information about Derek's opinion of you. This feedback will remain on the screen for about a minute while the next part of the experiment is loading.”

It is worth noting that feedback for participants in the resolved-uncertainty condition was ultimately identical to the positive feedback in the certainty condition (“Derek ranked you as his favorite.”). Those in the resolved-uncertainty condition were just kept guessing while they listened to Derek’s interview whereas those in the certainty condition already knew the positive information. In contrast, permanent-uncertainty participants were kept guessing about the extent of Derek’s liking for them for the entire experiment (e.g., “Was I the favorite, or was I just ranked in the middle?”).

Predictions. Explicit predictions about the results of Study 3 were made prior to data collection.

- **Self-Reported Initial Romantic Attraction**
  
  i. Those with lower PNS were expected to self-report significantly greater attraction to the target of attraction under conditions of permanent-uncertainty as compared to conditions of certainty or resolved-uncertainty.
  
  ii. Perceivers with higher PNS were expected to self-report significantly more attraction to the target under conditions of resolved-uncertainty as compared to conditions of permanent-uncertainty or certainty.
  
  iii. Those with higher PNS were expected to self-report significantly more attraction to the target under conditions of certainty as compared to conditions of permanent-uncertainty.
iv. Within the permanent-uncertainty condition, as scores on PNS decrease, initial romantic attraction was expected to increase.

- *Behavioral Measures of Attraction*
  i. The behavioral measure of attraction was expected to display excellent convergent validity by significantly and strongly correlating with self-report measures of attraction.
  ii. Those with lower PNS were expected to commit significantly more time to an online chat with the target under conditions of permanent-uncertainty as compared to conditions of certainty or resolved-uncertainty (controlling for relationship status).
  iii. Those with higher PNS were expected to commit significantly more time to an online chat with the target in the resolved-uncertainty condition compared to conditions of certainty or permanent-uncertainty (controlling for relationship status).
  iv. Those with higher PNS were expected to commit significantly more time to an online chat with the target in the certainty condition compared to the permanent-uncertainty condition (controlling for relationship status).
  v. Within the permanent-uncertainty condition, as scores on PNS decrease, amount of time that is committed to the target was expected to increase (controlling for relationship status).

- *Self-Reported Thinking about Target*
  i. Those with lower PNS were expected to think significantly more about the target in the permanent-uncertainty condition compared to the resolved-uncertainty condition or the certainty condition.
ii. Those with higher PNS were expected to think significantly less about the target in the permanent-uncertainty condition compared to the resolved-uncertainty condition or the certainty condition.

iii. Within the permanent-uncertainty condition, as PNS decreases, thinking about the target was expected to increase.

**Procedure.** Participants were greeted, given a verbal explanation of the experiment/cover story and informed consent documents to complete. Flow-charts summarizing the experiment on “first impressions and personality traits” was also provided (see appendix) to aide comprehension. However, no participants complained about having difficulty in following the experiment.

The women learned that they had been randomly assigned to a condition of the “first impression study” where they would begin the session by describing themselves in a written profile for opposite-sex research participants (who were in a moderately different condition of the experiment) to form a first impression of them. Then the tables would turn as the women would likewise rate and rank the profiles of nine male evaluators who were enrolled in that condition of the experiment.

After rating the nine profile authors, the women would be randomly assigned to form a more detailed impression of a specific male whom they previously rated and ranked. Each woman was to form a more detailed first impression of one of her evaluators by (a) learning about his impression of her based on her profile; (b) listening to an interview that he conducted with experimenters, and (c) meeting him for a conversation task. Importantly, because the women were in a different condition of the
experiment than the men, all of their answers to questions were kept anonymous and unknown. Hence, although the women received feedback about their future conversation partner’s initial impression of them, he would never learn about their opinion of him. This element of the cover story was meant to prevent a host of potential problems (e.g., participants providing the confederate with positive rankings because of reciprocity).

The experimenter set participants up in private cubicle rooms. This is where they would generate their own profile and evaluate the profiles of others. An automated program prompted participants to type answers to five open-ended questions (cf. Wilson, Centerbar, Kermer, & Gilbert, 2005), for example:

- “Please write (2-5 sentences) about how you would describe yourself if you were having a conversation with someone for the first time. Reveal something interesting about yourself!”
- “Please write (2-5 sentences) about things that you do for fun or that you find meaningful. For example, you could discuss your favorite hobbies, interests, things you like doing on the weekend, etc”.
- “Please write (2-5 sentences) about what you look for in an opposite-sex friend”.

After completing their profiles, participants viewed a final consent screen. Here they again consented to allow the male research participants to rate and rank them. Besides the profile, everything else participants did was anonymous. Participants then completed the PNS scale (Neuberg & Newsom, 1993) for the personality portion of the experiment. Having just submitted their profiles for evaluation, the women then rated and
ranked the profiles of the nine male research participants. For instance, after each profile (including Derek’s) women answered the item “What is your impression of this profile’s author?” ($1 = \text{Extremely negative impression of the author}$; $9 = \text{Extremely positive impression of the author}$).

After they rated profile authors, the computer “randomly assigned” the women for the next phase of the experiment. This phase involved forming a more detailed impression of one of their evaluators—naturally, this turned out to be Derek by “random assignment.” Automated instructions reminded the women that all of their responses to questions outside of their own profile would be completely anonymous and unknown to Derek.

Before clicking on a screen to learn about Derek’s impression of them, the women answered an item assessing their state curiosity about his opinion of them. The item read: “How curious are you to learn information about Derek's impression of you?” ($1 = \text{Not at all curious}; 9 = \text{Extremely curious}$). After the state curiosity item, the participants received the feedback for the uncertainty manipulation. About one-third of the women then learned that Derek viewed their profile and ranked them as his favorite (certainty condition). In contrast, the other two conditions (resolved-uncertainty, permanent-uncertainty) learned that Derek either rated them as either his favorite or in the middle. Per the cover story, participants in the two uncertainty conditions were not told Derek’s exact impression of them for reasons of “experimental control.” Participants then responded to filler items and manipulation check items—e.g., “How much ambiguity is there about Derek’s impression of you” ($1 = \text{None at all}, 9 = \text{A Great Deal}$)?”
Next participants continued to form a more detailed impression of Derek by listening to his interview. Derek was portrayed consistently across his profile and audio interview as goal-oriented, athletic, and attractive. After the interview, participants in the resolved-uncertainty condition were told that they had reached a point in the study where it was acceptable for them to learn Derek’s exact impression. Consequently, they learned that Derek ranked them as a favorite, thereby settling uncertainty about Derek’s impression of them in a positive way. Conversely, women in the permanent-uncertainty condition saw the same feedback repeated—thereby maintaining the ambiguity (“am I a favorite or in the middle?”). Women in the certainty condition likewise saw the same feedback, which, in their case, reminded them of their high ranking. After the second feedback screen closed, the uncertainty manipulation was completed as participants either had uncertainty positively resolved, maintained, or were reminded of positive information. When the uncertainty manipulation was completed, two time 1 attraction questions were asked. As soon as the uncertainty manipulation was completed, participants were asked. “How attractive do you think Derek is?” (1 = Extremely unattractive, 9 = Extremely attractive). Also, the item “Derek seems similar to me” (1 = Not at all, 9 = Very Much) was asked almost immediately after the uncertainty manipulation. The rest of the attraction items appeared after a gap of time marked by a great deal of filler items.

Filler items were scattered throughout the remainder of the study. The filler items were consistent with the cover story that the experimenters were equally interested in personality traits. Sample filler items included: “I see myself as someone who tends to
daydream a lot; I see myself as someone who is original and comes up with new ideas” (1 = Not at all, 9 = A great deal).

Among filler items was a question assessing sexual orientation in order to exclude participants who may not feel romantic attraction to males. Participants also responded to items assessing mood (e.g., “I feel nervous; “I feel happy;” etc.) on 9-point scales (1 = Not at all, 9 = A great deal). Importantly, responding to filler items also provided time for thoughts about Derek to pop into participants’ minds, and for participants to wonder about Derek’s opinion of them. Whitchurch et al., (2011) argued that such a time gap was necessary for uncertainty to generate differences in attraction.

To assess this, thinking measures were inserted towards the end of a string of filler items: “Since you listened to Derek’s interview, how often have thoughts about Derek popped into your head” (1 = Not Very Often, 9 = Extremely Often); “Thoughts about Derek keep popping into my head;” “Ever since I listened to Derek’s interview, I have thought about him a lot.” These last two items were assessed on a 9-point scale assessing extent of agreement/disagreement (1 = Disagree Very Strongly, 2 = Disagree Strongly, 3 = Disagree Moderately, 4 = Disagree Slightly, 5 = Neither Agree nor Disagree, 6 = Agree Slightly, 7 = Agree Moderately, 8 = Agree Strongly, 9 = Agree Very Strongly). Manipulation check items were also administered—e.g., “I feel uncertain about Derek’s impression of me” (1 = Not at all, 9 = A great deal); “There is uncertainty about where Derek ranked me (1 = Disagree Strongly, 9 = Agree Strongly).”

The women then responded to more unrelated filler items. Throughout the study items were asked to assess general positivity about Derek—most of these general
positivity items were reverse scored, and they were measured on the same 9-point scale as the thinking items. Examples included: “I think that Derek is probably a creative person;” “My impression is that Derek probably doesn't try to do his best in school;” “Derek seems like the type of person who doesn’t value family.”

Thus, after the manipulation check, two attraction items were assessed (time 1 attraction). Then there was a period of time characterized by filler questions, plus the manipulation check and some process measures. After this time gap, the primary dependent variable, participant’s self-reported attraction to Derek, was assessed (e.g. “Derek sounds like an unattractive person[reverse scored];” “Derek sounded like a sexually desirable person;” “If I were single, then I would enjoy going on a date with someone like Derek.”). Attraction questions were assessed on the same 9-point scale as the thinking and general positivity items.

After reporting attraction, participants answered five more filler items to reduce demand characteristics. Finally, a behavioral measure of attraction was assessed (amount of time participants were willing to spend in an online chat with Derek). Participants were informed that Derek unexpectedly had to leave the study. This meant that the conversation task where participants were actually going to meet Derek was cancelled. They were then given a chance to commit to an online chat with Derek (to occur within the next 60 days) via the psychology department’s bogus “Social Research Webpage.” Number of minutes that participants committed for an online chat with Derek served as the behavioral measure of attraction. Participants agreed to spend time chatting online with Derek utilizing a 7-point scale, \(1 = 0 \text{ Minutes}, 2 = 5 \text{ Minutes}, 3 = 10 \text{ Minutes}, 4 = \)
15 Minutes, 5 = 20 Minutes, 6 = 25 Minutes, 7 = 30 Minutes). To increase the odds that the behavioral measure captured attraction rather than helpfulness, participants were told that the experimenters’ already collected plenty of data from them. Hence, even choosing 0 minutes was perfectly acceptable. After completing the behavioral measure of attraction, participants were funnel debriefed, thanked and dismissed.
RESULTS

Before beginning analysis, three participants were excluded because they were flagged by research assistants for not following instructions. Funnel debriefing revealed that no participants successfully guessed the hypotheses of the study. This left a final sample of 109 participants whose data was analyzed.

Scale Creation

Several scales were created to assess the hypotheses and explore Study 3’s data set. First, there was an attraction pre-measure assessing the first impression of Derek after participants read his profile. The first impression scale was meant to be used as a covariate in exploratory analyses. Next there were two items representing a brief post uncertainty-manipulation measure of attraction (attraction Time 1). Also, a manipulation check assessing uncertainty about Derek’s opinion of the participant’s profile was assessed. Scales assessing mood, thinking about Derek, general positivity about Derek were created. Also, a scale assessing attraction to Derek after a period of time had passed (attraction Time 2) was created. Finally, participants could commit between 0 – 30 minutes to chat with Derek online, this was meant to be a behavioral measure of attraction.

First, a potential covariate, participant’s first impression to Derek, was created. The first impression scale was, in a sense, an attraction pre-measure. It assessed first impressions of Derek after participants read his profile but before the uncertainty manipulation was introduced. The first impression scale consisted of two items: “What is your impression of this profile’s author?” ($1 = $Very negative impression of the author;$ 9
= Extremely positive impression of the author); “I think that author of this profile would make a good friend for me.” (1 = Not at all, 9 = Very Much). Due to a research assistant labeling error, there was missing data for two of the first impression measures. Thus, analyses utilizing this measure is drawn from a sample of 107 rather than 109 participants. As might be expected, the first impression scale correlated with the measure of overall attraction (combining Time 1 and Time 2 attraction items) that was introduced later in the experiment $\rho (105) = .255, p = .008$ (note: $\rho$ was utilized rather than Pearson’s $r$ because first impression was negatively skewed as most people had a favorable impression of Derek).

Secondly, a composite of two items assessing post-uncertainty manipulation attraction (time 1 attraction) was created. These time 1 attraction items were assessed immediately after participants’ learned everything about Derek (through the uncertainty manipulation, his profile, and his audio interview) and the uncertainty manipulation was complete. The first item (“How attractive do you think Derek is; 1 = Extremely Unattractive; 9 = Extremely Attractive) had a mean of 6.29 ($SD = 1.13$). The second time 1 attraction item assessed more compatibility-related attraction (“Derek seems similar to me”; 1 = Not at all, 9 = Very Much) and had a mean of 6.82 ($SD = 1.35$). Not surprisingly, the two Time 1 attraction items were significantly correlated $r (107) = .298, p = .002$.

Third, a manipulation check item was created to assess degree of uncertainty that participants felt in the three levels of the target-uncertainty variable (control, resolved-uncertainty, and permanent-uncertainty). This manipulation check item contained five
questions (measured on 9-point scales) that were interspersed among filler items after the uncertainty manipulation was completed. The items were: “I feel uncertain about Derek's impression of me;” “There is uncertainty about where Derek ranked me;” “I am unsure about how much Derek likes me;” “I am unclear about Derek's opinion of my profile;” “How uncertain are you about Derek's first impression of you?” Internal reliability for this measure was high (Chronbach’s alpha = .85, M = 3.99, SD = 0.15).

After the uncertainty manipulation check, a mood index was created. Mood was assessed shortly after the uncertainty manipulation using a 12-item positive mood scale. Each item was on a 9-point scale. (Chronbach’s alpha = .77, M = 5.32, SD = 1.96).

A process measure of thinking about Derek (measured on 9-point scales) was created. This scale included the items: “Ever since I listened to Derek's interview, I have thought about him a lot;” “Thoughts about Derek keep popping into my head;” “Since you listened to Derek's interview, how often have thoughts about Derek popped into your head?” (Chronbach’s alpha = .93, M = 4.89; SD = 1.86). As expected, the thinking measure correlated with overall attraction, r (107) = .64, p < .001, general positivity, r (107) = .37, p < .001, and behavioral attraction, rho (107) = .351, p < .001.

Next a general positivity scale about Derek was created. Interspersed among fillers were 22 items, measured on 9-point scales, to assess positive general impressions of Derek (e.g., his creativity; whether he seems to try hard to succeed, whether he values family, etc.). Examples of these items include: “I think that Derek is probably unathletic [reverse scored];” “My impression is that Derek is probably not a hard working student [reverse scored];” “I think that Derek will be an extremely successful person in the
future;” “Derek seems like a person who doesn't value family [reverse scored]” Together, these general positivity items displayed strong internal reliability \((\text{Chronbach's alpha} = .91)\), so they were averaged together to create a composite scale \((M = 7.73, SD = 0.69)\). Not surprisingly, this general positivity scale strongly correlated with general attraction, \(r(107) = .648, p < .001\).

Although two attraction items were assessed immediately after the uncertainty manipulation, most of the attraction items occurred later. These remaining 23 attraction items occurred after filler items, process measures and a manipulation check. The 23 attraction items were averaged together into a time 2 attraction variable. Examples of some of these items include: “If I were single, then I would enjoy going on a date with someone like Derek” “Derek sounds like an unattractive person [reverse scored].” Extent of agreement/disagreement was assessed on 9-point scales. As mentioned in the procedure, both time 1 and time 2 items were assessed after the uncertainty manipulation. Thus, nothing new occurred in the time gap separating time 1 and time 2 attraction measures with the exception of filler items, a manipulation check, and process measure questions. The internal reliability of the time 2 attraction measure was high \((\text{Chronbach's alpha} = .96, M = 6.32, SD = 0.95)\).

Next an overall attraction measure was created by averaging together the 25 attraction self-report items (all measured on 9-point scales). In other words, the overall attraction measure combined the time 1 and time 2 attraction items. This scale assessed various facets which had been identified as important aspects of attraction in previous
research (e.g., affective attraction, sexual attraction, etc.). The Chronbach’s alpha on this scale was high (.96; $M = 6.33$, $SD = 0.94$).

Finally, a behavioral measure of attraction occurred at the end of the experiment following more filler items. This was the behavioral measure of attraction whereby participants could commit 0 – 30 minutes to chatting online with Derek at a future date. Time commitment scale was a 7-point scale that represented 5 minute intervals ($1 = 0$ minutes, $2 = 5$ minutes, $3 = 10$ minutes, $4 = 15$ minutes, etc.). The mean of the scale was 3.51 ($SD = 2.09$). Unfortunately, behavioral attraction was not normally distributed. Rho, a non-parametric correlational analysis, indicated that the behavioral measure of attraction was strongly related to self-report measures of attraction, $\rho(107) = .371$, $p < .001$.

**Primary Analyses Using the Uncertainty Manipulation and PNS**

The primary analyses were informed by the predictions made prior to running Study 3. First, the efficacy of the uncertainty manipulation was assessed with the uncertainty manipulation check scale. Secondly, main effects of uncertainty on the attraction scales were explored. Third, the uncertainty by PNS model was utilized to predict scores on attraction scales. This was a test of the primary hypotheses of Study 3. Following null results, exploratory variations of the target-uncertainty by PNS model (e.g., adding covariates, alternative attraction DV’s, etc.) were attempted. The goal was to find a significant relationship between the uncertainty by PNS model and attraction. None of these models surpassed statistical significance. Finally, a marginally significant interaction of uncertainty by PNS on thinking about Derek was found. After the
hypothesized model failed, exploratory analyses were conducted with variables related to uncertainty about Derek’s ranking of the participants’ profile.

**Uncertainty manipulation check.** To assess the effectiveness of the uncertainty manipulation, the effect of the manipulation on the uncertainty manipulation check scale was explored. Descriptively and in descending order, uncertainty was highest in the permanent uncertainty condition \( (n = 37, M = 4.58, SD = 1.39) \); mean uncertainty in the control condition was 4.12 \( (n = 36, SD = 1.49) \); finally, average uncertainty was lowest in the resolved uncertainty condition \( (n = 36, M = 3.27, SD = 1.18) \).

To assess whether these differences were significant, a one-way ANOVA was performed with the composite manipulation check (uncertainty scale) as the dependent variable and target-uncertainty as the independent variable. The ANOVA was significant \( F(2, 106) = 8.75, p < .001 \). Because the omnibus test was significant, Fisher’s LSD post hoc tests were performed to specifically determine which groups differed significantly. In the resolved-uncertainty condition—where participants were initially kept in suspense until uncertainty was positively resolved—participants reported feeling significantly more certainty about Derek’s impression of them than in the control condition where participants were never held in suspense \( t(106) = 2.69, p = .009 \). Also, as expected, those in the resolved uncertainty condition felt significantly more certainty about Derek’s impression of them than those in the permanent uncertainty condition \( t(106) = 4.13, p < .001 \). Finally, there was a descriptive trend that did not reach significance whereby those in the permanent uncertainty condition felt less certainty about Derek’s impression of them than those in the control condition \( t(106) = 1.44, p = .151 \).
Main effect of uncertainty on attraction. The main effects of target-uncertainty (control, resolved-uncertainty, permanent uncertainty) on self-reported attraction, behavioral attraction, and general positivity were explored with a series of one-way ANOVAs. None of the analyses yielded significant results, all ps > .10. For example, there was no significant difference between target-uncertainty conditions on attraction $F(2,106) = 1.27, p = .286$.

Main effects of PNS. As a first step towards investigating the uncertainty X PNS model, the hypothesized moderator variable (PNS) was computed for each participant (Chronbach’s alpha = .819, $M = 3.59, SD = 0.69$). The main effects of PNS on self-reported attraction, behavioral attraction, and general positivity were explored with regression analyses. PNS was not related to any of the attraction indicators all ps > .10. For example, PNS was not significantly related to attraction $F(1,107) = .18, p = .672$. Also, PNS was unrelated to the uncertainty manipulation check $F(1,107) = .72, p = .399$.

Target-Uncertainty by PNS interaction on attraction. PNS was mean centered and the manipulated independent variable (target-uncertainty: control, resolved uncertainty, permanent uncertainty) was dummy coded. Linear regression analyses were performed with the overall attraction scale as the dependent variable.

First, Dummy-coded target-uncertainty and centered PNS were entered in the first step; dummy coded target-uncertainty and centered PNS interactions were entered in the second block. Unfortunately, this model did not significantly predict attraction $F_{\text{change}}(2,103) = 0.57, p = .568$. The same model was then attempted to predict behavioral attraction and general positivity. These attempts yielded null results all ps > .10. For
instance, the target-uncertainty X PNS model did not significantly predict general positivity $F_{\text{change}}(2,103) = .68, p = .51$. As might be expected, disappointing performances of the uncertainty X PNS model on self-reported attraction and general positivity were replicated with the number of minutes participants were willing to spend chatting online with Derek (i.e. the behavioral measure of attraction), $F_{\text{change}}(2,103) = .163, p = .85$. Hence, contrary to predictions, the target-uncertainty X PNS model did not predict attraction or general positivity about the target of attraction.

An exploratory regression analysis was conducted to predict time 2 attraction while controlling for time 1 attraction (centered). Again, centered PNS, the experimental variable, and the interaction between the two were included as predictors. This model was did not reach significance, $F_{\text{change}}(2,103) = 1.13, p = .327$. This same model was used in an attempt to predict behavioral attraction and the general positivity items. However, these models did not approach significance either, all $ps > .10$.

Due to the null results with attraction measures, several alternative types of analyses were attempted for exploratory purposes. This included testing the target-uncertainty X PNS model with relevant subscales of attraction (e.g., sexual attraction, affective attraction, etc.), and various covariates (e.g., relationship status, etc.). Also, models were attempted using the subscales of PNS: Desire for Structure; and [Negative] Response to Lack of Structure. Additional models controlled for potential covariates like relationship status, etc. Unfortunately, no significant findings were uncovered using the target-uncertainty X PNS model or variations of it.
The primary aim of Study 3 was to investigate the uncertainty X PNS model on attraction. However, hypotheses were also made that pertained to thinking about Derek. It was expected that uncertainty would interact with PNS to predict changes in thinking about Derek. A trend appears to have been emerging as the uncertainty X PNS model yielded a marginally significant change in $r^2$ $F_{change}(2,103) = 2.53, p = .085 \ (r^2 = .057)$. Although the change in $r^2$ was marginal, the interaction was probed for exploratory purposes.

The target-uncertainty by PNS interaction on thinking about Derek was probed at high and low levels of PNS. The findings were not congruent with hypotheses. At high levels of PNS, perceivers’ did not differ in the extent to which they thought about Derek across conditions. However, low PNS perceivers’ thought about Derek significantly more in the resolved uncertainty condition compared to the certainty condition ($B = 1.14, SE = 0.41) \ t(103) = -1.81, p = .074$). Also, within the resolved uncertainty condition, as PNS decreased thinking about Derek increased ($B = -.775, SE = .399) \ t(103) = -1.943, p = .055$).

Recall that the thinking about Derek scale occurred after the uncertainty manipulation. More specifically, it was measured in the gap of time between the time 1 and time 2 attraction items. Notably, thinking about Derek was positively associated with time 2 attraction, $r (107) = .359, p < .001$, and with committing time to chatting online with him $r (107) = .207, p = .033$. These significant results even held when controlling for time 1 attraction measures.
Exploratory Analyses Utilizing Variables Related to Uncertainty

Due to the null results connected with the uncertainty by PNS model, exploratory analyses were conducted utilizing measures that were related to uncertainty about Derek’s opinion of the participants. These items were (a) participants’ wondering about Derek’s opinion of their profile, and (b) participants’ curiosity about Derek’s opinion of their profile. The first set of exploratory analyses to be described concerned the wondering item.

There is exploratory evidence suggesting the possibility that participants’ wondering about Derek’s opinion of them increased their attraction to him. Notably, wondering about Derek’s opinion positively related to the time 2 attraction scale, even when controlling for how attractive participants believed that Derek was at time 1. This positive relationship between wondering and attraction remained significant when several additional variables were controlled for as well, but only within the permanent uncertainty condition. Finally, there is evidence against the alternative explanation that those who wondered more about Derek’s opinion also tended to be people who were more predisposed to like someone such as Derek. Specifically, wondering about Derek’s opinion was unrelated to the first impression scale measured earlier in the study. Also, associations between wondering and subsequent attraction remained significant, even when controlling for pre-existing attraction.

There was also exploratory evidence suggesting the possibility that, in the certainty and resolved-uncertainty conditions, participants’ early curiosity about Derek’s opinion of them contributed to their subsequent attraction. Given that Derek was a
stranger, participants might still ask questions about his opinion of them, even if they were in a condition where they knew that they were ranked as his favorite (e.g., “Perhaps Derek ranked me as his favorite because we both love the Cleveland Browns football team.”) Curiosity about Derek’s opinion was measured before the uncertainty manipulation feedback was received. However, in the certainty and resolved-uncertainty conditions, curiosity significantly related to subsequent attraction-related measures such as overall attraction, time 2 attraction, wondering about Derek’s opinion, and thinking about him.

These positive relationships between curiosity and attraction remained significant even when controlling for participants’ positive (negative) impression of Derek that was assessed around the same time when state curiosity about Derek’s opinion was measured. This makes one doubt the alternative explanation that pre-existing attraction amplified both curiosity about Derek’s opinion and attraction to him later in the experiment. Also, in the certainty condition, the significant and positive partial correlations (controlling for first impression) between curiosity about Derek’s opinion and subsequent attraction to Derek were rendered non-significant when wondering about Derek’s opinion was added as a control. Also, in the resolved-uncertainty condition, significant and positive partial correlations (controlling for first impression) between curiosity about Derek’s opinion and attraction to Derek reduced in significance when wondering about Derek’s opinion was controlled for. Finally, there is evidence against the third variable explanation that those who had higher state curiosity about Derek’s opinion were the types of people who were more predisposed to be attracted to Derek.
Step 1: marginal correlations with wondering about Derek’s opinion and Time 2 attraction. Despite the disappointing performance of the uncertainty by PNS model, exploration did reveal reasons to not entirely abandon the notion that uncertainty can amplify attraction. Indeed, exploring the potential link between uncertainty and attraction was the broad mission of this dissertation project. Several exploratory analyses that controlled for a multitude of confounds suggested that participants’ wondering about Derek’s opinion of their profile and state curiosity about Derek’s opinion of them amplified participants’ attraction to him. This is relevant because uncertainty about Derek’s impression of the perceiver was the object of Study 3’s uncertainty manipulation. Thus, the first set of exploratory analyses revolved around a measure of participants’ wondering about Derek’s impression of them.

The initial demonstration of the UAA effect (Whitchurch et al., 2011) presented evidence that uncertainty amplifies attraction because uncertain perceivers are thinking more about the target’s opinion of them. In her dissertation, Whitchurch (2009) implied that this thinking takes the form of wondering. Increased wondering, in turn, amplifies attraction.

To study this hypothesis, an item assessing participants’ wondering about Derek’s opinion of their profile was included. The item read: “I am wondering about Derek's opinion of my profile.” (1 = Disagree Very Strongly, 2 = Disagree Strongly, 3 = Disagree Moderately, 4 = Disagree Slightly, 5 = Neither Agree nor Disagree, 6 = Agree Slightly, 7 = Agree Moderately, 8 = Agree Strongly, 9 = Agree Very Strongly).

Wondering was measured during the period between time 1 and time 2 attraction.
measures \((M = 5.32, SD = 1.96)\). For the most part, the only thing occurring during the period between time 1 and time 2 attraction measures (i.e., the period when wondering was assessed) was four general positivity items, some process measures, mood, and lots of filler items. Most importantly, during the gap between time 1 and time 2 attraction measures, there was no new information about Derek whatsoever.

The first step of exploring the effects of wondering involved marginal correlations between wondering and attraction variables. Before introducing control variables to the exploratory wondering model, the wondering item was investigated for links to the uncertainty manipulation check and attraction indices. Notably, across conditions strong patterns emerged whereby participants’ wondering about Derek’s opinion of them significantly related to indicators of attraction such as time 2 self-reported attraction, \(r(107) = .364, p < .001\); behavioral attraction, \(r(107) = .364, p < .001\); general positivity about Derek, \(r(107) = .19, p = .039\); and to the composite measure of thinking about Derek, \(r(107) = .742, p < .001\).

Wondering about Derek’s opinion also correlated with participants’ feelings of uncertainty about Derek’s opinion of them (i.e., the uncertainty manipulation check), \(r(107) = .287, p = .002\). Although wondering about Derek’s opinion positively related to time 2 attraction, the uncertainty manipulation check was unrelated to time 2 attraction in the certainty and permanent uncertainty conditions, all \(ps > .10\). Also, the uncertainty manipulation check was negatively associated with attraction in the resolved uncertainty condition \(r(35) = -.424, p = .01\).
Positive association between wondering and time 2 attraction controlling for time 1 attraction. Next confounds were controlled for in order to suggest the possibility that wondering about Derek’s opinion may have played a role in increasing attraction to him. One could argue that positive correlations between wondering about Derek’s opinion and subsequent attraction measures simply reflects that people who were already more attracted to Derek tended to wonder about him more and thereby reported higher subsequent attraction. By this explanation, pre-existing attraction produced the significant correlation between wondering and time 2 attraction, rather than wondering increasing time 2 attraction. Notably, however, partial correlations lead one to doubt this alternative explanation.

Recall the first time 1 attraction item was “How attractive do you think Derek is?” This was assessed immediately after participants’ received all of the information about Derek through his profile, audio interview, and the uncertainty manipulation. Indeed, it was the first question following the uncertainty manipulation. Subsequently, the time 2 attraction scale (23 items) was assessed following mood, general positivity items, process measures, wondering, and a plethora of filler items. Notably, however, nothing new was presented about Derek during this period between time 1 and time 2 attraction measures.

Even when controlling for the time 1 attraction item that occurred immediately after the uncertainty manipulation, correlations between participants’ wondering about Derek’s impression of them and time 2 attraction remained significant. Specifically, wondering about Derek’s opinion of the profile positively correlated with time 2
attraction \( r(106) = .276, p = .004 \). Also, the correlation between wondering about Derek’s opinion and thinking about him remained significant, \( r (106) = .384, p < .001 \); the correlation between wondering about Derek’s opinion and uncertainty about Derek’s opinion remained significant, \( r (106) = .330, p < .001 \). Finally, the correlation between wondering about Derek’s opinion and behavioral attraction remained significant, \( r (106) = .305, p = .001 \) (note: although behavioral attraction was not normally distributed, partial correlations are robust against violations of normality).

Thus, when controlling for initial attraction to Derek, wondering still significantly related to time 2 attraction. Notably, however, wondering no longer predicted general positivity when controlling for time 1 attraction. That is, the connection between wondering and general positivity was rendered non-significant when controlling for the first Time 1 attraction item, \( r(106) = .10, p = .289 \).

**Assessing another alternative explanation for wondering-attraction link.**

Besides those confounds, an alternative or third variable explanation for the positive wondering-subsequent attraction correlation might be that people who tend to wondered more about Derek’s impression of them were more predisposed to like someone such as Derek. Importantly, self-reported wondering about Derek’s opinion (which was measured after the uncertainty manipulation) was unrelated to the previous first impression measure of Derek \( \rho(105) = -.012, p = .901 \). These non-significant correlations between wondering about Derek’s opinion and first impression replicated in every cell of the experiment, all \( ps > .10 \). Recall that the first impression scale (or attraction pre-measure) was assessed after participants read Derek’s profile but prior to
the uncertainty manipulation feedback). Thus, the lack of connection between wondering and first impression stands against the alternative explanation that people who tended to wonder about Derek were more predisposed to like someone such as Derek.

**Differential effects of wondering on attraction by condition.** The next step was to see if the positive influence of wondering about Derek’s opinion on subsequent attraction was in the same direction and statistically significant in every experimental condition. In every condition, the direction of the relationship between wondering and attraction was positive. However, the association was not significant in the resolved-uncertainty condition. Wondering was significant related to time 2 attraction in the control condition $r(36)=.520, p =.001$, and in the permanent uncertainty condition $r(37)=.529, p = .001$. However this association was non-significant in the resolved-uncertainty condition $r(36)=.199, p =.244$.

When controlling for the first time 1 attraction item that appeared immediately after the uncertainty manipulation—“How attractive do you think Derek is?” (1 = *Extremely unattractive*, 9 = *Extremely attractive*)—the positive relationship between wondering and attraction remained significant in the certainty condition $r(33) = .39, p =.019$ and in the permanent uncertainty condition $r(34) = .473, p =.004$ (see figure 5), and it remained insignificant in the resolved-uncertainty condition, $p > .10$. 
Figure 5. Partial correlation in the permanent uncertainty condition. The positive relationship between participants’ wondering about the target’s opinion of them and time 2 attraction remained significant even after controlling for how attractive participants perceived the target to be after the uncertainty manipulation.

Next a plethora of other potential confounding variables were controlled for in partial correlations between wondering and attraction. The potential confounds were all measures that occurred after the uncertainty manipulation but before the wondering item was assessed. To reduce demand characteristics, there were also lots of filler items asked during this time. The first additional item to be controlled for was the second time 1 attraction item. This item read: “Derek seems similar to me” \( (M = 6.82, SD = 1.35) \). The second additional item to be controlled for was a composite of the four general positivity items asked about Derek after the uncertainty manipulation but before the wondering item was asked. These items read: “I think that Derek is probably unathletic;” “Derek sounds like he does not perform well in school;” “Derek seems like the type of person who does not make friends easily;” “My impression is that Derek probably doesn't try to do his best in school.” All of these items were reverse scored \( (Chronbach’s \ alpha = .53, \)
A third potential confound was positive expectations that Derek would be attracted to the participant: “I think that Derek will feel attracted to me when we meet.” \((M = 4.62, SD = 1.52)\). A fourth item was participants’ anticipation that they would feel connected to Derek “I expect that I will NOT feel a sense of connection with Derek when I meet him. [reverse scored]” \((M = 6.05, SD = 1.49)\). A fifth potential confound was an item assessing enjoyment of listening to Derek’s interview “I enjoyed listening to Derek’s interview” \((M = 7.24, SD = 1.39)\). A sixth potential confound was the composite variable assessing thinking about Derek \((M = 4.88, SD = 1.87)\). After all, it may have just been general thinking about Derek, rather than participants’ wondering about Derek’s impression of them that was associated with subsequent attraction. A seventh potential confound was positive mood \((M = 6.41, SD = .84)\). Finally, a composite of two items assessing positive responses to Derek’s feedback \((M = 7.28, SD = 1.21)\) was controlled for.

Including the first time 1 attraction item, there were nine potential confounds that were investigated. On their own, all of these potential confounds significantly and positively related to the time 2 attraction measure, all \(ps \leq .05\). However, none of them could remove the significant relationship between wondering about Derek’s impression and time 2 attraction in the permanent uncertainty condition.

Specifically, in the permanent uncertainty condition, controlling for any of these potential confounds did not remove the significant association between wondering and subsequent attraction, all \(ps \leq .05\). Similarly, in the certainty condition, controlling for any of these potential confounds (except thinking) did not remove the significant association
between wondering and subsequent attraction, all $ps \leq .05$. However, when controlling for thinking about Derek, the association between wondering and attraction was rendered marginally significant in the certainty condition $r(33) = .32, p = .061$.

Finally, all nine of these potential confounds were controlled for at once. Within the certainty condition, there was a positive trend between wondering and attraction but this was non-significant when all nine potential confounds were controlled for simultaneously $r(24) = .28, p = .166$. Notably, one potentially problematic outlier case (as indicated by a Cook’s distance greater than 1) was excluded from that analysis. In contrast, within the permanent uncertainty condition, as wondering increased time 2 attraction still increased ($p = .056$), even when controlling for all nine of these potential confounds simultaneously $r(26) = .37, p = .056$. Thus, in the permanent uncertainty condition, even when controlling for all nine potential confounds (such as time 1 attraction) at once, the positive association between wondering about Derek’s impression and time 2 attraction was still nearly significant and it was marginally significant.

**Experimental manipulation and differences in wondering.** Exploratory evidence suggested the possibility that wondering had an influence in increasing subsequent attraction in the permanent uncertainty condition. Perhaps if participants had wondered much more about Derek’s opinion in the permanent-uncertainty condition, then there might have been a significant main effect of target-uncertainty on attraction. This would have been more consistent with the UAA effect found in Whitchurch et al.’s (2011) paper. The lack of significant main effects of the target-uncertainty manipulation on attraction scales may be due to the fact that the target-uncertainty manipulation
created only marginally significant differences in wondering about Derek’s impression by condition, $F(2,106) = .10, p = .10$.

In spite of the marginal significance, post hoc tests were conducted. These analyses revealed that participants wondered more about Derek’s opinion of their profile in the certainty condition ($M = 5.64, SD = 1.96$) than in the resolved uncertainty condition ($M = 4.75, SD = 2.10$), $t(106) = 1.95, p = .054$. Also, participants, wondered marginally more about Derek’s opinion of their profile in the permanent uncertainty condition ($M = 5.57, SD = 1.73$) compared to the resolved uncertainty condition, $t(106) = 1.81, p = .074$. Finally, there was not a significant difference in wondering about Derek’s impression between the permanent uncertainty conditions and certainty conditions, $t(106) = 16, p > .10$

**PNS and wondering.** It had previously been hypothesized that those who were higher on the PNS scale would be more averse to uncertainty. By this reasoning those with lower PNS should have wondered about Derek more. However, the PNS Scale was unrelated to wondering when collapsing across conditions $r(107) = .082, p = .399$. Null correlations between PNS and wondering were found within each experimental condition as well, all $p’s > .10$

Finally, the target-uncertainty by PNS model did not predict wondering $F_{change}(2,103) = .916, p = .403$. Failure of the uncertainty manipulation, PNS, and their interaction to significantly account for differences in wondering about Derek’s opinion may explain the failure to find main effects of the uncertainty manipulation on attraction, or uncertainty X PNS interaction effects on attraction. In summary, wondering about
Derek’s’ impression was related to time 2 attraction (even when controlling for confounds such as time 1 attraction or general thinking about Derek) in the permanent uncertainty condition. However, the target-uncertainty manipulation did not create differences in wondering between conditions that surpassed marginal significance. In addition, PNS did not significantly predict wondering, nor did the uncertainty by PNS interaction.

**Marginal correlations between state curiosity about Derek’s opinion and attraction.** Another variable that is related to uncertainty is curiosity. The next piece of exploratory evidence which suggested that some side effects of uncertainty relate to attraction comes from a measure assessing participants’ state curiosity about Derek’s impression of them (9-point scale). This item occurred earlier in the experiment. It occurred just before participants learned about Derek’s opinion of them. Responses to the item did not differ significantly between conditions $F(2,106)=.005, p=.995$. Notably, this analysis was also replicated with a non-parametric test (most people were pretty curious, so the distribution was negatively skewed).

The state curiosity item read: “How curious are you to learn information about Derek's impression of you?” ($M = 6.79$, $SD = 1.68$). As a first step towards exploring the influence of curiosity about Derek’s opinion on attraction, marginal correlations between curiosity and attraction related items were conducted. Notably, the state curiosity item was positively related to behavioral attraction, $rho(105) = .234, p = .014$, self-reported attraction, $rho(105) = .390, p < .001$, thinking about Derek, $rho(105) = .417, p < .001$, and general positivity, $rho(105) = .287, p = .002$. This early curiosity about Derek’s
opinion was also related to wondering about Derek’s opinion after the uncertainty manipulation, \( \rho(105) = .343, p = .001 \). Notably, \( Rho \) was used rather than \( Pearson’s \) \( r \) due to the negative skew of the distribution of scores on the state curiosity scale.

**Addressing an alternative explanation for the curiosity attraction link.** An alternative explanation might be that participants reported having higher curiosity about Derek’s impression of them because they were already more attracted to Derek. By this reasoning, previous attraction to Derek explains the positive correlation between early curiosity about his opinion and subsequent measures of attraction. Curious people may just tend to like others more.

This alternative was explored in the data, which revealed that there are reasons to doubt it. First, across conditions, state curiosity about Derek’s opinion was only marginally related to participants’ first impression of Derek at the time (i.e., the first impression or attraction pre-measure), \( \rho(105) = .171, p = .076 \). Also, within experimental conditions, there was not a condition where curiosity about Derek’s opinion significantly related to participants’ impression of Derek at the time, all \( ps > .10 \). Notably, the item assessing state curiosity about Derek’s opinion occurred almost immediately after participants had rated profiles and filled out the first impression of Derek scale. Additionally, although first impression was related to the full self-report attraction scale, \( \rho(105) = .255, p = .008 \), first impression was unrelated to general positivity, thinking about Derek, wondering about Derek’s opinion of the profile, and behavioral attraction to Derek. In contrast, the state curiosity about Derek’s opinion measure was significantly related to all of these attraction indices.
Partial correlations: state curiosity about Derek’s opinion and attraction.

Importantly, partial correlations were conducted between curiosity about Derek’s opinion and attraction that controlled for the attraction premeasure (first impression scale) which occurred before state curiosity was measured. Even when controlling for first impression, the item assessing state curiosity about Derek’s opinion still significantly predicted attraction to him later in the experiment, $r (104)= .385, p < .001$, thinking about him, $r (104) = .388, p < .001$, general positivity $r (104) = .34, p < .001$, participants wondering about Derek’s opinion of their profile, $r (104) = .368, p < .001$; and behavioral attraction, $r (104)= .255, p = .008$ (note: although there were issues with normality for some of these variables, partial correlations are robust against violations to normality).

Differential effects of state curiosity by condition. Next marginal correlations were run within each condition of the experiment. Positive associations between early state curiosity about Derek’s opinion, wondering about Derek’s opinion after the uncertainty manipulation, the overall attraction to Derek scale, and thinking about Derek all remained significant within the certainty and resolved-uncertainty conditions, all $ps <.05$. In contrast, in the permanent uncertainty condition, these correlations were not significant (although their direction did not change), all $ps >.10$.

Next partial correlations were conducted within each experimental condition controlling for participants’ first impression of Derek at the time (i.e., the first impression scale). Notably, the positive correlations between early curiosity and subsequent attraction replicated in the certainty and resolved-uncertainty conditions. In other words,
when controlling for positive impression of Derek, early curiosity about Derek’s opinion was still positively associated with wondering about Derek’s opinion, thinking about him, and overall attraction to Derek, all $ps < .05$. For example, in the certainty condition, curiosity about Derek’s opinion early in the experiment was positively related to wondering about Derek’s opinion $r(32) = .51, p = .002$, overall attraction $r(32) = .47, p = .004$, thinking about Derek $r(32) = .48, p = .004$, and behavioral attraction $r(32) = .384, p = .025$. Interestingly, within the certainty condition, when wondering about Derek’s opinion of the profile was added as a control, curiosity about Derek’s opinion was no longer significantly related to any of these attraction indicators, all $ps > .05$. For example, curiosity about Derek’s opinion, when controlling for first impression and wondering about Derek’s opinion, was no longer significantly related to overall attraction $r(31) = .27, p = .13$. The results were not as dramatic in the resolved uncertainty condition but they were similar. In the resolved-uncertainty condition, the significance was reduced on the attraction indicators which were previously been reported as being significantly related to curiosity (i.e., thinking about Derek, overall attraction) when wondering about Derek’s opinion was controlled for.

In the permanent uncertainty condition, the non-significant association between early curiosity and subsequent attraction was not influenced by adding first impression as a control. Controlling for first impression, curiosity about Derek’s opinion was still unrelated to wondering about him $r(34) = .115, p = .50$, and to overall attraction $r(34) = .18, p = .29$ in the permanent uncertainty condition.
DISCUSSION

Study 3 aimed to further explore the influence of the target-uncertainty by PNS interaction on initial romantic attraction. Generally, it was hypothesized that low PNS perceivers would be more attracted to targets under conditions of uncertainty. In contrast, it was generally hypothesized that high PNS perceivers would be more attracted to targets under conditions of lower uncertainty. Unfortunately, the uncertainty by PNS model failed to predict attraction as had been hypothesized. Although the first two studies of this project found evidence supporting the uncertainty X PNS model, Study 3 failed to provide support for the model. The failure of the data from Study 3 to support the model suggests that the model should be reassessed. The model may be false, or the model may have important boundary conditions that were not previously appreciated.

Despite disappointing results from Study 3, there were still some exploratory findings suggesting the possibility that the uncertainty-attraction link is a worthwhile topic of research. For example, marginal and then partial correlations in the permanent uncertainty condition positively linked participants’ wondering about Derek’s opinion of their profile to the subsequent measure of time 2 attraction. Notably, wondering still significantly related to the time 2 attraction scale when controlling for potential confounds such as time 1 attraction, or general thinking about Derek. In the permanent uncertainty condition, it seemed nearly impossible to remove the positive relationship wondering about Derek’s opinion and subsequent attraction. Even when nine potential confounds were controlled for simultaneously in the permanent uncertainty condition, the relationship between wondering about Derek’s impression and subsequent attraction was
still nearly significant and it remained marginally significant ($p = .056$). This is consistent with the contention by the AREA Model that increased wondering about a target is the means by which uncertainty amplifies attraction (Whitchurch, 2009).

Similarly, marginal and then partial correlations linked participants’ early curiosity about Derek’s opinion of their profiles with subsequent attraction measures. These significant associations even held when participants’ first impression of Derek (assessed around the same time when curiosity about Derek’s opinion was assessed) was controlled for. Both wondering about Derek’s opinion and curiosity about Derek’s opinion are related to some aspect of this opinion being unclear. Indeed, even in the certainty and resolved-uncertainty conditions, one could still be curious about aspects of Derek’s opinion (e.g., “I wonder why Derek rated me so highly? Perhaps it was our similar taste in music?”).

Overall, the failure of Study 3’s data to support predictions was disappointing. Still, thinking about the data can inform future efforts to further explore the uncertainty-attraction link. For example, what was different about Study 3 that may have caused the data from Study 3 to be so different from Studies 1 and 2? Also, although curiosity about Derek’s opinion of the profile, feelings of uncertainty about it (i.e., the uncertainty manipulation check), and wondering about it are all related to uncertainty, the effects on attraction were different. That is, the uncertainty manipulation check was negatively associated with attraction in the resolved uncertainty condition; and it was not associated with attraction in the other conditions. Conversely, the wondering and curiosity items were related to positive attraction outcomes, even when potential confounds were
controlled for. Overall, the value of this exploratory data is that it may help inform future efforts to explore the influence of uncertainty on attraction.

**Uncertainty Manipulation and Main Effect Replication Failures**

The uncertainty manipulation from Study 3 was conceptually similar to the uncertainty manipulation from Whitchuch, et al.’s (2011) demonstration of UAA. However, Whitchurch et al. found a significant main effect of uncertainty on attraction. This begs the question—why wasn’t there at least a conceptual replication of Whitchurch et al.’s (2011) main effect whereby uncertainty about the target increased attraction to him?

One could attack the construct validity of the independent variable manipulation, but the manipulation check suggests that the uncertainty manipulation was partly successful. For example, participants felt more uncertain about Derek’s opinion of them in the permanent-uncertainty condition as compared to the resolved-uncertainty condition. This is consistent with what one might expect. Also, in the resolved-uncertainty condition participants felt less uncertainty than in the control condition. Why did people feel less uncertainty in the resolved uncertainty condition compared to the certainty? Technically participants’ in both the certainty and resolved-uncertainty conditions learned that they were ranked at the top, but participants in the certainty condition knew this information for longer, so they may have started asking new questions about it. In contrast, those in the resolved uncertainty condition were kept in suspense until the uncertainty was positively resolved later in the experiment. Alternatively, differences could be explained by salience of uncertainty. Having
ambiguity presented and then being relieved of ambiguity about Derek’s’ opinion may have made certainty/uncertainty about the opinion more salient for those in the resolved uncertainty condition compared to the certainty condition.

The notion that those in the control condition might have started asking new questions may also explain why there was not a significant difference in perceived uncertainty about Derek’s opinion between permanent uncertainty and certainty conditions (though there was a descriptive trend whereby there was more perceived uncertainty in the permanent uncertainty group). For example, while those in the permanent uncertainty condition may have been feeling uncertainty about where they were ranked, those in the control condition may have begun feeling uncertainty about the meaning or implications of their ranking (e.g., “Why did he rank me at the top?” “Will he still like me as much after we meet?”). In summary, it is problematic to blame the uncertainty manipulation for the lack of main effects of uncertainty on attraction because there were conditions where uncertainty about Derek’s opinion differed significantly.

Although uncertainty varied significantly between conditions, attraction did not vary between any conditions, thereby failing to replicate Whitchurch et al., (2011). However, if the uncertainty manipulation in Study 3 had corresponded with changes in attraction, then negative support might have been found for the UAA hypothesis. At least this is what the uncertainty manipulation check would suggest. After all, increases in endorsement of the uncertainty manipulation check was negatively associated with attraction in the resolved uncertainty condition. In contrast, other side effects of
uncertainty about Derek’s impression—wondering and curiosity about it—were associated with more positive effects.

**The Uncertainty Manipulation and Wondering**

On the other hand, if participants in Study 3 had reported wondering a great deal more about Derek’s opinion of their profile in the permanent uncertainty condition than the resolved-uncertainty condition, then a main effect might have been obtained that conceptually replicated Whitchurch, et al.’s (2011) finding that females most preferred male targets when they were uncertain about if the men liked them “best or average” as compared to conditions where they knew that they were “liked best” or “liked average.”

After all, participants’ wondering about Derek’s opinion of their profile in the permanent uncertainty condition positively predicted time 2 attraction measure. This remained significant even when controlling for potential confounds such as time 1 attraction. This finding was consistent with the AREA model argument that uncertainty increases attraction because perceivers wonder more about uncertain targets compared to more well-defined targets (Whitchurch, 2009).

Unfortunately, main effects whereby uncertainty amplified attraction did not emerge between experimental conditions. Main effects may not have emerged because wondering about Derek’s opinion differed just marginally between uncertainty conditions. Thus, although the uncertainty manipulation was associated with increased feelings of uncertainty and marginally increased wondering about Derek’s opinion between conditions, neither of these effects may have been strong enough to create between-conditions differences in attraction.
One reason why Study 3’s paradigm may not have produced stronger differences in wondering or uncertainty between conditions is that participants were expecting to meet and interact with Derek. Being minutes away from meeting a new person under evaluative conditions should cause most people to moderately wonder about the person’s opinion of them regardless of experimental condition. In other words, the uncertainty manipulation may not have been potent enough to produce significant differences in wondering within this powerful context. For example, even if participants knew that they were liked best (such as in the certainty condition), they might still wonder about why Derek ranked them as best, thereby leading every condition to, on average, slightly endorse the item “I am wondering about Derek’s opinion of my profile.” By contrast, in Whitchurch et al.’s (2011) paradigm, the male evaluators were students from a different university whom participants would likely never interact with. This might have reduced the self-relevance of the uncertainty, thereby allowing for more differences between conditions.

**Uncertainty X PNS Replication Failure on Attraction**

In Study 3, PNS failed to interact with the uncertainty manipulation to predict attraction. In previous studies, it has previously been suggested that those with higher PNS are more avoidant of uncertainty and ambiguity (for review see Thompson et al., 2001). Given the role of PNS in how individuals manage uncertainty, PNS was expected to moderate the effects of uncertainty on attraction in Study 3. Indeed, patterns such as this were obtained in studies 1 and 2. Those studies presented evidence that target-uncertainty and PNS interact to predict attraction to targets. Generally, targets’ imbued
with more uncertainty were less attractive to those with high PNS, but more attractive to those with lower PNS. Unfortunately, a similar interaction was not obtained in Study 3. PNS failed to interact with uncertainty condition to predict attraction or wondering about Derek’s opinion. Similarly, increases in PNS were not associated with increases in attraction, wondering about Derek’s opinion of the profile, or curiosity about Derek’s opinion.

Given the nature of the PNS construct, one might have expected low PNS perceivers in Study 3 to wonder more about Derek’s ambiguous opinion of them in the permanent uncertainty condition. This might have led perceivers to be significantly more attracted to Derek in the permanent uncertainty condition, but only if they were low on PNS. In other words, if low PNS perceivers displayed higher wondering about Derek’s opinion under conditions of uncertainty, then an uncertainty condition X PNS interaction on attraction may have emerged in Study 3. This would have made Study 3 more consistent with Studies 1 and 2.

Pondering this inconsistency could help future research efforts. The reason that there was no evidence supporting the uncertainty by PNS model in Study 3 may again be connected with the higher self-relevance of Study 3’s uncertainty manipulation. The uncertainty manipulation in the current study was likely more self-relevant to participants compared to the uncertainty manipulations of the previous two studies for two principal reasons. First, the uncertainty was about the target’s opinion of the participant rather than uncertainty about less self-relevant aspects of the target (e.g., uncertainty about the interesting lessons he learned from a wise man). Secondly, although participants were
ostensibly meeting Derek in all three studies, the context was more evaluative in Study 3. Knowing Derek’s opinion of them could help participants forecast the rewards and costs of the social encounter which they believed would be occurring within the near future. This context of more self-relevant uncertainty may have muted the influence of perceivers’ trait levels of PNS on variables such as wondering and attraction.

The notion that a powerful situation muted the influence of personal need for structure on attraction, curiosity about Derek’s opinion, and wondering about Derek’s opinion is consistent with past research. In previous studies it has been found that those with high PNS avoid ambiguity and uncertainty about unfamiliar targets by utilizing stereotypes. However these individual differences do not express themselves when there are consequences for being incorrect (Schaller et al., 1995). For example, Schaller et al., found that the influence of PNS was homogenized when participants had to justify their interpersonal judgments. Similarly, in Study 3, PNS may not have significantly influenced attraction, wondering, or curiosity because the situation was powerful enough that even those who were high on PNS were interested in Derek’s opinion of them. After all, there were ostensibly immediate social consequences as participants were meeting Derek soon. In summary, the more self-relevant nature of the uncertainty in Study 3 may have made perceivers across the PNS spectrum homogenous on attraction, wondering and curiosity about Derek’s opinion. This in turn, may have prevented PNS from significantly interacting with condition to predict attraction.
Uncertainty and PNS on Thinking

There was nearly one exception to the failure of the target-uncertainty by PNS model to predict outcomes in Study 3. Namely, PNS interacted with condition to marginally predict thinking about Derek. It was interesting that low PNS perceivers thought (marginally) more about Derek in the resolved uncertainty condition compared to the certainty condition. After all, feedback was identically positive between the certainty and resolved-uncertainty conditions. However, in the resolved uncertainty condition, participants may have been surprised to find their ambiguous feedback about Derek’s opinion of them was unexpectedly resolved. Thus, the finding may show the greater cognitive attention paid by low PNS perceivers’ to unexpected events, whereas higher PNS perceivers’ may have quickly accepted the closure and moved on.

Indeed, those with higher PNS more highly agree with items referring to a preference for predictability and lack of spontaneity in the social world (Neuberg & Newsom, 1993). Hence, it makes sense that people who are lower on the PNS construct would have thought more about what was likely an unexpected and positive resolution of uncertainty. This is especially the case since the comparison was a condition where there was a sustained closure about Derek’s opinion (certainty condition). The notion that unexpected and positive resolution to social uncertainty should attract more thought from low PNS perceivers is supported by within condition correlations in the resolved uncertainty condition. Specifically, declining PNS was associated with marginally increasing thoughts about Derek in the resolved uncertainty condition. In summary, those
with higher PNS likely accepted the closure to ambiguity quickly in the resolved-uncertainty condition. In contrast, it appears that those with lower PNS thought about it.

Although consistent with the PNS construct, the marginal thinking differences were inconsistent with hypotheses that such differences in PNS on thinking would occur within the permanent uncertainty condition. This was expected to occur because the permanent uncertainty condition should have been the situation of greatest uncertainty (and it was descriptively). Again, perhaps the self-relevance of meeting a stranger who “might have ranked you as his favorite or might have ranked you in the middle.” was a powerful enough manipulation to make those who were high and low on the PNS spectrum to be about equal in terms of thinking in the permanent uncertainty condition.

Also, given that there was only marginal significance to these thinking findings, it may be a mistake to read too much into them. Furthermore, differences in participants’ thoughts about Derek are only interesting (for the purposes of this study) to the extent that they are a significant contributor to the link between uncertainty and attraction.

Although thinking was strongly linked with attraction in Study 3 (even when controlling for Time 1 attraction.), there were not differences between uncertainty conditions on attraction, nor was PNS related to attraction, nor did the uncertainty X PNS model predict changes in attraction. In summary, the uncertainty by PNS model’s marginal influence on thinking may not be very important because of (a) only marginally significant effects were obtained, (b) the lack of significant findings with attraction measures.
Construct Validity of Primary DV

When studies fail to yield the expected results, it is often useful to examine the construct validity of not only the independent variable, but also the dependent variable. The primary dependent measure in this study was the overall self-reported attraction scale which was composed of 25 items. There is good evidence that attraction was indeed being measured in this study. First, the general attraction scale displayed convergent validity by correlating with related constructs (i.e., time committed to Derek, positive first impression of Derek, thinking about Derek). Secondly, the self-report attraction items had high face validity, and many were drawn from published research. Finally, the overall self-report attraction scale had very high internal reliability (Chronbach’s alpha = .96).

Promising Exploratory Findings from Study 3 Linking Wondering and Attraction

Although Study 3 was inconsistent with Studies 1 and 2, and with Whitchurch, et al.’s (2011) results, there were some exploratory findings supporting the broad theme of a positive link between uncertainty and attraction under the right circumstances. Items that are associated with uncertainty about Derek’s opinion (i.e., curiosity about it, wondering about it) significantly related to attraction measures even when controlling for confounds. These findings suggest the possibility that uncertainty about a target’s opinion of the self can promote perceivers’ attraction to him. However, exploratory data suggests that his may only occur if the uncertainty translates into wondering or state curiosity rather than feelings of uncertainty.
Indeed, positive effects of uncertainty on attraction may not be found if uncertainty translates into feelings of uncertainty or being unsure. This was captured by the manipulation check. The manipulation check items used phrases like “feeling uncertain,” and the scale was negatively related to attraction. This is notable because participants’ feelings of uncertainty about Derek’s opinion, curiosity about it, and wondering about it are all related to aspects of the impression being not fully known or clear. After all, people don’t wonder about things for which there is complete and total closure. Thus, even though these items were all related to uncertainty, they were associated with opposite effects on attraction.

Contrasting the negative association between the uncertainty manipulation check and subsequent attraction with the positive associations between wondering and subsequent attraction is interesting. Both the uncertainty about Derek’s opinion manipulation check scale and the wondering about Derek’s opinion item were asked during a time gap separating time 1 and time 2 attraction measures. Nothing new occurred during this period as participants mostly just completed filler items, mood items, manipulation check items, and process measures. In other words, absolutely nothing new was ever presented about Derek or his opinions during that time. Thus, it is striking that anything measured during this period could be significantly associated with time 2 attraction after controlling for time 1 attraction. Nevertheless, wondering about Derek’s opinion remained significantly related to attraction in the permanent uncertainty condition and in the certainty condition, even when controlling for how attractive participants perceived Derek to be. In contrast, the uncertainty manipulation check scale
was unrelated to attraction in the certainty and permanent uncertainty conditions, plus it was negatively associated with attraction in the resolved-uncertainty condition.

Finally, in the permanent uncertainty condition, the connection between wondering and subsequent attraction seemed invincible. Participants’ wondering about Derek’s opinion of them had significant and positive associations with attraction, even when controlling for time 1 attraction or other potential confounding variables (e.g., Derek’s perceived similarity, etc.). This finding stands against several alternative explanations for the link between wondering and subsequent attraction in the permanent uncertainty condition. For example, the fact that the relationship remained significant when time 1 attraction was controlled for is good exploratory evidence against the notion that previous attraction increased both wondering and time 2 attraction.

Additionally, there was more evidence against the alternative explanation that people who wondered about Derek more were simply more predisposed to like Derek. Specifically, there was not a significant association between wondering about Derek’s opinion and a favorable first impression of Derek earlier in the experiment. In summary, there was some exploratory evidence suggesting the possibility that wondering about Derek’s opinion played a role in increasing attraction to him in the permanent uncertainty condition. This finding lends support to Whitchurch’s (2009) account of how uncertainty positively increases attraction by increasing wondering.

**State Curiosity about Derek’s Opinion and Attraction**

Consistent with the notion that wondering about Derek’s impression increased attraction, there was some exploratory evidence suggesting the possibility that early
curiosity about Derek’s impression played a role in increasing subsequent attraction. There were interesting exploratory findings regarding the relationship between curiosity about Derek’s opinion early in the experiment and attraction to him later in the experiment. Participants’ curiosity about Derek’s opinion of their profile was assessed before the uncertainty manipulation was completed. Curiosity relates to uncertainty because, conceptually, one can only have curiosity about something for which there is incomplete closure. Indeed, even in the certainty condition, participants could be curious about aspects of Derek’s ranking.

In the certainty and resolved-uncertainty conditions, state curiosity about Derek’s opinion early in the experiment was significantly associated with wondering about Derek’s opinion later in the experiment, subsequent attraction to him, and thinking about him. Notably, these results even held when controlling for how positively participants’ felt about Derek at about the time when they answered the state curiosity item. In other words, the first impression scale was controlled for. This partly rules out the alternative explanation that pre-existing attraction to Derek increased both state curiosity about his opinion and attraction to him later in the experiment.

Wondering and curiosity are similar constructs. People wonder about things which they are curious about. Notably, in the certainty condition, the positive association between curiosity about Derek’s opinion and attraction was rendered non-significant when controlling for wondering about Derek’s opinion. This suggests the possibility that curiosity itself rather than a third variable was responsible for the increase in attraction within the certainty condition.
Also, it does not seem that those who were more curious about Derek’s opinion were the types of people who were more predisposed to like someone such as Derek. After all, curiosity about Derek’s opinion was unrelated to first impression of Derek in every condition of the experiment.

Collectively, positive relationships between wondering about Derek’s opinion, and state curiosity about Derek’s opinion with subsequent attraction (even when controlling for confounds) supports the speculation that uncertainty can increase initial attraction if it is channeled into wondering or curiosity. The contrast between these positive associations with attraction and the uncertainty manipulation check’s negative associations with attraction has interesting implications. It suggests that UAA will only occur if the reaction to uncertainty translates to more positive or approach oriented responses to uncertainty such as wondering or curiosity.
There has always been uncertainty when initiating romance. Perhaps especially in the modern world, daters meet potential partners under conditions of high uncertainty. These encounters can transform strangers into friends, lovers or even spouses. The present research was inspired by a recent experiment by Whitchurch et al., (2011) suggesting that uncertainty about a person can increase one’s thinking about him, thereby increasing attraction to him. The present project presented three studies exploring links between uncertainty about a target and initial romantic attraction. It was expected that the effect whereby uncertainty about a target amplifies attraction (UAA) to him would be moderated by a perceivers’ personal need for structure (PNS).

The first study manipulated attraction by making an element of a confederate’s past more (less) ambiguous. There was evidence that lower PNS participants found the target more attractive when he was rendered ambiguous whereas higher PNS perceivers preferred the target when he was more well-defined. Conceptually similar results were obtained in Study 2. In the second study, participants’ mindset about a target was manipulated (control, certainty, uncertainty) and there was evidence that low PNS participants found him more attractive when they were in a mindset that emphasized speculation about the unknown. In contrast, high PNS perceivers’ appeared to favor the target when they were able to focus on black-and-white facts about him, and explicitly avoid speculating about his unknown qualities.

Finally, Study 3 manipulated uncertainty about how much the confederate liked the participant. In this study, the target-uncertainty by PNS model did not significantly
predict attraction. However, exploratory analyses found that variables which are related to uncertainty about someone’s opinion (i.e., being curious about it and wondering about it) were related to subsequent attraction measures even when controlling for confounds. Collectively, the three studies in this package suggest evidence that uncertainty and attraction are related, but this relationship is complex and nuanced.

Theoretical Implications

The present series of studies explored whether the uncertainty or mystery surrounding an individual can actually increase attraction to them for people with low PNS, while reducing it for people with high PNS. Each of these three studies yielded interesting findings. However, theoretical implications of the results of these three studies are difficult to discern for two reasons (a) each study had its own limitations; (b) inconsistencies between Study 3 with Studies 1 and 2. An implication of the inconsistency is that the uncertainty X PNS model should be reevaluated. The inconsistent results may mean that the model is invalid, or there may be important boundary conditions. Indeed, the effect that these experiments explored may be quite circumstantial, thereby making it necessary to add more variables to the model.

Valance of uncertainty. One variable, which was always suggested (but never tested) by the present studies and by Whitchurch, et al. (2011), is the valance of the uncertainty. Indeed, negative uncertainty should decrease attraction for almost all perceivers. However, positive uncertainty or at least non-negative uncertainty (e.g., “did the attractive person rank me highest or in the middle?”) should be more likely to intrigue and generate positive interest. Under the right conditions, this type of uncertainty should
especially inspire interest among those who are less troubled by uncertainty such as low PNS perceivers. Indeed, Studies 1 and 2 found that low PNS perceivers appeared to be more attracted to targets who were imbued with uncertainty.

One could argue that the importance of uncertainty valence was highlighted by the exploratory findings in Study 3. In Study 3, there were opposite relationships between different uncertainty-related items and subsequent attraction. Specifically, the manipulation check items used terms such as “uncertain” and “unsure.” This scale was unrelated to subsequent attraction in the certainty and permanent uncertainty conditions, and it was negatively associated with attraction in the resolved uncertainty condition. In contrast, questions about Derek’s impression using uncertainty-related terms such as “wondering about” or “curious about” were positively associated with attraction (even when controlling for confounds). Despite the fact that all of these items assessed participants’ responses to ambiguity/uncertainty about Derek’s opinion of them, the associations with attraction were different. Perhaps wondering and curiosity tend to be positively experienced side effects of uncertainty or ambiguity that can amplify attraction. Inversely, feelings of uncertainty may be a negative side-effect of the unknown that can hinder attraction.

The nature of the event might influence the type of response that one experiences. For instance, if someone is uncertain about whether a person dislikes them, then this may be more associated with feelings of uncertainty than with feelings of curiosity. This should negatively relate to attraction. In contrast, if a perceiver is wondering about how much an appealing target is attracted to her, then this uncertainty may be more associated
with feelings of curiosity. This should be positively associated with attraction. Finally, the exploratory results from Study 3 suggest that laypeople may understand uncertainty-related words differently. The words “curiosity” and “wondering” appear to be uncertainty-related terms that have positive connotations, whereas words like “uncertainty” and “unsure” may be uncertainty-related terms with comparatively negative connotations.

**Self-relevance of the target-uncertainty.** Another variable to potentially add to the target-uncertainty by PNS model for predicting attraction could be self-relevance of the uncertainty. Target-uncertainty and PNS may only interact to predict attraction when the target-uncertainty is at lower self-relevance. It was speculated that Study 3 was inconsistent with Studies 1 and 2 because Study 3’s uncertainty manipulation was so much more self-relevant. Perhaps when uncertainty is higher on self-relevance, then PNS matters less in determining perceivers’ responses. Thus, as self-relevance of the target-uncertainty diminishes PNS’ importance in influencing whether perceivers’ find the target interesting or attractive should increase. For example, most perceivers may wonder at least a slight amount about how much a new person (whom they are about to meet) likes them regardless of where they stand on the PNS spectrum. In contrast, if this stranger just has mysterious features, then perhaps this will only capture the interest of low PNS perceivers (see Study 1). However, high PNS perceivers may be less interested in the ambiguity of a person with mysterious features. In other words, the uncertainty by PNS model might hold at lower self-relevance whereas it might fail to hold under conditions of higher self-relevance.
Similarly, if the uncertainty being manipulated in an experiment is highly self-relevant, then small increases in uncertainty may not produce differences in attraction, wondering, or curiosity between conditions. Essentially a ceiling effect will emerge. For example, in Study 3, every participant was likely experiencing some degree of uncertainty because they were about to meet somebody new. Thus, participants’ uncertainty about how much the confederate liked them (which was added by the uncertainty manipulation) may not have been a large enough relative increase in uncertainty to influence attraction one way or the other. In contrast, if uncertainty is at moderate levels of self-relevance, then increases in uncertainty may influence attraction.

**Limitations**

Although this program of research yielded several interesting findings, there are some important limitations to keep in mind. First, as previously noted, the results of Study 3 are inconsistent with the results of Studies 1 and 2. Secondly, uncertainty manipulation checks were not successful in Studies 1 and 2. This problem is likely attributable to the fact that manipulation check items in the first two studies were vague and less related to the uncertainty manipulation. For example: “The man from the interview seems mysterious. (1 = Disagree Strongly - 7 = Agree Strongly)” Even if there were differences in target-uncertainty between conditions in Studies 1 and 2, such an item may not capture them. Participants across conditions might endorse such an item to a similar extent. After all, participants were ostensibly preparing to meet a new person about whom they knew very little. Thus, the confederate was somewhat mysterious to everyone. In contrast, the uncertainty manipulation check in Study 3 was specifically
related to the manipulation (e.g., “There is uncertainty about where Derek ranked me.”). Moving forward, it will be important to use similarly specific manipulation check items to confirm that target-uncertainty was successfully manipulated between conditions.

Finally, another limitation of the present studies is external validity. The fact that these studies were exploring a new phenomenon resulted in a preference for high experimental control and internal reliability. However, this came at the expense of external reliability. Even if a low PNS perceiver is more attracted to a mysterious target after listening to his audio interview, she might not exhibit this preference within the context of real-life social interactions. Thus, if support continues to mount for links between attraction and the target-uncertainty by PNS model, then it will be important to demonstrate this model within more authentic contexts. For example, recent attraction research utilizing speed dating paradigms is inspirational in terms of studying attraction within a more realistic context (Finkel, Eastwick, & Matthews, 2007).

**Strengths**

Despite the limitations of these three studies, the strengths of this new line of research should not be downplayed either. With the exception of the Whitchurch et al. (2011) paper, there is no other published experimental evidence of UAA (though see Norton, Frost, & Ariely, 2007) that I am aware of. Indeed, the idea that uncertainty about a target amplifies attraction to her/him almost sounds absurd when one thinks about well-developed lines of research on topics such as familiarity breeds attraction or the reciprocity of attraction. Nevertheless, the idea has been present in popular culture for a long time. Also, all three of the present studies found at least some evidence suggesting a
positive connection between uncertainty and attraction (but only under the right circumstances).

Additionally, to my knowledge, PNS has never been explored in the context of initial romantic attraction. However, two of the three studies suggested that the PNS construct can be important in the early stages of relationship formation. Given the ubiquity of uncertainty when meeting new people or forming new romantic relationships, PNS may be an important construct to take account of when studying initial romantic attraction.

Finally, this line of research could eventually have a great deal of real world relevance. When two potential partners meet for the first time, there are infinite possibilities. Possibilities range from painful rejection to fun hookups to a wonderful marriage and family. Given the presence of these infinite possibilities, managing and resolving uncertainty is a fundamental part of getting to know someone new (Knobloch et al., 2008). This suggests that understanding how uncertainty and initial romantic attraction positively (negatively) relate to one another is important for understanding broader social psychology questions about relationship initiation.

**Future Directions**

There are several ideas for moving forward with this line of research. First, given the failure of Study 3 to replicate the uncertainty by PNS model, it would be reassuring to replicate the model again. A potential paradigm for replicating the uncertainty by PNS model could have participants interact with a moderately attractive confederate from another university in a scripted interview task over Skype. This task could be
standardized to a large extent and contain mutual self-disclosure. The uncertainty manipulation about the confederate’s opinion of the participant (e.g., “positive” versus “highly positive evaluation”) could be introduced after the pair “signed off.” This might increase participants’ positive experience of uncertainty. After all, participants wouldn’t have a potentially nervousness-inducing encounter in their near future, nor would they expect a future interaction with the confederate (as they did in Study 3). Not having to worry about an impending meeting might allow those with high PNS to dismiss ambiguity about the confederate’s opinion whereas those with lower PNS who might be intrigued by it. They might wonder about the confederate more and report higher attraction to him later. Another benefit is that any study involving a confederate would likely have higher external validity than studies where people view profiles and listen to audio recordings.

Alternatively, Study 3 may be worth conceptually replicating in a way that tests self-relevance as a moderator. It was speculated that the uncertainty by PNS interaction may be less likely to hold when the uncertainty has high self-relevance. This could be tested. For example, to test the notion of self-relevance as a moderator variable, a third condition could be added to Study 3’s paradigm. Half of the participants could be randomly assigned to think that Derek is a student at another university whom they will never meet. This lower self-relevance condition would be more similar to the Whitchurch, et al.’s (2011) paradigm where participants believed that they would never actually meet their evaluators. The other half of participants could be randomly assigned to believe that Derek is a student at their university (higher self-relevance) whom they
will meet. In other words, the higher self-relevance condition would essentially mirror the conditions of Study 3.

Perhaps in the lower self-relevance context, the main effects from Whitchurch et al., (2011) may emerge. Also, in the lower self-relevance context, PNS might influence wondering and attraction between conditions and within conditions. People who are higher on PNS should dismiss the uncertainty about the confederate’s opinion of them because there are no costs to dismissing the uncertainty. After all, they are never going to meet the individual. However, ambiguity might make low PNS participants more interested, thereby increasing attraction to the confederate under conditions of uncertainty. Indeed, it might be found that the uncertainty by PNS model replicates under lower self-relevance but not in higher self-relevance conditions.

Also, rather than passively measure PNS, it would be useful to develop a paradigm for manipulating PNS. Although there are situational manipulations of the very similar construct of need for closure, I am not aware of a situational manipulation for PNS. Need for closure has been increased with uncomfortable conditions (noise), time pressure, and cognitive load. These conditions all make it more burdensome to delay closure. Low need for closure has been induced with instructions emphasizing correctness, thereby making it more risky to quickly achieve closure (Thompson et al., 2001). Replicating the uncertainty by PNS interaction with a paradigm that manipulates both uncertainty and PNS would be useful. For example, such a study would help rule out the alternative explanations of the results from Studies 1 and 2. It would rule out the alternative explanation that some other personal quality which is related to PNS is the
variable that truly moderates the influence of uncertainty on attraction (rather than PNS itself).

Another possible study could assess the influence of valance of uncertainty on attraction. Participants could engage in a scripted (standardized) “getting to know you” task with a confederate. Afterwards, participants could complete a writing task about this experience with varying instructions. For example, participants in a positive uncertainty condition could be instructed: “through the “getting to know you” task you learned some initial information about your conversation partner. However, there is a great deal about her/him that is unknown to you. Are there any unknown things about them that make you curious? Please write down some questions about your conversation partner. If you have any, focus on questions about things which you are curious about or that you are wondering about.” In contrast, a negative uncertainty condition could be instructed: “Are there any unknown things about them that make you uncertain? Please write down some questions about your conversation partner. If you have any, focus on questions about things which you are feeling uncertain or unsure about.” A certainty condition could be instructed “you learned some initial information about your conversation partner. Please write down the things you learned about her/him. Just stick to the facts and avoid speculation.” Finally, a control condition could be instructed: “you learned some initial information about your conversation partner. Please write down some thoughts you have about them.”

Following the writing manipulation of uncertainty, attraction to the conversation partner could be assessed. This change in writing instructions (curiosities, uncertainties,
facts, thoughts) could help distinguish between positive and negative responses to uncertainty. For example, those in the curiosity/wondering condition should report higher attraction than any other group. In contrast, those who write about unknown things which they are feeling unsure or uncertain about should report the lowest amount of attraction. A potential mechanism behind such a finding might be that when people are wondering or curious about Derek, they are thinking about potential positive/attractive aspects of him. In contrast, when people are feeling uncertain they may be focusing on more negative/unattractive aspects of him. Finally, randomly assigning people to list curiosities, uncertainties, facts and thoughts would cast more doubt on the alternative explanations of Study 3’s exploratory findings (e.g., that wondering doesn’t cause people to become more attracted, those who wonder just tend to like others more).
CONCLUSION

Based on the available evidence, daters are not yet advised to make themselves appear more mysterious in their online profiles. Although the present studies offered intriguing hints about positive links between uncertainty and attraction, they have not satisfactorily answered the research question. Still these studies were a good start. The present research suggested that uncertainty and attraction can be positively linked but this can depend on the perceiver (e.g., higher or lower PNS?). Also, the positive link between uncertainty and attraction may depend on the perceivers’ response to the unknown (e.g., do they feel “uncertain” or “curious”?).

In the present economy, young and single people are traveling to new places for employment or to receive the training necessary for employment. This means that strangers will ultimately become their best friends, lovers and even spouses. Initiating these romantic relationships often involves a great deal of uncertainty. People may face uncertainty about the type of person their crush truly is, or about whether she/he truly has romantic feelings for them. Consequently, exploring how uncertainty and attraction are related and interact with individual differences has the potential to shed light on important social processes. These processes are at play in the critical and early stages of some of life’s most important relationships.
REFERENCES


APPENDIX

STUDY 3 MATERIALS

➢ Profile Creation

   o Female participants created personal profiles for males to form a first impression of them

Screen 1. Instructions Welcome! Your participation in experiments is helping psychology researchers. Thus, we are very grateful for your help. Please click "continue" to begin.

2. Instructions Time to write a profile! The profile consists of 5 writing prompts.

   • Male research participants who will be participating in the study today (or who are currently participating) will view the profile you write in order to form a first impression of you.

3. Essay 1. Please write (2-5 sentences) about how you would describe yourself if you were having a conversation with someone for the first time. Reveal something interesting about yourself!

4. Essay 2. Please write (2-5 sentences) about things that you do for fun or that you find meaningful. For example, you could discuss your favorite hobbies, interests, things you like doing on the weekend, etc.
5.  **Essay**  3. Please write (2-5 sentences) about something that would make you happy in your future. What potential future brings a smile to your face? For example, you could talk about successfully achieving an academic or career goal that you have, possessions you would like to own, a family you would like to have, or experiences you would like to have, etc.

6.  **Essay**  4. Which of the following values is most important to you: family, making a difference in the world, helping others, or being the best that you can be? Please explain (2-5 sentences) your answer.


8.  **Consent for Evaluation**  By clicking "Agree" you will be consenting to allow male research participants who are present during this hour or later today to view the profile that you just generated.

   (Note: If you do NOT want to permit others to view your profile, then please find the experimenter and let her/him know.)

9.  **Instructions**  THANK YOU. The rest of the questions that you answer for this study will be COMPLETELY ANONYMOUS. Your name is in no way tied to your data.

10.  **Understanding Anonymity**  I understand that every question that I answer for the rest of the study is completely anonymous. Also, I understand that the male research participants will never learn anything about my answers to questions (except for my responses to the 5 profile questions that I just answered).

    (Note: if you have any questions, the please see the experimenter)
Personal Need for Structure Scale

Hypothesized moderator variable was measured

11. Instructions Read each of the following statements and decide how much you agree with each according to your attitudes, beliefs and experiences. It is important for you to realize that there are no “right” or “wrong” answers to these questions. People are different, and we are interested in how you feel.

1 = Disagree Strongly
2 = Disagree Moderately
3 = Disagree Slightly
4 = Agree Slightly
5 = Agree Moderately
6 = Agree Strongly

12. PNS1 It upsets me to go into a situation without knowing what I can expect from it.
13. PNS2R I’m not bothered by things that interrupt my daily routine.
14. PNS3 I enjoy having a clear and structured mode of life.
15. PNS4 I like to have a place for everything and everything in its place.
16. PNS5R I enjoy being spontaneous.
17. PNS6R I find that a well-ordered life with regular hours makes my life tedious.
18. PNS7 I don’t like situations that are uncertain.
19. PNS8 I hate to change my plans at the last minute.
20. *PNS9* I hate to be with people who are unpredictable.

21. *PNS10* I find that a consistent routine enables me to enjoy life more.

22. *PNS11R* I enjoy the exhilaration of being in unpredictable situations.

23. *PNS12* I become uncomfortable when the rules in a situation are not clear.

> **End of PNS Scale**

> **Profile Rating and Ranking Task:**

> o *Having submitted their own profiles for evaluation, the women then rated and ranked the profiles of 9 male confederates*

24. *Instructions* Now you will rate and rank the profiles of male research participants who were present earlier today or who are currently participating.

25. *Instructions* Please spend about 10-15 minutes to rate and rank the participants featured in a folder of profiles. Then you will return the folder to the experimenter who will give you a code so that you can continue in the experiment.

- Notably, the males in this experiment have slightly different experiences than the females. In other words, the males are in a different condition of the experiment. For example, the males do NOT receive any feedback or learn anything about your opinion of them. In contrast, when you are randomly assigned to learn more about one of the male research participants, you will learn about his impression of you.
• Please FIND THE EXPERIMENTER and she/he will give you a folder of profiles and accompanying questionnaires.
First Name: Mason

1. Please write (2-5 sentences) about how you would describe yourself if you were having a conversation with someone for the first time. Reveal something interesting about yourself!

I am fun and I like to just hang out and have a good time.

2. Please write (2-5 sentences) about things that you do for fun or that you find meaningful. For example, you could discuss your favorite hobbies, interests, things you like doing on the weekend, etc.

I spend a lot of my free time playing guitar or listening to music. I would like to find a way to get more use out of that here in Athens.

3. Please write (2-5 sentences) about something that would make you happy in your future. What potential future brings a smile to your face? For example, you could talk about successfully achieving an academic or career goal that you have, possessions you would like to own, a family you would like to have, or experiences you would like to have, etc.

Being an accounting major my goals for the future revolve mostly on getting a job and making money. Being to live comfortably and being able to travel and play my guitar in bars in exotic lands.

4. Which of the following values is most important to you: family, making a difference in the world, helping others, or being the best that you can be? Please explain (2-5 sentences) your answer.

I think being the “best you that you can be.” I try to capitalize on my music and math talents. My parents worked hard to make sure that I could go to college and become educated. Not living up to my potential would seem like I don’t appreciate the things I have.

5. Please write (2-5 sentences) about what you look for in an opposite-sex friend.
I like people who are easy to talk to. Music is a big part of my life so I definitely look for compatibility in taste in that area. Must admire long electric guitar solos.

What is your overall impression of the author who described himself in this profile?

1 2 3 4 5 6 7 8 9

Very Negative
Impression of the Author

Extremely Positive
Impression of the Author

I am confident that author of this profile would make a good friend for me.

1 2 3 4 5 6 7 8 9

Not at all
Very Much
First Name: Dave

1. Please write (2-5 sentences) about how you would describe yourself if you were having a conversation with someone for the first time. Reveal something interesting about yourself!

I am a freshman. Studying to become a successful engineer. And I enjoy building things.

2. Please write (2-5 sentences) about things that you do for fun or that you find meaningful. For example, you could discuss your favorite hobbies, interests, things you like doing on the weekend, etc.

I like to play video games with my friends. I’m a little bit addicted. For a hobby I collect shot glasses.

3. Please write (2-5 sentences) about something that would make you happy in your future. What potential future brings a smile to your face? For example, you could talk about successfully achieving an academic or career goal that you have, possessions you would like to own, a family you would like to have, or experiences you would like to have, etc.

Something that would make me happy in the future is having a family. I really want to settle down somewhere and have children. Along with this though, I want to make money and have a stimulating career as an engineer and I want a shot glass from every major national park in the country.

4. Which of the following values is most important to you: family, making a difference in the world, helping others, or being the best that you can be? Please briefly explain (4-5 sentences) your answer.

Family is the most important value to me. I have a great family life and I want that when I have a family someday. My family has always been there for me and is always supportive. I want my children to say the same someday.

5. Please write a brief paragraph (4-5 sentences) about what you look for in an opposite-sex friend.

I look for someone who is funny and honest and who will stay up late playing video games with me. I want a friend who can support me when I’m stressed.
What is your overall impression of the author who described himself in this profile?

Very Negative  Extremely Positive
Impression of the Author  Impression of the Author

I am confident that author of this profile would make a good friend for me.

Not at all  Very Much
First Name: Scott

1. Please write (2-5 sentences) about how you would describe yourself if you were having a conversation with someone for the first time. Reveal something interesting about yourself!

My name is Scott. I am a sophomore and I just changed my major to business. I have two sisters and a brother. I love skateboarding and fantasize about being the next Tony Hawk.

2. Please write (2-5 sentences) about things that you do for fun or that you find meaningful. For example, you could discuss your favorite hobbies, interests, things you like doing on the weekend, etc.

Throughout the week I like to go out to the bars and party. I’m a skater so I’m always having fun trying to master new tricks.

3. Please write (2-5 sentences) about something that would make you happy in your future. What potential future brings a smile to your face? For example, you could talk about successfully achieving an academic or career goal that you have, possessions you would like to own, a family you would like to have, or experiences you would like to have, etc.

I will be happy when I am the CEO of a successful business. I want to make a lot of money so I can travel the world, do things I have never done before, and afford a really expensive skateboard with gold on the wheels lol.

4. Which of the following values is most important to you: family, making a difference in the world, helping others, or being the best that you can be? Please explain (2-5 sentences) your answer.

The most important value for me is being the best I can be. Whenever I do not do my best I feel terrible.

5. Please write (2-5 sentences) about what you look for in an opposite-sex friend.

I want a friend who is cute and likes to pull pranks. Also she would need to have my back no matter what. She needs to be intelligent and she needs to like to work out. Bonus points if she’s a skater.
What is your overall impression of the author who described himself in this profile?

1  2  3  4  5  6  7  8  9
Very Negative       Extremely Positive
Impression of the Author    Impression of the Author

I am confident that author of this profile would make a good friend for me.

1  2  3  4  5  6  7  8  9
Not at all       Very Much
First Name: Nathan

1. Please write (2-5 sentences) about how you would describe yourself if you were having a conversation with someone for the first time. Reveal something interesting about yourself!

I love everything outdoors. I am relaxed, I am never angry. I have a great sense of humor, somehow I am always making people laugh, which can make me feel like I’m the life of the party.

2. Please write (2-5 sentences) about things that you do for fun or that you find meaningful. For example, you could discuss your favorite hobbies, interests, things you like doing on the weekend, etc.

I recently took up rock climbing. The outdoors is my playground. I usually do something outside every weekend with my friends. I’m also interested in art, but I’m still working on my painting skills.

3. Please write (2-5 sentences) about something that would make you happy in your future. What potential future brings a smile to your face? For example, you could talk about successfully achieving an academic or career goal that you have, possessions you would like to own, a family you would like to have, or experiences you would like to have, etc.

I’m currently an Electrical Engineering major, but I’m thinking of switching to Recreation, because it’s my passion. I want to explore the world, and climb El Capitan in Yosemite.

4. Which of the following values is most important to you: family, making a difference in the world, helping others, or being the best that you can be? Please explain (2-5 sentences) your answer.

Being the best you can be, because the rest all fall under it. I think by being the best you can, you are helping yourself, your family and friends, and strangers. Thus you are making a difference in the lives of others. Plus, you can only help others when you’ve helped yourself.

5. Please write (2-5 sentences) about what you look for in an opposite-sex friend.

Someone who isn’t gossipy or judgmental. A woman, not a girl. I would love a female friend who would go on climbing trips with me. Someone who can have a conversation about important things, but can also just be goofy.
What is your overall impression of the author who described himself in this profile?

1  2  3  4  5  6  7  8  9

Very Negative                          Extremely Positive
Impression of the Author              Impression of the Author

I am confident that author of this profile would make a good friend for me.

1  2  3  4  5  6  7  8  9

Not at all                             Very Much
First Name: Devin

1. Please write (2-5 sentences) about how you would describe yourself if you were having a conversation with someone for the first time. Reveal something interesting about yourself!

YOLO! Live life like there’s no tomorrow. That’s how I live. OU OH YEAH!

2. Please write (2-5 sentences) about things that you do for fun or that you find meaningful. For example, you could discuss your favorite hobbies, interests, things you like doing on the weekend, etc.

My friends and I play video games and we party and celebrate life. No one can beat me in Mario Cart. Most Sundays are football days for us.

3. Please write (2-5 sentences) about something that would make you happy in your future. What potential future brings a smile to your face? For example, you could talk about successfully achieving an academic or career goal that you have, possessions you would like to own, a family you would like to have, or experiences you would like to have, etc.

I think I’d like to be a famous historian in documentaries someday. I’d love to drive a sweet MG Midget 1500 (two seater sports car) in red someday. Cars are kinda a second love. I want a family someday but you gotta meet the right girl first. I want to move to So. Cal. and have adventures there.

4. Which of the following values is most important to you: family, making a difference in the world, helping others, or being the best that you can be? Please explain (2-5 sentences) your answer.

Being the best I can be. I gotta be the best to get the best. If we all work to be the best, we don’t need to help each other.

5. Please write (2-5 sentences) about what you look for in an opposite-sex friend.

Someone who’s willing to set me up with her friends, act as a wing-woman. Gotta be like one of the guys.
What is your overall impression of the author who described himself in this profile?

1  2  3  4  5  6  7  8  9

Very Negative                                Extremely Positive
Impression of the Author                     Impression of the Author

I am confident that author of this profile would make a good friend for me.

1  2  3  4  5  6  7  8  9

Not at all                                  Very Much
First Name: Derek

1. Please write (2-5 sentences) about how you would describe yourself if you were having a conversation with someone for the first time. Reveal something interesting about yourself!

   I would describe myself as someone who loves sports (Go Browns!) and traveling. Also, I try to work hard in school to make my goals become a reality. Something interesting about me is that I’m a certified lifeguard.

2. Please write (2-5 sentences) about things that you do for fun or that you find meaningful. For example, you could discuss your favorite hobbies, interests, things you like doing on the weekend, etc.

   For fun I play sports and workout. Also, I love spending time with my friends. Traveling is also important to me and I hope that I make enough money to see more of the world when I’m older. Also, I love watching movies and I recently got done watching every James Bond movie (there are 24!).

3. Please write (2-5 sentences) about something that would make you happy in your future. What potential future brings a smile to your face? For example, you could talk about successfully achieving an academic or career goal that you have, possessions you would like to own, a family you would like to have, or experiences you would like to have, etc.

   After starting my career, I would love to earn enough to support a family by working as a marketing research consultant for a team in the NFL. Obviously, I would especially love to work for the Browns! The two things that would make my future happiest would be (a) financial stability and well-being; and (b) having a family.

4. Which of the following values is most important to you: family, making a difference in the world, helping others, or being the best that you can be? Please explain (2-5 sentences) your answer.

   Family is the most important value to me. My parents are divorced but I am very close with both my mom and my dad. Also, I have a step sister that I would do anything for. Like I said before, I would like to have a family of my own someday. Here is my
philosophy: When you are old and are reflecting on your life, the memories that you made with your family will be the ones you value the most.

5. Please write (2-5 sentences) about what you look for in an opposite-sex friend.

I look for the same things I look for in any friend. I want someone who is loyal and trustworthy and will stick up for me. Also, I want someone who will appreciate my sense of humor, who will laugh and joke around with me.
What is your overall impression of the author who described himself in this profile?

1 2 3 4 5 6 7 8 9

Very Negative
Impression of the Author

Extremely Positive
Impression of the Author

I am confident that author of this profile would make a good friend for me.

1 2 3 4 5 6 7 8 9

Not at all

Very Much
First Name: Dustin

1. Please write (2-5 sentences) about how you would describe yourself if you were having a conversation with someone for the first time. Reveal something interesting about yourself!

I’m a freshman in graphic design and my minor is in business. I also like dogs. I juggle.

2. Please write (2-5 sentences) about things that you do for fun or that you find meaningful. For example, you could discuss your favorite hobbies, interests, things you like doing on the weekend, etc.

I like to hang out with my friends on the weekends. I also play the guitar and I sing a little but I’m not ready for American Idol :P I have juggled in talent competitions before.

3. Please write (2-5 sentences) about something that would make you happy in your future. What potential future brings a smile to your face? For example, you could talk about successfully achieving an academic or career goal that you have, possessions you would like to own, a family you would like to have, or experiences you would like to have, etc.

Something that would make me smile is making a difference in this world through my graphic design. I want to make beautiful things that will make other people smile.

4. Which of the following values is most important to you: family, making a difference in the world, helping others, or being the best that you can be? Please briefly explain (4-5 sentences) your answer.

I can't choose just one I would have to say all three. I want to do so much in my life that makes a difference, I want to help others, and I want to be pushed to my full potential.

5. Please write a brief paragraph (4-5 sentences) about what you look for in an opposite-sex friend.

I would like someone who is creative and artistic. Someone who will give me feedback on my art. Someone who will make me laugh.
What is your overall impression of the author who described himself in this profile?

1  2  3  4  5  6  7  8  9

Very Negative                              Extremely Positive
Impression of the Author                  Impression of the Author

I am confident that author of this profile would make a good friend for me.

1  2  3  4  5  6  7  8  9

Not at all                              Very Much
First Name: Brandon

1. Please write (2-5 sentences) about how you would describe yourself if you were having a conversation with someone for the first time. Reveal something interesting about yourself!

I would describe myself as someone who is outspoken. I enjoy being around people, and I enjoy meeting new people. I am outspoken because I stand up for what I believe in. In addition, I enjoy listening to people’s problems and helping them to come up with solutions. I am also the person that my friends go to for advice.

2. Please write (2-5 sentences) about things that you do for fun or that you find meaningful. For example, you could discuss your favorite hobbies, interests, things you like doing on the weekend, etc.

It is important for me to spend time with my friends. They are my support system while at school and I know I can go to them with any problem that I may be having. I also enjoy volunteering. I am involved in many volunteer organizations.

3. Please write (2-5 sentences) about something that would make you happy in your future. What potential future brings a smile to your face? For example, you could talk about successfully achieving an academic or career goal that you have, possessions you would like to own, a family you would like to have, or experiences you would like to have, etc.

I have many goals for my future. My first goal is to move to a big city such as New York. In addition, it would bring a smile to my face to help families who are in need.

4. Which of the following values is most important to you: family, making a difference in the world, helping others, or being the best that you can be? Please explain (2-5 sentences) your answer.

All of the values that were listed are important to me. I could fulfill all of those values as a social worker.

5. Please write (2-5 sentences) about what you look for in an opposite-sex friend.

In an opposite sex friend I look for someone who is compassionate. I enjoy spending my time with people who like to help others, and make a difference in the world. Also, it is important to not be serious all of the time and be able to let loose and have fun. Also, I can be outspoken so I look for someone who will debate with me without getting offended.
What is your overall impression of the author who described himself in this profile?

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I am confident that author of this profile would make a good friend for me.

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First Name: Daniel

1. Please write (2-5 sentences) about how you would describe yourself if you were having a conversation with someone for the first time. Reveal something interesting about yourself!

I would describe myself as an adventurous person. I love to try new things, and frequently look for new things to do on campus. I also love camping, hiking and playing sports. My favorite sports are football, and soccer. I am also a social person. I enjoy spending time with my friends, and meeting new people.

2. Please write (2-5 sentences) about things that you do for fun or that you find meaningful. For example, you could discuss your favorite hobbies, interests, things you like doing on the weekend, etc.

On the weekends, I enjoy spending my time outdoors. My friends and I have played in many intramural teams such as baseball. I also am involved in many clubs around campus. It's very important to me to always be trying new things. Also, I am a very, very passionate Democrat.

3. Please write (2-5 sentences) about something that would make you happy in your future. What potential future brings a smile to your face? For example, you could talk about successfully achieving an academic or career goal that you have, possessions you would like to own, a family you would like to have, or experiences you would like to have, etc.

My biggest goal for the future is to become a politician. Ultimately, I would like to become a senator in Ohio. I enjoy being involved in politics and what is going on around the world. I also love to help other people.

4. Which of the following values is most important to you: family, making a difference in the world, helping others, or being the best that you can be? Please explain (2-5 sentences) your answer.

The most important value to me is my family. I am very close with them, especially my sisters. I am the oldest of all my siblings so I am very protective of them. They come to me when they need advice and I happily help them. My family is also my most important value because I know that no matter what they will always be there for me and support me.
5. Please write (2-5 sentences) about what you look for in an opposite-sex friend.

In an opposite sex friend I look for someone who likes to be outdoors. I also want someone who likes trying new things whether it be activities, foods, etc. I look for friends who like to travel because I enjoy taking random trips with my friends on holidays. I am open minded but I would like someone who agrees with my political values since I want to be a democratic senator someday. I also like to spend my time with people who are very spontaneous.

What is your overall impression of the author who described himself in this profile?

Very Negative
Impression of the Author

Extremely Positive
Impression of the Author

I am confident that author of this profile would make a good friend for me.

Not at all
Very Much
Ranking People

Based on your impression of the individuals whose profiles you viewed, please rank them by name:

1_________ Favorite Person
2________
3________
4________
5________ Middle Ranking
6________
7________
8________
9________ Least Liked Person
End of Profile Rating and Ranking Task

- Participants submitted their ratings of the male research participants, then they were provided with a code to move forward in the experiment.

Random Assignment to Confederate:

- Having rated the profiles, the women were randomly assigned to form a more detailed impression of one of the men.

26. Instructions You have been randomly matched with a participant named DEREK. You already viewed Derek's profile, but now you will form a more detailed impression of him by:

(i) Learning about his impression of you

(ii) Listening to an interview that he conducted with experimenters

(iii) Meeting him for a brief conversation task.

27. Instructions Derek is in a condition of the experiment where he answered all of his questions on a computer. The experimenters you are interacting with do NOT know what Derek's impression of you was. However, the computer network has an automated protocol to provide you with information about Derek's impression of you.
Uncertainty Manipulation Part 1

- The women learn about their randomly assigned partner’s first impression of them

A. Certainty Condition

28. Instructions (A) This program will now give you detailed information about the impression that Derek formed of you.

- You will learn exactly what Derek's overall impression of you was, and you learn exactly how confident or unconfident Derek was that you would make a good friend for him.

- Finally, you will learn about where Derek ranked you relative to the other profiles he viewed.

B. Resolved and Permanent Uncertainty Conditions

28. (B) Instructions This program will now give you detailed information about the impression that Derek formed of you.

- You will learn exactly what Derek's overall impression of you was, and you learn exactly how confident or unconfident Derek was that you would make a good friend for him.

- Finally, you will learn about where Derek ranked you relative to the other profiles he viewed. However, for reasons of experimental control, your exact ranking has to be kept secret.
29. **State Curiosity Scale**

How curious are you to learn information about Derek's impression of you?

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Not at all curious  Extremely curious

30. **Feedback**

**A. Certainty Condition**

**DATA ABOUT DEREK'S IMPRESSION OF YOU**

- During today's session, Derek was asked to rate and rank nine people on the basis of their profiles.
- Derek's overall impression of you was very positive (8 out of 9). Additionally, Derek reported high confidence that you would make a good friend (8 out of 9).
- Also, we can reveal your exact ranking to you. You were ranked as Derek’s favorite.

- (Note: the continue button will appear in the bottom right hand corner of the screen in about one minute. After it appears, simply move on whenever you are ready)
B. Resolved and Permanent Uncertainty Conditions

DATA ABOUT DEREK'S IMPRESSION OF YOU

- During today's session, Derek was asked to rate and rank nine people on the basis of their profiles.
- Derek's overall impression of you was very positive (8 out of 9). Additionally, Derek reported high confidence that you would make a good friend (8 out of 9).
- For reasons of experimental control, you cannot know Derek's exact ranking of your profile. Put another way, your exact ranking has to be kept a secret.
- However, you can receive some limited information. You were either ranked as Derek's favorite or you were ranked in the middle. In other words, you might be his favorite or you might be in the middle.
- (Note: the continue button will appear in the bottom right hand corner of the screen in about one minute. After it appears, simply move on whenever you are ready)

➢ End Uncertainty Manipulation Part I
Initial Response to Uncertainty Manipulation 1

31.  Response to Initial Feedback
    
    A. Derek ranked your profile as his favorite. How does this feedback make you feel?  
    
       (control condition)  
    
    B. Your profile might have been ranked as Derek's favorite, or it might have been 
    ranked in the middle. How does this feedback make you feel? (resolved 
    uncertainty, permanent uncertainty)  

1  2  3  4  5  6  7  8  9  

Not at all happy       Very Happy

32.  Filler   How well do you remember your first impression of Derek's profile?  

1  2  3  4  5  6  7  8  9  

Not at all       Completely

33.  Uncertainty   How much uncertainty do you feel regarding Derek's impression of you?  

1  2  3  4  5  6  7  8  9  

None at all       A Great Deal of Uncertainty

34.  Eagerness   I am NOT eager to meet Derek.  

1  2  3  4  5  6  7  8  9  

Disagree Strongly       Agree Strongly
35. **Ambiguity**  How much ambiguity is there about Derek's impression of you?

1 2 3 4 5 6 7 8 9

None at all  A Great Deal

36. **Similarity**  How similar do you think that Derek is to you?

1 2 3 4 5 6 7 8 9

Not at all similar  Extremely similar

➢ **Interview Listening Task:**

   The women continue the task of forming a more detailed impression by listening to the confederate describe himself in an audio interview

37. **Instructions**  As previously noted, the males in this experiment have slightly different experiences than the females. In other words, they are in a different condition of the experiment.

   • Derek was in a condition of the experiment in which he also had to talk about himself in an audio interview. We are interested in your impression of Derek after learning more about him via listening to his interview

38. **Instructions**  Please put on the headphones and click continue.

39. **Instructions**  You should be hearing the interview right now. Please listen to the interview carefully.
Interview Transcript

Interviewer: Ok, so this is the interview series for the psychology experiment, and I am talking with Derek. Alright, Derek, first question?

1. Why are you here today?

Well, I’d like to say that I’m trying to help psychology advance. But, really, I just need experiment credits for Psy 101.

2. Interviewer: We actually get that a lot. Alright, so next question: what are your hobbies?

My biggest love is sports. I play basketball and football whenever I can. I also like going to see movies in my spare time. I find movies that I like in every genre. Plus I enjoy any and every James Bond movie, Goldeneye was one of the best movies of all time!

3. Interviewer: I’m actually a fan of that one myself. Um, alright. What would you like to do after you graduate from Ohio University?

After I leave OU, I’d like to start a career in marketing for a sport team—that’s my major right now. My favorite part about marketing is advertising research. Basically, my dream job would be a marketing research consultant for the NFL. You get to do really interesting research, plus you get paid pretty well.

4. Interviewer: Alright, this next question is kinda hard. It’s probably going to make you think a little bit. What is something that you have always’ wanted to do, but probably will never be able to do?

Haha, that’s a tough one. I guess that I’ve always wanted to go skydiving but I’m actually a little bit afraid of heights, so I’m not sure if I’ll be able to do it. Hopefully I’ll work up the courage and do it someday. Maybe that’s how I’ll celebrate graduation!

5. Interviewer: Alright, another hard question: What is one thing about yourself that most people would consider surprising?

Haha, uhh gosh. Um…when I was a really little kid I played Barbies with my younger step-sister! Anyway, that’s kind of embarrassing, but I do think that sometimes people don’t realize that I have a lot of different parts to my personality. I can party a lot, but I am also a pretty serious student. I might go out and be a little crazy on the weekend, but I still get good grades.
6. Alright, what 3 famous people (and they can be dead or they can be alive) would you invite to your perfect dinner party? And why?

Hmmm…Let’s see…I would invite Albert Einstein. I think he was the smartest person to ever live, and I would love to chat with him.

I would also invite Ian Flemming (the dude who wrote the original James Bond novels) and I would invite Jesus because I think they were both wise and I would love to hear them talk about life with each other.

7. Interviewer: That is a good answer. Um alright. What would your…what would be your ideal vacation destination?

I would visit Rome! Rome has got the Coliseum and all kinds of other ruins from the Roman Empire. It would be like walking through history. Plus, I hear it is one of the world’s most beautiful cities.

8. Interviewer: Alright. What is your relationship status and what is the longest relationship you have ever been in?

Well, I’m single right now. My longest relationship was with a girl named Katie that I dated for two years when I was in high school.

9a. Interviewer: Ok, where are you originally from?

I’m actually from North Carolina but I moved to Ohio for college.

9b: Interviewer: How did you wind up becoming an Ohio University student?

In many ways, I applied to OU on a whim. I wound up here largely by good fortune and chance. Don’t ask me to tell you the whole story, but becoming an OU student was the result of a crazy adventure with my friends…”

10: Interviewer Ok, and that was actually my last question for you. Thank you Derek.

Sure, no problem.

➢ End of Interview Listening Task
Post Interview Items

40. Comprehension of Anonymity I understand that all of my answers to questions are anonymous, and I understand that Derek will NOT learn about any of my answers to questions (except for the answers that I wrote for the 5 profile questions at the beginning of this experiment).
   - (Note: if you have any questions, then please see the experimenter)

41. Post-Interview Interestingness How interesting did Derek sound?

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42. Post-Interview Similarity I think that Derek and I have very different interests.

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Uncertainty Manipulation Part II:

- Having listened to his interview, participants see Derek's feedback repeated (certainty and permanent uncertainty conditions) or they see new feedback whereby uncertainty is positively resolved (resolved-uncertainty condition)

A. Certainty and Permanent Uncertainty Conditions

46. Instructions On the next screen, you will again see the information about Derek's opinion of you. This feedback will remain on the screen for about a minute while the next part of the experiment is loading.

B. Resolved Uncertainty Condition

- On the next screen, you will again see the information about Derek's opinion of you. This feedback will remain on the screen for about a minute while the next part of the experiment is loading.

- Also, you will receive additional information. At this point of the experiment, the program can now tell you exactly what Derek's ranking of you was.

47. DATA ABOUT DEREK'S IMPRESSION OF YOU

A. Certainty Condition

- During today's session, Derek was asked to rate and rank nine people on the basis of their profiles.
• Derek's overall impression of you was very positive (8 out of 9). Additionally, Derek reported high confidence that you would make a good friend (8 out of 9).
• Also, we can reveal your exact ranking to you. You were ranked as Derek’s favorite.

• (Note: the continue button will appear in the bottom right hand corner of the screen in about one minute. After it appears, simply move on whenever you are ready)

B. Resolved Uncertainty Condition

• It can now be disclosed to you that Derek ranked your profile as his favorite.
• During today's session, Derek was asked to rate and rank nine people on the basis of their profiles.
• Derek's overall impression of you was very positive (8 out of 9). Additionally, Derek reported high confidence that you would make a good friend (8 out of 9).

• (Note: the continue button will appear in the bottom right hand corner of the screen in about one minute. After it appears, simply move on whenever you are ready)

C. Permanent Uncertainty Condition

• During today's session, Derek was asked to rate and rank nine people on the basis of their profiles.
• Derek's overall impression of you was very positive (8 out of 9). Additionally, Derek reported high confidence that you would make a good friend (8 out of 9).

➢ For reasons of experimental control, you cannot know Derek's exact ranking of your profile. Put another way, your exact ranking has to be kept a secret.

➢ However, you can receive some limited information. You were either ranked as Derek's favorite or you were ranked in the middle. In other words, you might be his favorite or you might be in the middle.

➢ (Note: the continue button will appear in the bottom right hand corner of the screen in about one minute. After it appears, simply move on whenever you are ready)

➢ End of Uncertainty Manipulation Part II

➢ Attraction Time 1 and Initial Response to Uncertainty Manipulation

48. Attraction Time 1 (1) How attractive do you think Derek is?

1 2 3 4 5 6 7 8 9

Extremely unattractive Extremely attractive

49. Response to Feedback 1

A. Reflecting on Derek's opinion of you, how does it make you feel to know that Derek ranked your profile as his favorite? (certainty condition, resolved-uncertainty condition)
B. Reflecting on Derek's opinion of you, how does it make you feel to know that you might have been ranked in the middle or you might have been ranked as Derek's favorite? (permanent uncertainty condition)

1 2 3 4 5 6 7 8 9

Not at all Happy Very Happy

50. Response to Feedback 2

• Knowing that Derek ranked me as his favorite causes me to have (certainty condition, resolved-uncertainty condition)

• Knowing that I was either ranked as Derek's favorite or I was ranked in the middle causes me to have (permanent uncertainty condition)

1 2 3 4 5 6 7 8 9

Very negative feelings Very positive feelings

51. Attraction Time 1 (2) Derek seems similar to me.

1 2 3 4 5 6 7 8 9

Not at all Very much

➢ Time Gap:

   o The women Complete measures for the “personality” portion of experiment.

   Also they complete manipulation check items, mood, filler items some general positivity items, potential process measures
52.  *Uncertainty Manipulation Check 1* I feel uncertain about Derek's impression of me.

1 2 3 4 5 6 7 8 9

Not at all  Very much

53.  *Personality Filler 1* I see myself as someone who is persistent when I am trying to achieve my goals.

1 2 3 4 5 6 7 8 9

Strongly Disagree  Strongly Agree

54.  *Personality Filler 2* I see myself as a hard working person.

1 2 3 4 5 6 7 8 9

Strongly Disagree  Strongly Agree

55.  *Personality Filler 3* I see myself as someone who tends to daydream a lot.

1 2 3 4 5 6 7 8 9

Strongly Disagree  Strongly Agree

56.  *Enjoyment of Derek's Interview* I enjoyed listening to Derek's interview.

1 2 3 4 5 6 7 8 9

Strongly Disagree  Strongly Agree
57. **Uncertainty Manipulation Check 2** There is uncertainty about where Derek ranked me.

1 2 3 4 5 6 7 8 9

Disagree Strongly       Agree Strongly

58. **Personality Filler 4** I see myself as a charismatic person.

1 2 3 4 5 6 7 8 9

Disagree Strongly       Agree Strongly

59. **Personality Filler 5** I see myself as someone who is typically energetic.

1 2 3 4 5 6 7 8 9

Strongly Disagree       Strongly Agree

60. **Personality Filler 6** I see myself as someone who keeps a good schedule and stays organized.

1 2 3 4 5 6 7 8 9

Strongly Disagree       Strongly Agree

61. **Uncertainty Manipulation Check 3** I am unsure about how much Derek likes me.

1 2 3 4 5 6 7 8 9

Disagree Strongly       Agree Strongly
62. **Instructions** We will now ask you some more questions about yourself and your personality.

1 2 3 4 5 6 7 8 9

Not at all A great deal

63. **Personality Filler** 7 I see myself as someone who is a reliable worker.

64. **Personality Filler** 8 I see myself as someone who is ingenious, a deep thinker.

65. **Personality Filler** 9 I see myself as someone who generates a lot of enthusiasm.

66. **Personality Filler** 10 I see myself as having a forgiving nature.

67. **Personality Filler** 11 I see myself as someone who tends to be disorganized.

68. **Personality Filler** 12 I see myself as someone who worries a lot.

- Mood Items
INSTRUCTIONS: In a moment you will answer 12 items about your current mood. Please rate the extent to which you are currently experiencing the following moods or feelings.

1  2  3  4  5  6  7  8  9
Not at all                        A great deal

Mood 1  I feel energized.
Mood 2  I feel happy
Mood 3  I feel uncomfortable
Mood 4  I feel pleased
Mood 5  I feel disappointed.
Mood 6  I feel nervous.
Mood 7  I feel sad.
Mood 8  I feel alert.
Mood 9  I feel curious.
Mood 10 I feel uneasy.
Mood 11 I feel enthusiastic.
Mood 12 I feel good.
- Trait Curiosity Scale

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82. *Trait Curiosity 1* I would describe myself as someone who actively seeks as much information as I can in a new situation.

83. *Trait Curiosity 2* When I am participating in an activity, I tend to get so involved that I lose track of time.

84. *Trait Curiosity 3* I frequently find myself looking for new opportunities to grow as a person (e.g., information, people, resources).

85. *Trait Curiosity 4* I am NOT the type of person who probes deeply into new situations or things.

86. *Trait Curiosity 5* When I am actively interested in something, it takes a great deal to interrupt me.

87. *Trait Curiosity 6* My friends would describe me as someone who is "extremely intense" when in the middle of doing something.

88. *Trait Curiosity 7* Everywhere I go, I am out looking for new things or experiences.
89. *Relationship Status 1* Right now, I would best describe my relationship status as…

1 2 3 4 5 6 7 8 9

Not at all committed to anyone  Extremely committed to a partner

90. *Relationship Status 2* I am currently in a dating relationship

True  False

91. *Sexual Orientation*  I would describe myself as…

1 2 3 4 5 6 7 8 9

Completely Homosexual  Completely Heterosexual

92. *Personality Filler 13*  I see myself as someone who tends to find fault in others

93. *Personality Filler 14*  I see myself as someone who does a thorough job.
94. *Personality Filler 15*  I see myself as someone who is original and comes up with new ideas.

95. *Personality Filler 16*  I see myself as someone who is helpful and unselfish with others.

96. *Personality Filler 17*  I see myself as someone who can be somewhat careless.

97. *Personality Filler 18*  I see myself as someone who is relaxed and handles stress well.

98. *Personality Filler 19*  I see myself as someone who is curious about many different things.

99. *Personality Filler 20*  I see myself as someone who is full of energy.

100. *Personality Filler 21*  I see myself as someone who tends to be lazy.

101. *Personality Filler 22*  I see myself as someone who is emotionally stable, not easily upset.

102. *Personality Filler 23*  I see myself as someone who is inventive.

103. *Personality Filler 24*  I have an assertive personality.

104. *Personality Filler 25*  I can be cold and aloof.

105. *Personality Filler 26*  I persevere until a task is finished.

106. *Personality Filler 27*  I can be moody.


109. *Personality Filler 30*  I am considerate and kind to almost everyone.


111. *Personality Filler 32*  I remain calm in tense situations.

- More Manipulation Check Items, Potential Process Items, and Some General Positivity Items

112. *Instructions*  The next set of questions pertains to Derek.

113. *Thinking about Target 1*  Since you listened to Derek's interview, how often have thoughts about Derek popped into your head?

1 2 3 4 5 6 7 8 9

Not very often  Extremely often

114. *General Positivity 1*  My impression is that Derek probably doesn't try to do his best in school.

1 2 3 4 5 6 7 8 9

Strongly Disagree  Strongly Agree
115.  *Uncertainty Manipulation Check 4* How uncertain are you about Derek's first impression of you?

1  2  3  4  5  6  7  8  9

Not at all uncertain  Extremely uncertain

1 = Disagree Very Strongly
2 = Disagree Strongly
3 = Disagree Moderately
4 = Disagree Slightly
5 = Neither Agree nor Disagree
6 = Agree Slightly
7 = Agree Moderately
8 = Agree Strongly
9 = Agree Very Strongly

116.  *Thinking about Target 2* Thoughts about Derek keep popping into my head.

117.  *Thinking about Target 3* Ever since I listened to Derek's interview, I have thought about him a lot.

118.  *Uncertainty Manipulation Check 5* I am unclear about Derek's opinion of my profile.

119.  *General Positivity 2* Derek sounds like he does not perform well in school.

120.  *Process 1* I want to learn more information about Derek.

121.  *Expect Connection* I expect that I will NOT feel a sense of connection with Derek when I meet
him.

122. **Expect Target’s Attraction**  
I think that Derek will feel attracted to me when we meet.

123. **General Positivity 3**  
Derek seems like the type of person who does not make friends easily.

124. **General Positivity 4**  
I think that Derek is probably unathletic.

125. **Wondering About Derek’s Opinion**  
I am wondering about Derek's opinion of my profile.

126. **General Wonder 1**  
I am wondering about what Derek will be like when I meet him.

127. **General Mystery Perception 1**  
I feel like Derek is mysterious.

128. **General Positivity 5**  
My impression is that Derek is probably not a hard working student.

129. **General Curiosity**  
Aspects of Derek have triggered my curiosity.

130. **General Idealization**  
In my imagination, Derek is portrayed in a very positive light.

131. **Imagination**  
I have used imagination to fill-in my gaps of knowledge about Derek.

132. **General Wonder 2**  
I have been wondering about Derek a lot.

133. **General Positivity 6**  
Derek is probably an incompetent person.
134. **General Positivity 7** Derek sounds like he doesn't have clear goals for his future.

135. **General Mystery Perception 2** Some aspects of Derek are mysterious.

136. **General Intriguingness** Something about Derek is intriguing.

137. **General Positivity 8** Derek sounds like he isn't a very intellectual person.

138. **General Speculation** Derek has triggered my speculation.

139. **Perceived Target Desperateness** Derek seems like the kind of person who is desperate in regards to finding a romantic partner.

- Personality Filler

140. **Instructions** Next you will answer three questions about your personality.

141. **Personality Filler 33** I see myself as extraverted, enthusiastic.

142. **Personality Filler 34** I see myself as anxious, easily upset.

143. **Personality Filler 35** I see myself as open to new experiences, complex.

144. **Instructions** The next set of questions pertains to Derek.

- General Positivity

145. **General Positivity 9** I think that Derek is a very intelligent person.

146. **General Positivity 10** I think that Derek is a very competent person.
147. *General Positivity 11* I think that Derek will be an extremely successful person in the future.

148. *General Positivity 12* I think that Derek is probably a creative person.

149. *General Positivity 13* I think that Derek tries his best to succeed.

150. *General Positivity 14* I think that Derek probably has a warm, friendly personality.

151. *General Positivity 15* Derek is probably NOT a very hard worker.

152. *General Positivity 16* Derek seems unlikable.

- Personality Filler

153. *Instructions* Next you will answer three more questions about your personality

154. *Personality Filler 36* I see myself as reserved, quiet.

155. *Personality Filler 37* I see myself as calm, emotionally stable.

156. *Personality Filler 38* I see myself as conventional, uncreative.

➢ End of Time Gap
Instructions

Next you will respond to another set of questions about Derek.

➢ PRIMARY DEPENDENT MEASURE _ ATTRACTION TIME 2

C. Note: some filler items and general positivity items were interspersed

158. Attraction 1 I think that Derek is probably


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159. Attraction 2 I expect that I would enjoy spending time with Derek


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Attraction 3 How desirable do you think Derek would be as a dating partner?


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Attraction 4  How much do you want to meet Derek?

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5 = Neither Agree nor Disagree  
6 = Agree Slightly  
7 = Agree Moderately  
8 = Agree Strongly  
9 = Agree Very Strongly

162. Attraction 5  I anticipate that Derek is a sexually attractive person.

163. General Positivity 17  Derek didn't sound friendly.

164. Attraction 6  I expect that I will like Derek a great deal.

165. Attraction 7  If I were single, then I would enjoy going on a date with someone like Derek.

166. Attraction 8  Derek does NOT sound like an interesting person.

167. General Positivity 18  Derek sounds like he isn't an ambitious person.
168. **Attraction 9** Derek seems like an attractive person.

169. **Attraction 10** I imagine that Derek and I are compatible.

170. **Attraction 11** Derek sounded like a sexually desirable person.

171. **General Positivity 19** I think that Derek is probably a neurotic person

172. **Attraction 12** I have a lot in common with Derek.

173. **Attraction 13** I expect that I would be attracted to Derek if I met him at a party.

174. **Attraction 14** My personality is similar to Derek's personality.

175. **General Positivity 20** Derek sounded like a lazy person.

176. **Attraction 15** Derek sounded like a desirable person.

177. **Attraction 16** If I were single, then I would give my phone number to someone like Derek (if he asked for it).

178. **Attraction 17** Derek sounded sexy.

179. **General Positivity 21** Derek sounded like he is not an open-minded person.

180. **Attraction 18** I imagine that Derek and I will have a lot in common.

181. **Attraction 19** Derek seems like the type of person that I would enjoy talking with.

182. **General Positivity 22** Derek seems like a person who doesn't value family.

183. **Attraction 20** Derek seems like someone that I would get along with.
184. *Attraction 21* Derek sounds like an unattractive person.

185. *Attraction 22* If I were single, then I would go on a date with someone like Derek.

186. *Attraction 23* If I were single, then Derek sounds like the kind of person that I would enjoy hooking up with.

➢ **END OF PRIMARY DEPENDENT MEASURE _ ATTRACTION TIME 2**

➢ **Filler Items**

187. *Instructions* Thank you for answering questions about Derek. You will now answer 4 items about your experience in psychology experiments.

188. *General Filler 1* I think that psychology experiments are generally uninteresting.

189. *General Filler 2* Scale Response I generally enjoy psychology experiments.

190. *General Filler 3* I think that Porter Hall is a good building for having psychology experiments.

191. *General Filler 4* I think that it would be better to have psychology experiments in a different building on campus.

**End Filler Items**

➢ **Start of Behavioral Attraction Cover Story**
192. **Instructions** Thank you for answering the questions. We will be starting the
discussion task in a moment. Please click continue.

193. **Instructions** STOP! The experimenters have updated this program with important
information about today's experiment. Please continue to the next screen.

194. **Instructions** According to information uploaded by the experimenter, Derek had to
LEAVE the experiment early. This means that the discussion task will NOT OCCUR
today. Thus, the experimenter will be debriefing you in a moment. Please go to the next
screen.

195. **Instructions** This computer has an automated protocol to follow when a research
participant has to leave an experiment early. Please go to the next screen.

196. **Instructions** Sometimes participants have to leave experiments early in this study.
However, you could STILL have a conversation with Derek within the
next 60 days through the psychology department's Social Research
Webpage. Please click continue to learn more information.

197. **Instructions** This Social Research Webpage contains an anonymous chat function, so you
could (a) chat with Derek online; (b) email the experimenters your rating of the
conversation on a 1 to 10 scale (1 = Unfavorable, 10 = Extremely Favorable).
Behavioral Attraction Item

- Given that you can no longer meet with Derek today, would you be willing to chat online with him within the next 60 days? (Note: Your answer is completely ANONYMOUS). Please note that you have already helped the experimenters a great deal, so it is perfectly acceptable to indicate that you would NOT like to chat online with Derek. Please answer below.

1 = I commit to chatting online for at least 30 MINUTES
2 = I commit to chatting online for at least 25 MINUTES
3 = I commit to chatting online for at least 20 MINUTES
4 = I commit to chatting online for at least 15 MINUTES
5 = I commit to chatting online for at least 10 MINUTES
6 = I commit to chatting online for at least 5 MINUTES
7 = I commit to chatting online for at least 0 MINUTES

Funnel Debriefing

199. Funnel Debriefing 1 Please tell us what you thought this experiment was about today.

200. Funnel Debriefing 2 During the experiment, did you notice anything that was strange or unusual?

End of Experiment

- After debriefing participants were thanked and dismissed-