

Ignoring Red Flags: Self Efficacy and Self-Disclosure in Online Romantic Relationships

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Honors in Psychology Project Final Report

Project Title: Ignoring Red Flags: Self Efficacy and Self-Disclosure
in Online Romantic Relationships

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This student has completed the indicated project under my supervision. It was

successfully defended on: May 10, 2021
(date)

We evaluate the project as having earned the following grade: _____

signature of project advisor

signature of committee member

signature of committee member



Distinction Project Grade Form (Jan. '17)

Submit this completed form to the Honors Program Director by the last final exam day of the term.

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Project Title: Ignoring Red Flags: Self Efficacy and Self-Disclosure in Online Romantic Relationships

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To be completed by the project supervisor:

This student has completed the indicated project under my supervision. It was successfully defended on
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(Note that successful completion of Honors Program requirements requires a B or higher. This reminder should not influence the grade assigned by the Project Supervisor in consultation with the committee.)

A handwritten signature in black ink, appearing to read "Darcey N. Powell", written over a horizontal line.

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Abstract

With the advancement of technology, dating has changed drastically, especially for emerging adults who make up a considerable portion of online daters. However, dangers surrounding dating someone met online (e.g., misrepresentation) are a major concern. Additionally, without the social cues usually gathered from face-to-face interactions, individuals often have intense feelings of intimacy and are more willing to self-disclose more than in face-to-face interactions. The first study aimed to examine if romantic self-efficacy and target attractiveness impacted the likeliness to self-disclose in online initiated relationships. There were no significant differences in likelihood to self-disclose based on romantic self-efficacy or target attractiveness. However, likeliness to disclose and the depth or level of the information being disclosed did appear to be affected by whether misleading information was included. The second study utilized electroencephalography (EEG) to determine if target attractiveness and presence of misleading information impacted brain activity. There were no significant differences in brain activity based on target attractiveness or vignette type, nor was amount of self-disclosure associated with brain activity. Although most of the hypotheses were unsupported, the current study suggests more research needs to be done to determine what characteristics of individuals or of potential partners might influence online dating behaviors (e.g., falling victim to online romance scams).

Keywords: relationship efficacy, self-efficacy, self-disclosure, online dating, deception, emerging adulthood,

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Online dating has increased in popularity over the past two decades, especially for emerging adults who are among its most common users (Anderson et al., 2020). During emerging adulthood, individuals explore how to effectively be in longer lasting relationships which includes potentially engaging in pro relationship behaviors like self-disclosure (Horne & Johnson, 2018; Shulman & Connolly, 2013). However, increases in self-disclosure have been correlated with intense feelings of intimacy which led to feelings of trust and closeness (Ruppel et al., 2016; Sharabi & Dykstra-DeVette, 2019) despite barely knowing the online partner. Attractiveness has also been found to increase feelings of trustworthiness and thus becomes dangerous where misrepresentation and “online romance scams” are possible (McGloin & Denes, 2016; Whitty, 2015).

Emerging Adulthood

Emerging adulthood is the developmental life stage that occurs between the ages of eighteen to twenty-five for most individuals (Arnett, 2000). During these volitional years there is exploration in love and frequent changes in relationships where the effect of positive attachment as well as insecurity on relationships is seen (Wood et al., 2017). This life stage is a stage in which individuals are expected to coordinate between personal goals and relational commitments to settle into a long-term partnership (Shulman & Connolly, 2013). This coordination involves learning of developmental tasks specific to relationships (e.g., achievement of intimacy) which are critical for adjustment to such relationships in the short-term and long-term (Rauer et al., 2013). Failure of such tasks can hinder development and predicts negative implications for well-being in the future (Rauer et al., 2013).

During emerging adulthood, dating is often more intimate and serious than it is for

adolescents, as individuals explore potential emotional and physical intimacy (Arnett, 2000). However, the trajectories of romantic relationships vary for individuals and can be quite unstable, this includes but is not limited to the engagement of casual sexual encounters and sexual relationships (i.e., friends with benefits) among college students (Shulman & Connolly, 2013). Additionally, with the advancement of technology, romantic relationships and romantic interactions in emerging adulthood are changing in the way romantic relationships are initiated (Finkel, 2012), as well as maintained (Chien & Hassenzahl, 2017) and dissolved (LeFebvre et al., 2019).

Why Date Online?

Since the 1990s, the popularity of the Internet has correlated with an increase of romantic partners meeting online (King, 2019). In 2015, a total of 15% of American adults had used an online dating site or dating app (Smith, 2015). Today, meeting a partner online is one of the most common ways of meeting, both through online dating websites and through dating apps (King, 2019).

Online dating usually refers to sites or online dating agencies which, usually for a fee, will match individuals on characteristics and expectations for partners (Gatter & Hodkinson, 2016). It is usually described as a different entity than past forms of dating, due mostly to the range of services it provides. Unlike dating face-to-face, online dating gives individuals access to potential partners they otherwise would not meet by expanding potential romantic interests from an individual's social network and disregarding proximity as a determining factor in what areas an individual knows about or has access to (Finkel et al., 2012). The use of profiles also broadens the pool of potential romantic interests an individual would have access to at one time (Finkel et al., 2012). Online dating also provides an avenue for easy communication that can quickly relay

interest through email or text-based messaging systems, video calling, or less personal forms of communication such as virtual winks or likes of a profile (Finkel et al., 2012). In addition, some use algorithm-based systems that pair individuals with those they are believed to have the highest probability of having a positive dating experience with (Finkel et al., 2012). For example, Okcupid claims the usage of math to find individuals dates (Finkel et al., 2012). However, not all online dating avenues provide algorithm-based matching. Self-selection sites allow users to browse profiles based on other criteria, such as location (Finkel et al., 2012).

Dating in the age of smartphones

Smartphone dating applications are considered different from other forms of online dating because push notifications keep individuals constantly engaged and geolocation facilitates offline meetings (Sumter & Vandenbosch, 2019). Smartphone dating applications like Tinder provide individuals with profiles of those in their area based on a set age range (Gatter & Hodkinson, 2016). This feature often poses the question about motivations behind using Tinder as either a casual hook-up app or for serious relationship seeking (Gatter & Hodkinson, 2016). Those who use mobile apps also tend to be more interested in hooking up and having fun, compared to users of dating websites who are more likely to report that they are looking to create long-term relationships (Bryant & Sheldon, 2017).

However, age has been shown to account for differences in sexual permissiveness between Tinder users and nonusers, such that younger adults tend to be more sexual permissive, which perhaps explains why online dating sites attract older adults around the age of forty (Gatter & Hodkinson, 2016; Valkenburg & Peter, 2007). Unlike younger adults, individuals in the age range of thirty to fifty have difficulty meeting single, potential romantic partners through traditional methods like meeting through friends or in a bar, are often balancing work and

children, or may be divorced (King, 2019; Valkenburg & Peter, 2007). Thus, middle-age adults are more active on dating sites and more likely to meet a partner online (King, 2019; Valkenburg & Peter, 2007). Young adults, instead, flock to dating apps, with the dating app of choice being Tinder (Sumter & Vandenbosch, 2019).

Online dating apps vs Online dating websites

Online dating applications' ease of use and inexpensiveness is what sets them apart from traditional online dating sites (Chin et al., 2019). Access to most dating apps is free while dating sites often charge a membership fee (Hoffman, 2015). Setting up profiles on mobile apps is made easy by choosing a few existing photos and writing an optional, small description whereas setting up profiles on online dating websites takes considerably longer and requires much more information like personality inventories to provide better matches (Chin et al., 2019; Hoffman 2015). However, due to their mostly visual nature and a lack of information to read, dating apps increase difficulty to find potential partners based on more than physical attraction (Hoffman, 2015).

Self-selection on dating apps also provides individuals with a plethora of options in potential partners, as opposed to a smaller selection in algorithm-based sites (Finkel et al., 2012). However, especially for self-selection methods, a mentality of shopping compares choosing a potential partner to selecting a service or good, with online dating being described as a market (Heino et al., 2010). As individuals browse through profiles they engage in joint evaluation where they compare multiple potential partners simultaneously much like comparing multiple options of furniture (Finkel et al., 2012). Once a relationship is initiated, separate evaluation takes place in which potential partners are evaluated in isolation to determine fit in a relationship (Finkel et al., 2012). Characteristics that can be more accurately evaluated face to face (e.g.,

warmth) are more important in actual compatibility when a separate evaluation is made even though surface level characteristics (e.g., physical attractiveness) do inspire romantic interest and have an impact on attractiveness to individuals (Finkel et al., 2012). This again supports that dating applications can limit individuals in terms of choosing potential partners for more than physical appearance.

Other Reasons to use Mobile Dating Applications

Although seemingly different, previous research has suggested that those who use online dating sites and mobile dating apps like Tinder use these methods for similar reasons (Gatter & Hodkinson, 2016). Six prime motivations for using dating apps have included two relational goals (i.e., finding either casual sex or love), ease of communication, self-worth validation, thrill of excitement and trendiness (Sumter & Vandenberg, 2019; Sumter et al., 2017). These motivations also are correlated with other characteristics such as gender (Gatter & Hodkinson, 2016; Sumter & Vandenberg, 2019; Sumter et al., 2017). Men were more likely to use online dating to find casual sex than women overall, even though individuals were more motivated to use Tinder to find love than to find partners for casual sex (Gatter & Hodkinson, 2016; Sumter et al., 2017). This makes sense as men also tended to score higher in sexual permissiveness (Gatter & Hodkinson, 2016) and sexual permissiveness was related to motivations of casual sex and thrill of excitement (Sumter & Vandenberg, 2019). Men also reported mobile dating as an easier method of communication with women because it allows them to fulfil their expected role as relationship initiators despite being considered as having weaker communication skills than women (Sumter et al., 2017).

Ease of communication was also associated with offline dating anxiety (Sumter & Vandenberg, 2019). Those who were already outgoing and presented with less dating anxiety

were more likely to engage in online dating (Sumter et al., 2017; Valkenburg & Peter, 2007). Those who did report higher dating anxiety were also more likely to report ease of communication as a motivation for mobile dating (Sumter & Vandenbosch, 2019). These individuals were also less likely to meet potential partners from apps offline (Sumter et al., 2017). Individuals anxious about dating face-to-face and who avoid meeting partners may potentially have lower relationship self-efficacy which prevents them from believing they would be a good romantic partner.

Relationship Self Efficacy

Self-efficacy is an individual's expectation in the resolution of a problem by means of effective problem-solving (Doherty, 1981). Thus, one's self-efficacy beliefs encompass their beliefs about their own capabilities to produce desired outcomes (Bandura, 1994). These self-efficacy beliefs can influence several different processes including cognitive, motivational, affective, and selection processes (Bandura, 1994). Examples of these processes are maintaining commitment, facing challenges instead of avoiding them, staying calm in tense situations, and the choice of environmental factors a person engages with respectively. Self-efficacy beliefs also influence how one attributes causes to outcomes (Bandura, 1994; Doherty, 1981). Low self-efficacy has the implication that an individual cannot cope with conflict due to aspects like ability, whereas failure for those with high self-efficacy implies lack of effort on their part or other persons' shortcomings (Bandura 1994; Doherty, 1981). Causal attributes can also mediate effects on motivation, affective reactions, and effort (Bandura 1994; Doherty, 1981). Efforts to change oneself, others, a relationship, and external aspects may result (Doherty, 1981). However, those with high self-efficacy might believe that the absence of change is most effective, resulting in them taking no action (Doherty, 1981). In terms of motivation, in addition to effort, self-

efficacy establishes goals sets by an individual, their persistence, and their resilience to failure (Doherty, 1981). If successes are achieved with little effort from an individual, quick results are expected, and failure may easily discourage them (Bandura, 1994). Besides developing from previous experiences, self-efficacy can also develop vicariously as exposure to the outcomes of others' problems that are similar to theirs can influence an individual's self-efficacy (Doherty, 1981).

Self-efficacy in romantic relationship, also referred to as romantic competence, is a domain-specific type of self-efficacy. Romantic self-efficacy is the belief in one's ability to reconcile when problems evolve within a relationship as well as belief in one's ability to behave effectively and positively in a relationship (Riggio et al., 2013). Effective behaviors can include knowing oneself and one's partner, learning from experiences, considering the needs of both individuals in the relationship, and regulating one's emotions (Davila et al., 2017). Romantic self-efficacy can influence an individual's thoughts, feelings, and behaviors which makes it vital to intimacy in, quality of, and length of relationships (Riggio et al., 2011, 2013). Self-efficacy in romantic relationships appear to develop from past experience, such that repeated failures lead to lower perceptions of efficacy (Doherty, 1981).

Romantic self-efficacy, specifically, is separated into six domains, four of them focusing on the individual while the other two focus on the partner (Bouchey, 2007; Davila et al., 2017). These domains include romantic appeal (i.e., the ability to obtain an attractive potential partner), sexual competence (i.e., experience and confidence in the sexual arena), communication (i.e., perceived ability to disclose important information), relationship maintenance (i.e., the ability to stay in romantic relationships), power balance (i.e., the establishment of equal balance of power in a relationship) and partner acceptance (i.e., feeling understood and validated; Bouchey, 2007).

Power balance and partner acceptance are often combined and defined as “positive partner characteristics” (Bouchey, 2007, p. 509). These specific aspects of romantic self-efficacy are correlated with several individual characteristics. Individuals that reported feeling more romantically appealing, as well as those who expressed more positive partner characteristics within their relationship, were also more likely to report lower anxiety and higher self-esteem (Bouchey, 2007). The opposite could potentially be true. For someone who has low romantic self-efficacy, they might avoid pursuits of attractive individuals (Bandura, 1994). Competency in communication with romantic partners was also associated with high self-esteem and less avoidance of new social situations (Bouchey, 2007). Bouchey’s (2007) findings seem to support the idea that high self-efficacy results in more action being taken by the individual, as they possess characteristics that would make them more likely to do so (Doherty, 1981).

Romantic self-efficacy also has many correlates that support the idea that greater romantic self-efficacy positively impacts individuals and their romantic relationships. Those who scored higher in romantic self-efficacy reported greater current relationship investment, satisfaction, commitment, and a lower endorsement of relationship alternatives (Riggio et al., 2013). These individuals also reported a reduced frequency of conflicts in their relationships which is most likely explained by the healthier decision making also associated with high romantic self-efficacy (Davila et al., 2017; Riggio et al., 2013). Previous research suggests that beliefs about one’s abilities overlaps with relationship expectations; both having been shown to be associated with greater persistence in relationship, taking action to problem solve, less contempt, and more willingness to forgive (Lemay & Venaglia, 2016). This might explain other research linking romantic self-efficacy with expectations of relationship success and greater security in relationships (Davila et al., 2017; Riggio et al., 2013).

Three specific skill domains that are linked to relational functioning are insight (i.e., the ability to be aware of an individual's own needs, goals, motivations as well as those of their partner, to understand causes and consequences of behavior, and to learn from experience), mutuality (i.e., considering the needs of both parties in a relationship and solving to meet both), and emotion regulation (Davila et al., 2017). Individuals who were higher in relationship self-efficacy reported more insight and mutuality (Davila et al., 2017). Included in these skills domains are active listening and understanding for insight and perspective taking, having empathy, taking responsibility, and the idea of tackling problems together for mutuality. Emotion regulation skills included being aware of one's feelings and expressing them, as well as decreasing unnecessary intense emotions. Individuals who perceived themselves as competent in insight, mutuality, and emotion regulation also reported fewer symptoms of depression and anxiety (Davila et al., 2017).

Moreover, research has noted some gender differences in romantic self-efficacy. Females tend to report higher scores on relationship self-efficacy, though these differences are relatively small (Horne & Johnson, 2018). Men are more likely to report greater engagement in appraisal, which is associated with better relational functioning and emotion management (Davila et al., 2017). Males also tend to have higher competency in the emotion regulation skill domain (Davila et al., 2017). Among women, romantic self-efficacy is associated with greater comfort with intimacy, less anxiety about abandonment, greater relationship satisfaction, and fewer symptoms of depression and anxiety (Davila et al., 2017). For men, however, the correlation between greater self-efficacy and intimacy was not significant (Davila et al., 2017). Women's ability for mutuality was positively associated with their ability for emotional regulation, while for men who had a greater competence in emotion regulation had lower competence in insight (Davila et

al., 2017).

Pro-relationship behaviors decrease stress, enhance intimacy in relationships and their frequency has a positive effect on relationship satisfaction, relationship stability, and feelings of love and commitment (Horne & Johnson, 2018). These correlations between romantic self-efficacy and broader positive behaviors within relationships imply a potential for correlations between more specific pro-relationship behaviors like self-disclosure. Past research has shown self-disclosure to be related to broader interpersonal competence (Misir et al., 2019).

Self-Disclosure

Unlike face-to-face (FtF) interactions, computer mediated communication (CMC), which initiates online dating, filters out certain social cues that individuals use to form impressions about potential partners (Finkel et al., 2012). Online interactions tend to possess fewer nonverbal social cues (e.g., facial expression, posture) and the ones that are available are dependent on communication avenue (e.g., auditory cues) and tend to be over interpreted by individuals (Finkel et al., 2012). As such, the lack of availability of social cues and overinterpretation may cause individuals to overattribute positive qualities of potential partners as they fill in blanks from the information they do receive (Sharabi & Dykstra-DeVzette, 2019).

Increased amount of time engaging in CMC before meeting FtF was associated with perceptions of intimacy, composure (i.e., conveying a sense of relaxation and calmness), informality, and perceptions of social orientation (i.e., whether conversations are focused on personal rather than task-related information; Ramirez, et al., 2014; Stafford & Merolla, 2007). These perceptions, however, only increased in the short-term; engagement in CMC had no long-term effect on these factors (Ramirez et al., 2014). However, before the threshold, this evidence supports the idea that CMC can increase perceptions of positive qualities of potential partners.

These perceptions could be unrealistically positive and result in idealization of the potential partner and the relationship (Stafford & Merolla, 2007). Online dating, thus, could potentially foster a greater desire for intimacy between potential romantic partners (Finkel et al., 2012).

A way in which to foster this intimacy is to engage in pro-relationship behaviors like self-disclosure, which is defined as the “verbal revealing of personal information thoughts or feeling about oneself” (Ruppel et al., 2017, p. 18). Disclosure also helps to develop and maintain relationships (Horne & Johnson, 2018). Self-disclosure in both FtF communication and CMC has been linked to positive relationship qualities like trust and the reduction of uncertainty about others (Yum & Hara, 2006). Types of incremental disclosures include peripheral disclosures (e.g. biographical/demographical information), intermediate disclosures that are semiprivate (e.g. attitudes and opinions), and core disclosures (e.g. private information; Altman & Taylor, 1973). Only a small proportion of online users partake in core disclosures, which may be explained by the fact that the rate of amount of information shared (i.e., breadth) is faster than the rate of sharing intimate information (i.e., depth; Sharabi & Dystra-Devette, 2019). A meta-analysis which investigated the difference between disclosure in FtF settings and CMC settings found that, in general, self-disclosure was higher in FtF communication but several moderating variables like measure of self-disclosure (i.e., how much versus how personal) and study design may have played a part in differences between the two (Ruppel et al., 2017). Experimental studies showed no significant difference between settings (Ruppel et al., 2017).

Many theories set out to explain the phenomenon of disclosing core or private information including the hyper personal theory which states that the selective and volatile nature of CMC results in idealizations and overly positive impressions to be made with limited information (Ruppel et al., 2017; Sharabi & Dystra, 2019; Stafford & Merolla, 2007).

Furthermore, disclosure can be manipulated through the editing of messages and selective self-presentation (e.g., removal of negative information, presenting negative information over time) which can affect a perceiver's feelings of intimacy (Finkel et al., 2012).

On the other hand, social presence and social information processing theory suggests that the lack of social cues affects perceptions of intimacy and reduces feeling of uncertainty respectfully through the use self-disclosure (Ruppel et al., 2017; Stafford & Merolla, 2007). Social penetration theory also assumes uncertainty reduction occurs and states the ability to start a relationship, provide emotional support, and manage conflicts are significant skills in the process of self-disclosure (Misir et al., 2019; Yum & Hara, 2006). An increase of self-disclosure, thus a potential for increase in feeling of closeness, can be potentially dangerous in CMC settings where there is a potential for dishonesty or misrepresentation.

Deception Online

With the increased use of online dating, dangers surrounding dating someone the individual met online have also become a major concern. From this quick and easy method of meeting a partner, the fear of users not presenting themselves accurately or of catfishing is ever present, but most users expect some use of misrepresentation or self-exaggeration (Ellison et al., 2011). Discrepancies of malleable traits such as hair color and those of smaller magnitude (e.g., claiming one's height is 6'0" when they are 5'11") were even considered acceptable (Ellison et al., 2011). The real cause of worry comes from the fear of this false representation being used to elicit money or important information in online dating romance scams (Whitty, 2015).

Online dating scams start with perpetrators using profiles with attractive photos to lure in victims who are then groomed for up to a couple of weeks, during which victims self-disclose more information (Whitty, 2015). However, due to limited social cues and the absence of nonverbal

displays, deception (e.g., masking or exaggerating emotions or facts) or hints of a lack of commitment or trustworthiness are not as easy to detect in CMC as in FTF interactions (Yum & Hara, 2006). In addition, the truth-default theory implies that humans tend to assume honesty when communicating with others as it is evolutionarily adaptive and is thought to lead to efficient communication and cooperation (Levine, 2014). However, this makes humans vulnerable, and deception is not detected until well after the fact as opposed to real-time (Levine, 2014). Humans must then rely on trigger events such as a projected motive for deception, dishonest demeanor, lack of coherence or consistency within communication, or lack of correspondence (i.e., consistency between what is said and what is known to be true; Levine, 2014). Individuals, however, are not great at deception detection as reliance on demeanor or nonverbal cues has been shown to only be slightly higher than chance (Levine, 2014). Deception detection might be further influenced by other factors such as physical attractiveness.

Physical Attractiveness

Pictures of potential romantic interests are often a feature of dating profiles on both dating apps and websites and in some cases a focal point in location-based apps (e.g. Tinder). A majority of online daters (71%) agree that photos of a potential romantic interest is essential information to see in other users' profiles (Anderson et al., 2020). Agreement varied slightly between men and women with women more likely to say that photos were important to include, at 74% compared to 68% for men (Anderson et al., 2020). However, pictures do have their downside especially in relation to deception. Profiles developed for online romance scams often included attractive pictures (Whitty, 2015). Attractiveness through enhancement (e.g., wearing makeup) has been demonstrated to lead to increases in trustworthiness and desire to date, although there were some gender differences (McGloin & Denes, 2016). Women rated attractive

pictures as more trustworthy while men perceived more attractive female pictures to be less trustworthy, but this did not decrease their desire to date the pictured female (McGloin & Denes, 2016).

Attractiveness has also been demonstrated to impact success, such that more attractive individuals are usually more successful in dating or having more romantic partners both long and short term and are more likely to be hired, promoted, and generally earn more money (Ma et al., 2015; Rhodes et al., 2005). The latter idea is referred to as beauty premium/plain penalty (Ma et al., 2015). These correlations may be explained by attractiveness having a haloing effect. Individuals featured in more attractive photos were rated more highly in other positive qualities such as warmth, competency, and intelligence (Brand et al., 2012).

Evolutionary psychology attempts to explain why attractiveness is often associated with positive traits. Evolutionary theory states that attractiveness facially indicates health, longevity, and fertility (Ma et al., 2015). Phenotypes such as attracting a mate and finding help to raise children are under significant selection pressure because they can influence the frequency of those genes being passed to the next generation (Yarosh, 2019). Attractiveness is, therefore, an indication that one is valuable for mating (Yarosh, 2019). Thus, perceiving attraction is hardwired into humans; we need it for survival.

Present Research

Study 1 was conducted to examine the effect of self-efficacy in romantic relationships, honesty, and attractiveness of target on the willingness to date and disclose information to the target as well as the attraction to the target. As an extension of Study 1, Study 2 sought to examine the effect of the independent variables on brain activity.

Study 1

Study 1 focused on the influence of romantic self-efficacy and target attractiveness on self-disclosure in an online-initiated relationship. The first research question (RQ1) sought to determine if self-efficacy in romantic relationships (SERR) was associated with self-disclosure in online-initiated relationships where there is dishonesty. It was expected that (H1a) individuals with lower SERR would be more likely to disclose information across all vignettes compared to individuals with higher SERR and (H1b) individuals with lower SERR would disclose similar amounts of information regardless of the perceived honesty of the vignettes. It was also expected that (H1c) individuals with higher SERR would be less likely to disclose information to targets of misleading compared to targets of truth vignettes. The second research question (RQ2) sought to determine if self-efficacy in romantic relationships (SERR) was associated with target attractiveness in online-initiated relationships where there is dishonesty. It was hypothesized that (H2a) individuals with lower SERR would be less likely to disclose information to vignettes paired with more attractive photos compared to vignettes paired with less attractive photos and (H2b) individuals with higher SERR would be more likely to disclose information to vignettes paired with more attractive photos compared to vignettes paired with less attractive photos. It was also expected that (H2c) those with lower SERR would be more likely to disclose information to targets of misleading vignettes paired with attractive photos compared to individuals with higher SERR. The third research question (RQ3) sought to determine if target attractiveness was associated with self-disclosure in online-initiated relationships where there is dishonesty. It was expected that (H3a) all individuals regardless of SERR would disclose more information when vignettes are paired with more attractive photos compared to when they are paired with less attractive photos. The last research question (RQ4) examined if self-disclosure

level was associated willingness to disclose. It was hypothesized that (H4a) all individuals would be more likely to share peripheral compared to intermediate information and (H4b) all individuals would be more likely to share intermediate information compared to core information. The first exploratory question examined if gender had an effect on the amount of self-disclosure. It was expected that females would be more likely to disclose information to vignettes with attractive pictures compared to men but be less likely to disclose information to targets of misleading vignettes compared to men. The second exploratory question examined if prior experience on dating apps would have an effect on amount of self-disclosure. It was expected that individuals who have partaken in online dating before would be less likely to disclose information overall, to misleading vignettes, and be less likely to continue communicating with all vignette targets.

Participants

Participants were Prolific users between the ages of 18 and 25 ($N=187$, $M_{age} = 21.12$, $SD = 2.27$) who were not married nor had ever been married, fluent in English, and from the United States or Canada. Approximately half of the participants were male or female (48.5% each; 2.9% nonbinary). A majority were white (45.0%) or Asian (36.8%; 5.8% Black or African American, 1.2% American Indian or Alaska Native, 10.5% other). Most participants were heterosexual (59.6%; 20.5 % Bisexual, 8.2% Homosexual, 7.0% Asexual, 2.3% each for pansexual and other). A majority of participants were single (61.4%; 23.4% Long-term committed relationship for one year or more, 8.2% Dating seriously for less than a year, 4.1% “Talking”, 2.9% Dating casually). Experience of online dating was split evenly between those with experience (53.8%) and those without (46.2%).

Measures

Measures are described in their procedural order (see Appendix A).

Self-Efficacy

Participants completed the Self-Efficacy in Romantic Relationships (SERR; Riggio et al., 2011), a self-report measure comprised of 12 items that evaluated beliefs about one's ability as a romantic partner and their likelihood to stay in relationships (e.g., "I am just one of those people who is not good at being a romantic relationship partner"). The SERR uses a 9-point scale from 1 (strongly disagree) to 9 (strongly agree) where higher scores indicate more romantic self-efficacy ($\alpha = .88$).

Vignettes and Photographs

Eight vignettes were created to mimic the type of information that would be shared on an online dating application. Each vignette featured a gender-neutral name and information about the individual (e.g., where they are from, their major, their hobbies). Half of these vignettes contained two to three pieces of contradicting information and were "misleading" vignettes while the other half contained no contradicting information and are labeled as "truth" vignettes.

A pilot ($N = 64$; $M_{\text{age}} = 21.89$, $SD = 1.71$) was conducted to test if there were differences in likeliness to continue communication, likeliness to disclose certain information, and in perceived target attractiveness between truth vignettes and deceptive vignettes. Results from the pilot indicated a significant main effect of vignette type on likeliness to disclose information, $F(1,61)=20.73$, $p < .001$, $\eta_p^2 = .25$. Participants were more likely to disclose information to "truth" vignettes ($M = 3.34$; $SD = .82$) than to "misleading" vignettes ($M = 2.35$; $SD = .84$), $t(61) = 7.01$, $p < .001$. There was also a significant interaction between type of vignette and level of disclosure, $F(2,60) = 4.80$, $p = .012$, $\eta_p^2 = .14$. For "misleading" vignettes there was no difference

between disclosure for peripheral information ($M=3.20$; $SD= 1.00$) and intermediate information ($M=3.37$; $SD=.98$), $t(61)= -1.75$; $p =.085$, but participants were more likely to disclose both peripheral ($M=3.20$; $SD=.98$) and intermediate ($M=3.37$; $SD= .98$) compared to core information ($M=2.06$; $SD=.87$), $t(61)= 10.10$, $p <.001$. For “truth” vignettes, participants were more likely to disclose peripheral information ($M = 3.83$; $SD = .63$) than intermediate information ($M = 3.68$; $SD = .69$), $t(63) = 2.26$, $p = .027$. Participants were also more likely to perceive subjects of “truth” vignettes ($M= 2.37$ $SD=.75$) as more attractive than subjects of “misleading” vignettes ($M=1.72$ $SD=.51$), $t(62)= 7.85$, $p <.001$. Tweaks to pilot for full study included introducing pictures and the online dating demographic questions.

A subset of pictures ($n = 64$, evenly divided between males and females and between blacks and whites) were chosen from the Chicago Face Database (Ma et al., 2015; $N = 597$) where all targets were smiling with their mouth closed. Each picture had an average attractiveness score determined by multiple independent rater sample on a scale from 1 (*Not at all*) to 7 (*Extremely*). The attractiveness for the pictures of the subset ranged from 2.01 to 5.09. These pictures were split into “attractive” and “less attractive” conditions where those with an average score of 3.4 and below were placed in the unattractive condition and those above 3.4 were placed in the attractive condition.

Each vignette had four pictures paired with it (two attractive and two unattractive, two black and two white). Qualtrics randomly selected one of the pictures while also ensuring equal representation across participants. These pictures were partially counterbalanced between “truth” and “misleading” vignettes creating two sets of pictures (i.e., four pictures for one “truth” vignette in the first set was switched with the four pictures of one “misleading” vignette in the second set). Participants were randomly assigned to one of the two sets of pictures.

Communication, Disclosure and Attraction

Participants were asked to indicate their likeliness to continue communicating the target on a 5-point scale from 1 (*extremely unlikely*) to 5 (*extremely likely*). Using Altman and Taylor's (1973) types of incremental disclosures, each vignette was followed by three self-disclosure questions: one for peripheral disclosures (e.g. "How likely are you to disclosure where your family is from?"), one for intermediate disclosures (e.g. "How likely are you to disclose your favorite place to go to this person?"), and one for core disclosures (e.g. "How likely are you to disclose your dating history to this person?"). Participants indicated answers on a scale from 1 (*extremely unlikely*) to 5 (*extremely likely*). Additionally, participants were asked to indicate their attraction to target on a 5-point Likert scale from 1 (*not at all*) to 5 (*a great deal*).

Attention Check

Each vignette had an attention check in which participants were asked a multiple-choice content question about a piece of information mentioned in the vignette (e.g., What was the person's favorite book?).

Doubts

Each vignette asked if the participants had any doubts about whether any of the information was honest. If they did have doubts, they were asked to identify the information they had doubts about and why they felt that way.

Demographics

Participants were asked to indicate age, gender, race/ethnicity, sexual orientation, current relationship status, self-perceived attractiveness, and whether they had partaken in online dating. Selecting 'yes' to having engaged in online dating led to additional demographic questions specific to online dating from Pew Research Center (Anderson et al., 2020). These questions

asked what dating applications they had used, if any, their overall satisfaction on these platforms overall, and how strongly they agree that it is essential to include certain information (e.g. photos, hobbies) on a dating profile. They were also asked how often they feel they've been catfished, if they ever misrepresented information about themselves, if they had ever catfished someone, and of their total matches what percentage did they only chat with, what percentage they met in real life, what percentage they went on multiple dates with, and with what percentage of matches they have had an established relationship. The final question was a free response of their thoughts about online dating.

Procedure

Participants who were interested in participating after reading the study's description on Prolific could proceed to a Qualtrics link to access the study. Participants saw a study information sheet that informed them that the aim of the study was to try to understand the relationship between emerging adults' beliefs in their ability to behave effectively and positively in a relationship and their self-disclosures in online dating. They were then prompted to paste their Prolific ID. Next, they were asked to complete the SERR, in which items were randomly presented. One of the items was an attention check in which they were asked to select seven if they were paying attention. They were then asked to indicate whether they would like to see male prospective romantic partners or female prospective romantic partners. They then saw eight "dating profiles" in a randomized order in which they saw a picture paired with a vignette. After reviewing the picture and reading the vignette, participants answered a series of questions (i.e., likeliness to communicate, disclosure, attraction) about the "dating profile" they had just seen. Participants were also asked to indicate if they had any doubts about whether the information was honest. After seeing eight vignettes, they had another attention check in which the question

seemed to ask the state they were from but actually asked them to click on the last answer of “I have read the instructions” at the bottom of a list of states. They were then asked a series of demographic questions. The final questions were study purpose questions in which participants were asked what they believed the purpose of the study was, if there was any additional information or thoughts about the study they wanted to share, and finally a question about whether they felt their responses were truthful and accurate and whether their data should be used for the research. After participants hit the submit button, their information was collected. When they were determined to pass both attention checks and had taken at least eight minutes to complete the survey, they were paid at a base rate of \$7.51 an hour (i.e., \$ 3.13). We excluded sixteen participants for failing at least one attention check and four who indicated their data shouldn’t be used: resulting in an analytic sample of 171 emerging adults. No participants were excluded for not taking enough time.

Results

Research Question 1: Is self-efficacy in romantic relationships (SERR) associated with self-disclosure in online-initiated relationships where there is dishonesty?

Hypothesis 1a: Individuals with lower SERR will be more likely to disclose information across all vignettes compared to individuals with higher SERR

Correlations were conducted between participants’ average SERR and their average disclosure (regardless of type) on truth and misleading vignettes. Significant negative correlations were expected. Contrary to expectations, none of the correlations were significant (p ’s > .05; see Table 1); SERR was not associated with participants’ amount of disclosure.

Hypothesis 1b: Individuals with lower SERR will disclose similar amounts of information regardless of the perceived honesty of the vignettes.

A repeated measures ANOVA was conducted to determine effect of SERR and vignette

type on disclosure means for misleading vignettes and truth vignettes. SERR scores were split into three groups for low, mid-range, and high SERR scores by looking at the distribution of average SERR with the lowest SERR scores having an average from 1 to 4.74 ($n = 59$), the mid group having average scores from 4.75 to 6.05 ($n = 54$), and the highest having scores from 6.06 to 9 ($n = 58$). It was expected that SERR score and vignette type would influence disclosure level where disclosure would be lower for those with low SERR for all disclosure levels for both truth and misleading. Contrary to expectations, the three-way interaction between SERR level, disclosure type, and vignette type was not significant (Wilk's $\lambda = .99$, $F(4, 330) = .23$, $p = .922$, $\eta_p^2 = .00$; See Figures 1 and 2). SERR nor vignette type was associated with participants' amount of disclosure for neither truth nor misleading vignettes.

Hypothesis 1c: Individuals with higher SERR will be less likely to disclose information to targets of misleading compared to targets of truth vignettes.

A repeated measures ANOVA using three groups to split SERR scores into low, mid, and high ranges was conducted to determine effect of SERR and vignette type on disclosure means. It was expected SERR score, and vignette type would affect disclosure level where disclosure would be lower for those with high SERR for misleading vignettes compared to truth vignettes. As stated in the results above, contrary to expectations, the three-way interaction between SERR level, disclosure type, and vignette type was not significant (Wilk's $\lambda = .99$, $F(4, 330) = .23$, $p = .922$, $\eta_p^2 = .00$; See Figures 1 and 2). SERR nor vignette type was associated with participants' amount of disclosure for neither truth nor misleading vignettes.

Research Question 2: Is self-efficacy in romantic relationships (SERR) associated with target attractiveness in online-initiated relationships where there is dishonesty?

Hypothesis 2a: Individuals with lower SERR will be less likely to disclose information to

vignettes paired with more attractive photos compared to vignettes paired with less attractive photos.

Multivariate ANOVAs were conducted for each vignette examining how SERR and the attractiveness of photos interact to predict disclosure levels. A reduced p -value of .01 was used to determine significance of the interaction due to the multiple tests conducted. Contrary to expectations, the interaction between SERR level and target attractiveness was not significant for most of the vignettes ($p > 0.01$; See Table 2). The only vignette that had a significant interaction was Vignette G regarding the Core disclosure question about an embarrassing moment, $F(2, 164) = 5.44, p = .005, \eta_p^2 = .06$. Those with highest SERR reported they would disclose this information significantly more to less attractive targets than more attractive target while those with low and mid-range SERR scores were more likely to disclose to more attractive targets than less attractive targets.

Hypothesis 2b: Individuals with higher SERR will be more likely to disclose information to vignettes paired with more attractive photos compared to vignettes paired with less attractive photos.

Multivariate ANOVAs were conducted for each vignette examining how SERR and the attractiveness of photos interact to predict disclosure levels. A reduced p -value of .01 was used to determine significance of the interaction due to the multiple tests conducted. As stated above, contrary to expectations, the interaction between SERR level and target attractiveness was not significant for most of the vignettes ($p > 0.01$; See Table 2). For the only significant disclosure question (core for vignette G), the interaction was significant in the opposite direction than expected. Those with highest SERR reported they would disclose this information significantly more to less attractive targets than more attractive targets, $F(2, 164) = 5.44, p = .005, \eta_p^2 = .06$.

Hypothesis 2c: Individuals with lower SERR will be more likely to disclose information to targets of misleading vignettes paired with attractive photos compared to individuals with higher SERR.

The multivariate ANOVAs of the previous hypotheses were examined to determine if there is a difference between truth and misleading vignettes. It was expected that there would be more significant differences in misleading vignettes than in truth vignettes. As stated above, contrary to expectations, the interaction between SERR level and target attractiveness was not significant for most of the vignettes ($p > 0.01$). The only marginally significant vignette ($p = .053$) was vignette G, which was a misleading vignette.

Research Question 3: Is target attractiveness associated with self-disclosure in online-initiated relationships where there is dishonesty?

Hypothesis 3a: All individuals regardless of SERR will disclose more information when vignettes are paired with more attractive photos compared to when it is compared to less attractive photos.

Multivariate ANOVAs were conducted to determine if there was a main effect of attraction on disclosure means. It was expected that participants would disclose more information to attractive targets than less attractive targets. Contrary to expectations, attraction did not have a significant effect on disclosure means for any of the vignettes (p 's $> .05$; See Table 3). The only disclosure question that had a significant effect for photo attraction was vignette C's peripheral disclosure question regarding where participants went to school, $F(1,164) = 4.88$, $p = .028$, $\eta_p^2 = .03$. Participants were more likely to disclose this information to attractive targets than unattractive targets.

Research Question 4: Is self-disclosure level associated with willingness to disclose?

Hypothesis 4a: All individuals will be more likely to share peripheral compared to intermediate information.

A repeated measures ANOVA comparing average disclosure means on truth and misleading vignettes for the three disclosure levels was conducted. Follow-up, paired samples *t*-tests were conducted to examine where the differences were in any significant interactions. It was expected that means for disclosure to peripheral information would be larger than means for disclosure for intermediate information. The interaction between vignette type and disclosure level was significant, Wilk's $\lambda = .87$, $F(2, 167) = 12.43$, $p < .001$, $\eta_p^2 = .13$.

However, means for peripheral disclosure ($M = 2.95$, $SD = .95$) and intermediate disclosure ($M = 3.18$, $SD = .96$) were only significantly different for misleading vignettes, $t(169) = -4.49$, $p < .001$. For truth vignettes, peripheral disclosure ($M = 3.62$, $SD = .79$) and intermediate disclosure ($M = 3.61$, $SD = .81$) means were not significantly different, $t(169) = .24$, $p = .815$. This was contrary to expectations for truth vignettes because there was no difference and for misleading vignettes because participants disclosed more intermediate information than peripheral information.

There was a significant interaction effect between vignette and disclosure level for truth vignettes, Wilk's $\lambda = .45$, $F(3, 167) = 68.45$, $p < .001$, $\eta_p^2 = .55$. However, only one vignette (Vignette E) had significant results in the expected direction. Although Vignette A and Vignette C also had significant results, they were in the opposite direction such that participants disclosed more intermediate information than peripheral information in response to truth vignettes; See Table 4).

There was a significant interaction effect between vignette and disclosure level for misleading vignettes, Wilk's $\lambda = .63$, $F(3, 167) = 32.36$, $p < .001$, $\eta_p^2 = .37$; See Table 5. Three

of the four vignettes were significant (F, G, H). However, like the truth vignettes only one (vignette G) was significant in the expected direction; such that more peripheral information was disclosed than intermediate information. For vignettes F and H, more intermediate information was disclosed than peripheral information in response to misleading vignettes, which was contrary to expectations (See Table 5).

Hypothesis 4b: All individuals will be more likely to share intermediate information compared to core information.

The RM-ANOVA from the first hypothesis was examined to determine if there was a difference based on disclosure level. It was expected that means for disclosure to intermediate information would be larger than means for disclosure of core information. As stated above, the interaction between vignette type and disclosure level was significant. As hypothesized, in truth vignettes participants disclosed more intermediate information ($M = 3.61$, $SD = .81$) than core information ($M = 2.62$, $SD = .81$; $t(169) = 16.47$, $p < .001$). This was also true in misleading vignettes where participants disclosed more intermediate information ($M = 3.17$, $SD = .96$) than core information ($M = 2.26$, $SD = .76$; $t(170) = 14.62$, $p < .001$).

There was a significant effect between vignette and disclosure level for truth vignettes, Wilk's $\lambda = .79$, $F(3, 167) = 14.85$, $p < .001$, $\eta_p^2 = .21$. As expected, all truth vignettes (A, C, D, E) had significant differences between intermediate disclosure means and core disclosure means where intermediate information was more likely to be disclosed than core information (See Table 6)

There was a significant effect between vignette and disclosure level for misleading vignettes, Wilk's $\lambda = .57$, $F(3, 168) = 41.73$, $p < .001$, $\eta_p^2 = .43$. As expected, all misleading vignettes (B, F, G, H) had significant differences between intermediate disclosure means and

core disclosure means where intermediate information was more likely to be disclosed than core information (See Table 7).

Exploratory Question 1: Does gender affect the amount of self-disclosure in online-initiated relationships?

Hypothesis 1a: Females will be more likely to disclose information to vignettes with attractive pictures compared to men.

Multivariate ANOVAs examining the effect of gender and attractiveness of photo has on self-disclosure means were conducted. It was expected that the disclosure means for females would be higher than the disclosure means for males when accounting for attractiveness. Contrary to expectations, the interaction between gender and photo attractiveness was only significant for two vignettes, Vignette F and H, both misleading vignettes (See Table 8). For Vignette F, compared to males, females disclosed less information to high attractive photos in the peripheral and core disclosure questions. For intermediate disclosure, compared to males, females disclosed more to high attractive photos. For Vignette H, females disclosed less information to high attractive pictures for all three disclosure levels compared to males.

Hypothesis 1b: Females will be less likely to disclose information to targets of misleading vignettes compared to men.

Multivariate ANOVAs examining the effect of gender and vignette type on disclosure means was conducted. It was expected the disclosure means for females would be lower than the disclosure means for males when accounting for vignette type. Contrary to expectations, the interaction between gender and vignette type was not significant for any misleading vignette (p 's $> .05$; See Table 9). Males and females disclosed similar amounts of information to misleading vignettes.

Exploratory Question 2: Does prior experience on dating apps effect amount of self-disclosure in online-initiated relationships?

Hypothesis 2a: Individuals who have partaken in online dating before will be less likely to disclose information overall.

A repeated measures ANOVA comparing average disclosure means on vignettes (regardless of type) on misleading and truthful disclosures for participating in online dating was conducted. It was expected that disclosure means for participants who answered yes would be lower than the those who answered no. The interaction between whether someone had participated in online dating and their disclosure level was not significant, Wilk's $\lambda = .99$, $F(2, 166) = .75$, $p = .472$, $\eta_p^2 = .01$. Individuals who had partaken in online dating before were not less likely to disclose information overall.

Hypothesis 2b: Individuals who have partaken in online dating before will be less likely to disclose information to misleading vignettes.

A repeated measures ANOVA was conducted to determine if there was a 3-way interaction between participation in online-dating, vignette type, and disclosure levels. It was expected that disclosure means for individuals with online dating experience would be lower than means for those without online dating. The 3-way interaction between whether someone had participated in online dating, vignette type, and disclosure level was not significant, Wilk's $\lambda = 1.00$, $F(2, 166) = .08$, $p = .925$, $\eta_p^2 = .00$. Individuals who had partaken in online dating before were not less likely to disclose information to misleading vignettes than truth vignettes.

Hypothesis 2c: Individuals who have partaken in online dating before will be less likely to continue communicating with misleading vignettes.

A repeated measures ANOVA comparing the average likelihood to continue

communicating on misleading vignettes for those who have participated in online dating and those who have not was conducted. It was expected that means would be lower for those with online dating experience than those without online dating experience. The interaction between vignette and whether someone had partaken in online dating did not have a significant effect on likelihood to continue communication, Wilk's $\lambda = .93$, $F(7, 163) = 1.65$, $p = .125$, $\eta_p^2 = .01$.

Discussion

Study 1 was designed to determine if there was an effect of self-efficacy in romantic relationships (SERR), target attractiveness, self-disclosure level, and the presence of contradicting information on likeliness to disclose information about oneself to a prospective romantic partner. SERR nor target attractiveness seemed to have any particular or consistent effect on participants' willingness to disclose information. However, the effect of vignette type and disclosure level, as well as their interaction, were significant. Participants disclosed more intermediate information than peripheral information to targets paired with misleading vignettes but not with truth vignettes at least at a macro level. A more micro-level approach revealed that disclosure level was significant for most vignettes. Participants also disclosed more intermediate information than core information regardless of whether there was contradicting information or not. Although this study provided some initial information about these variables' effect on disclosure amount, it is possible the text format was not representative of online dating since all information was given in a single, written paragraph rather than spaced over time as it might be via messaging. Online dating also occurs through other mediums such as phone calls and video chats. Based on the limitations of this study, Study 2 examined if information presented auditorily might yield different results.

Study 2

Study 2 set out to explore if behaviors and initial reaction illustrated by brain activity differed due to the presence of misleading information and target attractiveness. The brain uses at least three cognitive domains to decide attractiveness value. Face processing is done in the occipital and temporal regions of the cortex, facial recognition occurs through inferior occipital gyri (IOG) and the fusiform face area (FFA) of the fusiform gyrus (FG), and processing of facial features' location and spacing occurs in the FFA (Yarosh, 2019). Information is then passed to the orbitofrontal cortex (OFC) which makes judgements of beauty and neurological rewards, such as dopamine, are produced for finding it (Yarosh 2019).

Attractiveness is seen by the brain as socially rewarding. When individuals looked at attractive faces, FMRI analyses demonstrated increased activation in areas that were dedicated to reward system such as the amygdala, cingulate, and insular cortices compared to activation when shown average faces (Ma et al., 2015; Yarosh, 2019). This brain activity is similar to activation when money is gained (Ma et al., 2015). Research has suggested that men are more sensitive and vulnerable to facial beauty (Ma et al., 2015) and that men often show a slower response time to beautiful faces which implies more cognitive load (Yarosh, 2019).

Attractiveness also has an impact on individuals' perception of fairness. Ultimatum Game scenarios are a classical example of economic games which explore how strategic decisions are made during social interactions (Mat et al., 2017). Previous research has used Ultimatum Game scenarios to explore how attractiveness affects responses to five different conditions that were presented to participants in which an offer to split money was made. These conditions ranged from unfair to the fairest (i.e., 1:9, 2:8, 3:7, 4:6, 5:5), in which the first number is what the participant would receive and the second is what the target as represented by a picture would receive. More offers to split were accepted for attractive faces overall and participants were more

likely to accept unfair offers when presented with an attractive face than with an unattractive face (Ma et al., 2015, 2017). In the attractiveness condition, there were shorter times to respond to 4:6 and longer reaction times for offer 1:9 which indicates some hesitation for unfair offers (Ma et al., 2015, 2017). Brain activity also supports the impact attractiveness has on fairness. Enhanced feedback related negativity (FRN) often corresponds with a violation of social norms (Ma et al., 2015). There was more negative FRN for unfair offers compared to fair offers in the unattractive condition, but no such difference existed in the attractive face condition (Ma et al., 2015).

Offers for money might be similar to offers of disclosure. Self-disclosing behavior tends to follow the “norm of reciprocity” (Worthy et al., 1969). When an individual discloses information about themselves, another usually feels inclined to disclose information as well as a trade. Deception could be seen as a violation of social norms, especially as humans default to assuming others are telling the truth (Levine, 2014).

Thus Study 2 focused on the influence of target attractiveness and deception on brain activity. The first research question (RQ1) sought to determine if brain activity was affected by the presence of deception and target attractiveness. It was expected that (H1a) participants who saw attractive photos would experience greater brain activity, measured by EEG, than those who saw less attractive photos regardless of the misleadingness of the vignette. It was also expected that (H1b) participants would have greater brain activity for misleading vignettes than truth vignettes overall and that (H1c) there would be a three-way interaction between attractiveness, vignettes type, and time (i.e., beginning vs end). The second research question (RQ2) sought to determine if brain activity was associated with self-disclosure. It was expected (H2a) that participants with greater brain activity would be more likely to disclose information at all three

levels than those with less brain activity.

Participants

Participants were undergraduate psychology students at a small liberal arts college in the southeast between the ages of 18 and 25 ($N = 14$, $M_{age} = 19.21$, $SD = 0.89$). Participants received 2.5 SONA credits out of 5 which are required for class credit or used as extra credit. Half of the participants were female, and the other half were male. The majority of participants were white (93%; 7% other) and heterosexual (79%; 14% Bisexual, 7% other).

Equipment

PowerLab 26T was used to record EEG signals. Lab Chart was used to process input from the electrodes and measure the alpha waves. A StimTracker was used to keep track of the beginning and end of the four conditions (c1, c2, c3, and c4) by sending a signal from the device to the computer on which Lab Chart processed the data. SuperLab software was used to build the experiment design as well as present the stimuli.

There were eight trials in which one vignette was presented as an audio file and one picture was shown. Pictures were assigned to vignettes such that trials 1 and 2 were no deception vignettes with attractive pictures, trials 3 and 4 were no deception vignettes with unattractive pictures, trials 5 and 6 were deception vignettes with attractive pictures, and trials 7 and 8 were deception vignettes with unattractive pictures. SuperLab randomized the order of presentation of the trials. Trials were marked as belonging to one of four conditions with c1 being no deception and attractive, c2 being no deception and unattractive, c3 being deception and attractive, and c4 being deception and unattractive.

Stimuli

Vignettes and Photographs. The eight vignettes and a subset of photographs shown in

the survey study were used (see Appendix A and B). Photographs were manually placed in a schedule in which each picture was used twice: once for a deceptive vignette and once for a nondeceptive vignette to counterbalance. Photographs were presented for five seconds before audio of the vignette was played. Audio recordings of each vignette lasted for about one minute.

Measures

Measures are described in their procedural order.

Self-Efficacy. Participants completed the Self-Efficacy in Romantic Relationships (Riggio et al., 2011) used in Study 1. These data though are not analyzed in this portion of the study due to null results in Study 1.

Communication, Disclosure, and Attraction. Participants were asked the same questions as Study 1 and on the same scales to indicate attraction to the target, their likeliness to disclose different types of information, and their likeliness to continue communicating with the target.

Demographics. Participants were asked to indicate age, gender, race/ethnicity, and sexual orientation.

Procedure

Prospective participants read the study's description on SONA. Participants who were interested in participating could then sign up for a time slot on SONA to come into the lab. Once in the lab, participants read the study information sheet that informed them that the aim of the study was to try to understand the relationship between emerging adults' beliefs in their ability to behave effectively and positively in a relationship and their self-disclosures in online dating. Next, they were asked to complete the SERR which was completed in about a minute. They were then asked to indicate whether they would like to see male prospective romantic partners or

female prospective romantic partners. Electrodes were placed at the left pre-frontal lobe (fp1), the right pre-frontal lobe (fp2) and the back of the head (Oz; see Figure 3). Since the orbitofrontal cortex responds with greater activity to attractive faces versus unattractive faces, frontal brain activity was measured using fp1 and fp2 (Yarosh, 2019). Fp1 and Oz were used for anterior/posterior comparison. Participants placed their chin on a pillow as they stared at a screen that showed a randomized set of eight “dating profile” pictures. After five seconds, they were asked to close their eyes and listened to the vignettes through audio recordings. After each vignette, they were asked to answer a series of questions including how attracted they were to the target, their likeliness to continue communicating with the hypothetical person, and three disclosure questions. They were then asked demographic questions which included their age, their gender, their race/ethnicity, and sexual orientation. They were then debriefed and told that half vignettes had contradicting information and the true aim of the study. Typical duration for each participant was about an hour.

Statistical Analysis

Results were analyzed using FFT focusing on the first twenty seconds and the last twenty seconds since the hypothesis suggested that brain activity would be different before contradicting information was provided (i.e., during the first twenty seconds of the audio) and after contradicting information was provided (i.e., during the last twenty seconds of the audio).

Figure 4 shows FFT output for a single participant. Four FFTs were created for each participant (2 attractiveness level x 2 vignette types), averaging across two repetitions for each condition (c1-upper left, c2- upper right, c3-lower left, c4-lower right) where the blue lines indicate the first twenty seconds, and the orange lines indicate the last twenty seconds. For the study, peak amplitude was taken from data within the range of 8-13 Hz to measure alpha waves.

Results

Research Question 1: Is brain activity impacted by targets' physical attractiveness and dishonesty?

Hypothesis 1a: Participants who see attractive photos will experience greater brain activity, measured by EEG, than those who see less attractive photos regardless of the misleadingness of the vignette.

A repeated measures ANOVA examining the effect of vignette type, target attractiveness, and time on alpha wave peaks were conducted. It was expected that individuals would have higher alpha wave peaks after viewing more attractive target pictures compared to less attractive target pictures. Contrary to expectations, there was no main effect of photo attractiveness on peak amplitude for alpha waves, $F(1, 13) = .00$, $p = .967$. Participants did not differ in alpha wave amplitude for high and low attractive photos.

Hypothesis 1b: Participants will have greater brain activity for misleading vignettes than truth vignettes at the end of the vignettes.

The RM-ANOVA ran for the first hypothesis was examined for the effect of vignette type and time on alpha wave peaks. It was expected that participants would have higher alpha wave peaks overall when listening to the end of misleading vignettes where there was deception compared to at the beginning of vignettes where there was no deception. It was also expected that participants would have higher alpha waves for misleading vignettes than truth vignettes over. Contrary to expectations, there was no interaction effect between vignette type and time on amplitude for alpha waves, $F(1,13) = .26$, $p = .619$. Participants did not differ in alpha wave amplitude for truth and misleading vignettes at the beginning or end of the audio.

Hypothesis 1c: A 3-way interaction is expected between attractiveness, vignette type, and time

of EEG measurement. The greatest brain activity would be recorded during the end of the truth vignettes paired with high attractive target.

The RM-ANOVA ran for the first hypothesis was examined for the effect of vignette type, target attractiveness, and time on alpha wave peaks. It was expected that alpha wave peaks would increase significantly when participants heard the end of a misleading vignette paired with an unattractive target photo. Contrary to expectations, the three-way interaction between time, attraction, and vignette type was not significant, $F(1,13) = .58, p = .458$ (See Figure 5 and Figure 6).

Research Question 2: How is brain activity associated with participants' disclosure?

Hypothesis 2a: Participants with greater brain activity will be more likely to disclose information at all three levels than those with less brain activity.

Correlations were conducted between participants' average alpha wave peaks and average disclosure scores for each condition. Significant positive correlations were expected. Contrary to expectations almost all correlations were non-significant (p 's $> .05$, see Table 10). The only significant correlation was for intermediate disclosures and alpha wave amplitude at the end of misleading vignettes paired with a low attractive picture, $r(12) = -.54, p = .045$. This correlation was contrary to expectation because it was negative. As brain activity increased, likeliness to disclosure intermediate information decreased. However, this result is most likely due to chance based on the number of correlations ran.

Study 2 Discussion

Study 2 was a follow-up, supplementary study that examined if the manipulations in Study 1 (i.e., target attractiveness and presence of misleading information) might have had a biological effect on brain activity even when there appeared to be no effect on behavior, as well

as if there was any associations between brain activity and the amount of disclosure. Results revealed that, like in Study 1, target attractiveness did not influence the dependent variable. However, the presence of misleading information also did not influence brain activity where in Study 1, it did appear to influence multiple variables. Study 2 also revealed that brain activity was not associated with amount of disclosure for any vignettes nor at any disclosure level.

General Discussion

The purpose of these two studies was to explore reasons why emerging adults might fall victim to online romance scams or catfishing. Specifically, these studies focused on how romantic self-efficacy, target attractiveness, and presence of misleading information interacted to effect individual's self-disclosure behaviors. While previous research has linked feelings of competency in relationships to elevated levels of intimacy, relationship satisfaction, and commitment (Riggio et al., 2013), this study explored how self-efficacy in romantic relationships might translate into the relationship behavior of self-disclosure in terms of online dating. This study also aimed to add on to previous research about how target attractiveness affects individual's perception of trustworthiness and desire to date (McGloin & Denes, 2016) and determine if these perceptions expand to behaviors needed in a relationship such as disclosure.

Study 1 set out to determine if self-efficacy for romantic relationships (SERR) was associated with self-disclosure. Unlike past research that has found positive correlations between SERR and positive relationship behaviors and outcomes (Bouchey, 2007; Davila et al., 2017), this study found no support for the hypothesis that SERR would be correlated to amount of self-disclosures. A potential reason for this difference might be the measure of self-efficacy in romantic relationships that was utilized in the present studies, which was the SERR (Riggio et al, 2011). The SERR was created to indicate broad beliefs about the ability to meet certain task

demands within romantic relationships independent of specific relationships and partners. Other measures of romantic relationship self-efficacy or romantic competency divide the measure into several different aspects or domains and each measure may have a different number of domains. For example, Davila and colleagues (2017) separated romantic self-efficacy into three skill domains insight, mutuality and emotion regulation, while Bouchey (2007) separated it into six domains (i.e., romantic appeal, sexual competence, communication with partners, maintenance of relationships, establishing equivalent power balance in relationships and feeling accepted by romantic partners). Romantic competency is a multifaceted construct that encompasses a variety of skills and not every scale that measures romantic competency incorporates every skill (Faber et al., 2019). In addition, although the SERR did not directly make any mention to specific relationships, for those without any or with very little romantic relationship experience, some statements might have been needed to be answered in a more abstract sense (e.g., “Having a successful romantic relationship is very difficult to me”; Faber et al., 2019). Since a majority of the participants answered that they were single, they might have been using their current relationship to answer the questions, which might not have been reflective of their true feelings if they had been in a relationship.

In Study 1, the next two research questions set out to examine whether target attractiveness might impact amount of disclosure based on individuals’ SERR, as well as in general. Considering that most romance scams use pictures of attractive people to lure victims (Whitty, 2015) and that past research has shown that physical attractiveness has a haloing effect in which attractive targets are seen as more trustworthy in some cases but untrustworthy in others (McGloin & Denes, 2016), it was expected that more attractive photos might elicit more self-disclosure from participants because they seem more trustworthy or because the participant

would want to still engage in communication with them. However, that hypothesis was not supported by the data. Attraction is a complex process that is not only reliant on physical attraction. In online dating, although physical attractiveness might spark interest, it is not necessarily important for actual compatibility (Finkel et al., 2012). Furthermore, Murstein (1970) theorized that individuals choose marital partners through different filters (e.g., attraction filter, homogamy filter). As such, it may be possible that participants' responses regarding their perceived attraction might have encompassed participants' judgment of the target's entire character and produced different results than if the question had asked only about physical attraction.

The last research question that Study 1 attempted to address was replication of prior research about self-disclosure levels and how level or depth impacted likelihood to disclose. Similar to prior research (Sharabi & Dystra-Devette, 2019), participants expressed that they would share core disclosures the least. However, unlike prior research (Sharabi & Dystra-Devette, 2019), the difference between peripheral and intermediate disclosures were either marginal or significant in the opposite direction. While core disclosures are rarer in both face to face and in CMC settings, CMC has been shown to lead to increases in proportions of intimate questions and a decrease in peripheral disclosures as an uncertainty reduction strategy (Tidwell & Walther, 2002). While overall intermediate disclosures were more likely than peripheral disclosures, some peripheral disclosures in certain vignettes were more likely to be disclosed than intermediate disclosures (e.g., vignettes E and G). These differences might have been due to what the specific disclosure questions were about since participants might have seen some as inconsistent with the developmental stage of the relationship displayed in the vignette. Prior research has shown that although disclosure is likely in CMC, most individuals' remarks reflect

the developmental stage of the relationship to avoid oversharing (Sharabi & Dystra-Devette, 2019).

Study 2 also demonstrated a lack of influence of physical attractiveness. While past research has demonstrated brain activation due to attractive faces (Ma et al., 2015; Yarosh, 2019), the present study found no differences between faces of higher and lower attractiveness. A potential reason may be due to the study not recording EEG data while showing the target photo due to the limitations of methodology. Past research usually recorded data while the photo was being shown using event related potentials (ERP; Ma et al., 2015). It is possible that once the photo was gone from view, it did not have a lasting effect in terms of brain activity.

Study 2 also focused on how deception might affect brain activity. It is assumed that people are “truth-biased” and thus must rely on trigger events such as lack of coherence or consistency within communication, which was used in the present studies, to detect deception (Levine, 2014). However, it is possible that even while the incoherent information was being said, the individual did not necessarily notice until after recording had stopped for that vignette. It was evident that by the end of the study participants noticed that there had been contradicting information, as indicated by their responses in the debriefing. However, it is not clear at what point they had realized that there was contradicting information since there was no indication in their brain activity. The results might be an indication that coherence is not as useful in detecting deception. Past research that has used the coherence criterion have found that human judgements are flawed and research on heuristics and biases has provided examples that demonstrate people do not adhere to norms of coherence and logic when forming judgements (Blair et al., 2018). Instead, other criteria such as the correspondence criteria in which participants are comparing information heard to empirical facts, are more useful in deception detection (Blair et al., 2018).

Limitations and Future Directions

Although this study had some strengths (e.g., having the second study elaborate on the first), it was not without limitations. One of the main limitations was the sample size of the studies. For the first study, the prolific sample ($N = 171$) was good for preliminary analysis but having a larger and more diverse sample may allow for different results or more generalizability of results. Time constraints also limited the number of analyses that could be conducted on the collected data that may have yielded interesting results, which may have expanded on past research.

In terms of vignettes used, there may have been a disconnect between the methodology of the experiment and online dating in real life. Online dating may be hard to simulate in this way, so it is possible that the text format was not representative of online dating since all information was given in a paragraph rather than over time. Future research might consider longitudinal research that analyzes at what point participants stop communicating with targets that habitually share inconsistent information. Furthermore, the target photos utilized may have limited confounding variables such as poses and clothing style, but it was not representative of the usual photos found on dating profiles. Future research should try to simulate online dating as much as possible to generalize any findings to the real world.

To further expand upon methodology, it might be more beneficial to set up dating profiles for the targets to imitate initial contact and then use vignettes that are in first person as if the target were having a conversation with the participant. It might also be useful to have information shared over time with a participant (e.g., via a longitudinal study) to determine if there is a specific time limit that matches with development to a new stage of a relationship in which more personal self-disclosure is seen as appropriate.

Furthermore, self-disclosure might have also been limited due to some of the disclosure questions being too personal to share to strangers or romantic partners (e.g., salary). Future research might consider determining what is acceptable to disclose in each of the three categories of incremental disclosures (i.e., peripheral, intermediate, and core) in online conversations with prospective romantic partners. Such disclosure questions could then be used for each vignette to compare between questions rather than categories, in which the range of questions may have been too large.

Conclusion

Although most of the proposed hypotheses for these studies were not supported, the first study was able to replicate previous research on self-disclosure through the use of vignettes where past research has used real life conversations. With the lack of findings for effects of the other independent variables, the studies' results suggest more research needs to be done to determine what characteristics of individuals or of potential partners might influence behaviors in online dating to reduce time invested in communicating with scammers or catfish and reduce likelihood of individuals falling victim.

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Table 1.*Correlations between disclosure level and SERR*

Disclosures	SERR
Truth Peripheral	-.05
Misleading Peripheral	.07
Truth Intermediate	-.03
Misleading Intermediate	.07
Truth Core	-.05
Misleading Core	.03

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Table 2.

Effect of SERR grouping by photo attractiveness level on overall disclosure for each vignette.

Overall Disclosure	Wilk's λ	df	F	p	η_p^2
Vignette A (truth)	1.00	(6, 326)	.11	.996	.00
Vignette B (misleading)	.97	(6, 326)	.98	.440	.02
Vignette C (truth)	.97	(6, 324)	.71	.596	.01
Vignette D (truth)	.95	(6, 326)	1.33	.244	.02
Vignette E (truth)	.98	(6, 326)	.63	.704	.01
Vignette F (misleading)	.98	(6, 326)	.49	.817	.01
Vignette G (misleading)	.93	(6, 324)	2.10	.053	.04
Vignette H (misleading)	.97	(6, 324)	.73	.623	.01

Table 3.*Effect of photo attractiveness level on overall disclosure for each vignette.*

Overall Disclosure	Wilk's λ	df	F	p	η_p^2
Vignette A (truth)	.98	(3, 163)	.88	.452	.02
Vignette B (misleading)	.98	(3, 163)	1.00	.394	.02
Vignette C (truth)	.97	(3, 162)	1.88	.135	.03
Vignette D (truth)	1.00	(3, 163)	.18	.910	.00
Vignette E (truth)	1.00	(3, 163)	.15	.928	.00
Vignette F (misleading)	.99	(3, 163)	.48	.733	.01
Vignette G (misleading)	.98	(3, 162)	1.09	.355	.02
Vignette H (misleading)	.98	(3, 162)	1.25	.294	.02

Table 4.

Effect of vignette and disclosure level on peripheral and intermediate disclosure for truth

vignettes.

Truth Vignettes	Peripheral Mean	Peripheral SD	Intermediate Mean	Intermediate SD	<i>t</i>	<i>df</i>	<i>p</i>
A	2.87	1.25	3.71	1.15	- 8.96	170	<.001
C	3.79	1.10	4.09	.93	- 4.73	169	<.001
D	3.91	1.09	3.89	1.16	.18	170	.855
E	3.91	1.14	2.75	1.26	10.92	170	<.001

Table 5.

Effect of vignette and disclosure level on peripheral and intermediate disclosure for misleading vignettes.

Misleading Vignettes	Peripheral Mean	Peripheral SD	Intermediate Mean	Intermediate SD	<i>t</i>	<i>df</i>	<i>p</i>
B	2.66	1.35	2.63	1.24	.32	170	.753
F	2.61	1.25	3.54	1.30	- 9.81	170	<.001
G	3.55	1.26	3.29	1.36	2.50	170	.013
H	2.98	1.41	3.25	1.44	- 3.05	169	.003

Table 6.

Effect of vignette and disclosure level on intermediate and core disclosure for truth vignettes.

Truth Vignettes	Intermediate Mean	Intermediate SD	Core Mean	Core SD	<i>t</i>	<i>df</i>	<i>sig</i>
A	3.71	1.15	2.41	1.19	14.01	170	<.001
C	4.09	.93	2.85	1.26	12.83	169	<.001
D	3.89	1.16	3.04	1.20	11.19	170	<.001
E	2.75	1.26	2.18	1.12	5.40	170	<.001

Table 7.

Effect of vignette and disclosure level on intermediate and core disclosure for misleading vignettes.

Misleading Vignettes	Intermediate Mean	Intermediate SD	Core Mean	Core SD	<i>t</i>	<i>df</i>	<i>sig</i>
B	2.63	1.24	1.71	.97	9.66	170	<.001
F	3.54	1.30	1.80	.97	16.15	170	<.001
G	3.29	1.36	2.60	1.14	6.36	170	<.001
H	3.25	1.44	2.92	1.45	3.59	170	<.001

Table 8.*Effect of gender and target attractiveness on overall disclosure for each vignette.*

Overall Disclosure	Wilk's λ	df	F	p	η_p^2
Vignette A (truth)	.97	(6,326)	.89	.505	.02
Vignette B (misleading)	.99	(6,326)	.37	.898	.01
Vignette C (truth)	.99	(6,324)	.29	.940	.01
Vignette D (truth)	.99	(6,324)	.27	.953	.01
Vignette E (truth)	.97	(6,326)	.77	.594	.01
Vignette F (misleading)	.91	(6, 326)	2.69	.015	.05
Vignette G (misleading)	.98	(6, 324)	.59	.740	.01
Vignette H (misleading)	.89	(6,324)	3.18	.005	.06

Table 9.

Effect of gender on overall disclosure for misleading vignettes

Overall Disclosure	Wilk's λ	df	F	p	η_p^2
Vignette B	.99	(6,332)	.32	.925	.006
Vignette F	.94	(8,330)	1.20	.301	.028
Vignette G	.96	(6,332)	1.26	.274	.022
Vignette H	.98	(6,330)	.54	.781	.010

Table 10.*Association between EEG and Level of Disclosure*

	Peripheral	Intermediate	Core
Truth Vignettes			
High Attractive – Beg EEG	-.06	.28	-.06
High Attractive – End EEG	-.05	.32	-.06
Low Attractive – Beg EEG	.24	-.01	-.07
Low Attractive – End EEG	.15	-.16	-.16
Misleading Vignettes			
High Attractive – Beg EEG	-.01	.07	.01
High Attractive – End EEG	.10	.00	.08
Low Attractive – Beg EEG	-.33	-.38	-.25
Low Attractive – End EEG	-.43	-.54*	-.27

Note. * $p < .05$, ** $p < .01$

Figure 1.

Disclosure Across SERR for Truth Vignettes

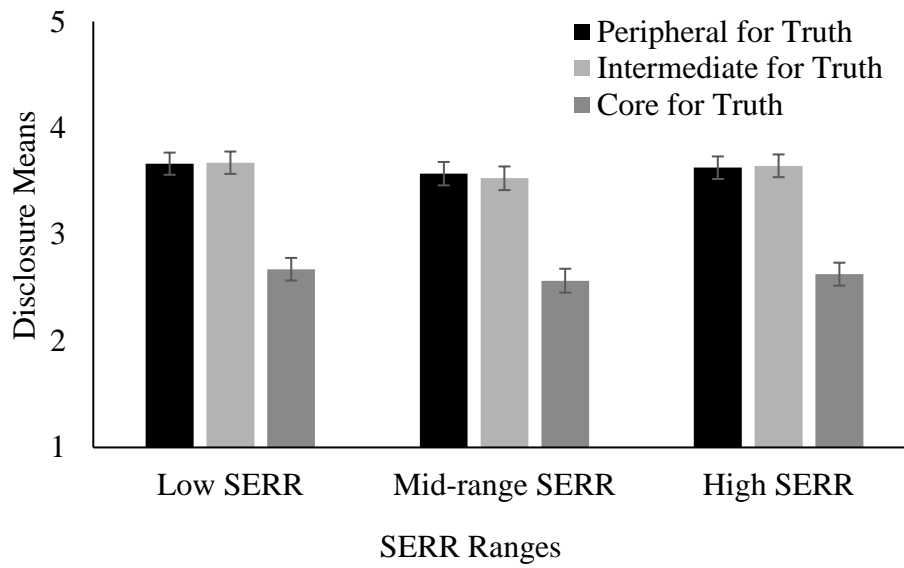


Figure 2.

Disclosure Across SERR for Misleading Vignettes

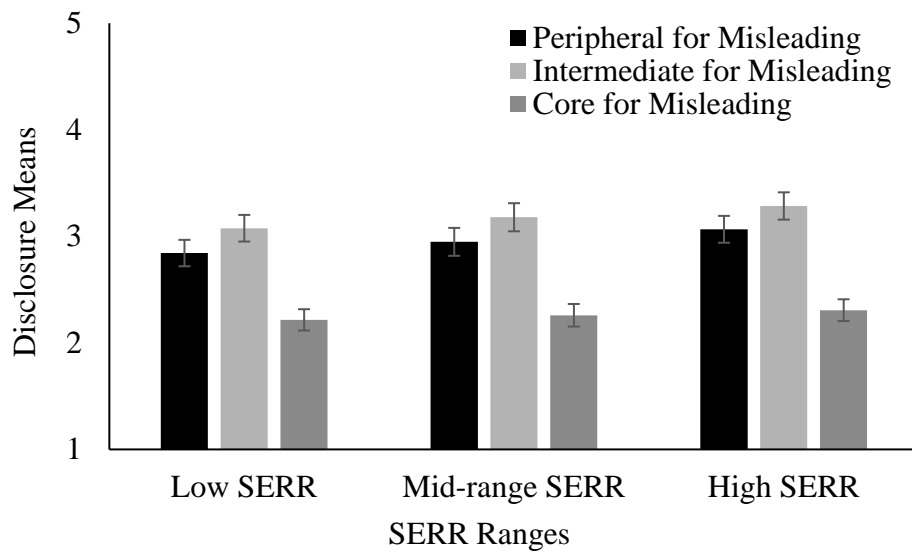
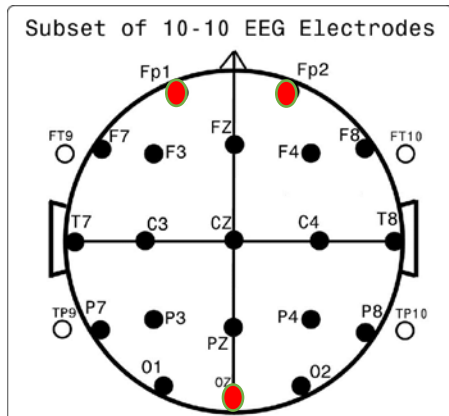


Figure 3.*Electrode Channel Placement*

Note. Two electrodes were placed on the forehead on the prefrontal area (Fp1 and Fp2). The third electrode was placed above the inion on the back of the head in the occipital area (Oz).

Figure 4.

Single Participant's FFT Output showing the $1/F$ Curve with Peaks

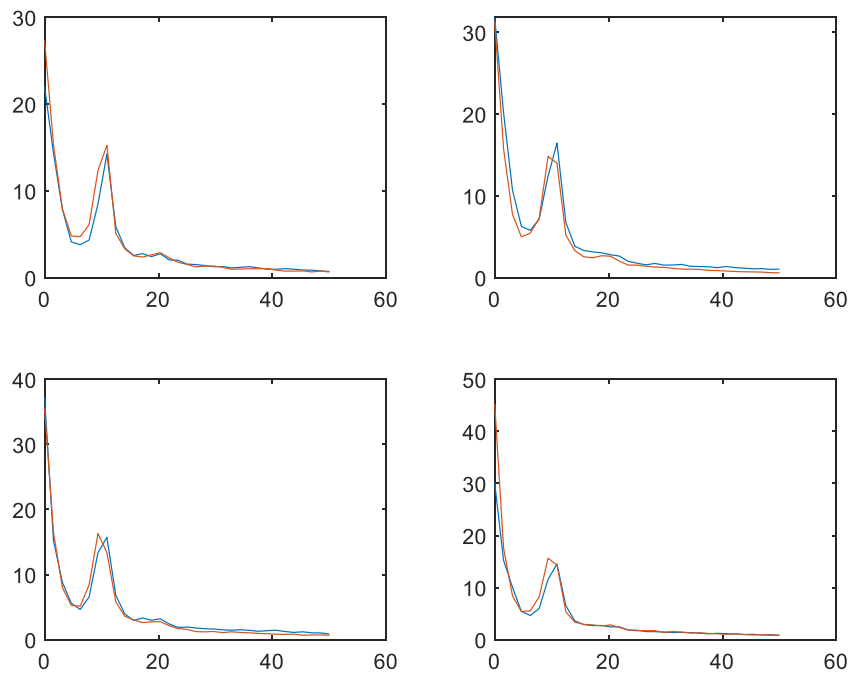


Figure 5.

Alpha Wave Amplitudes Across Time for Truth Vignettes

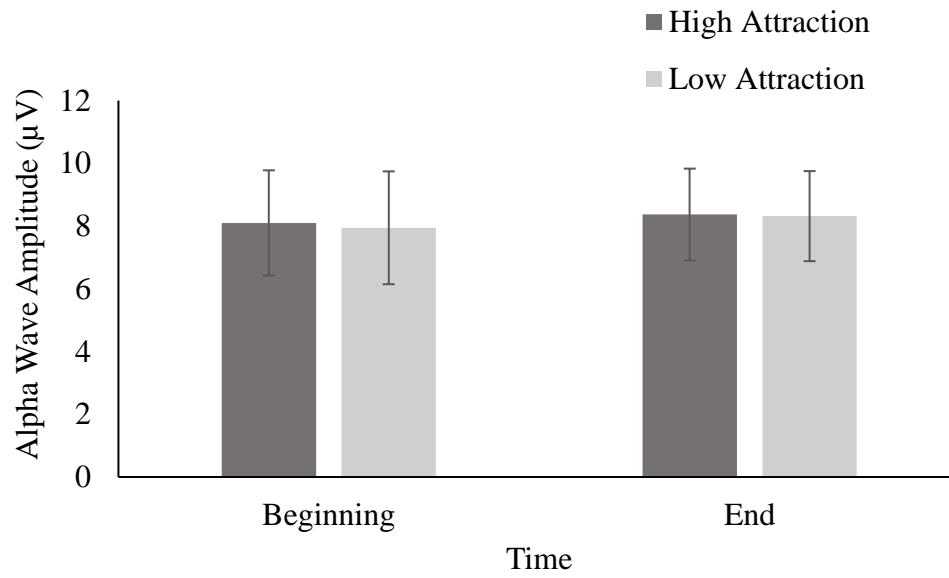
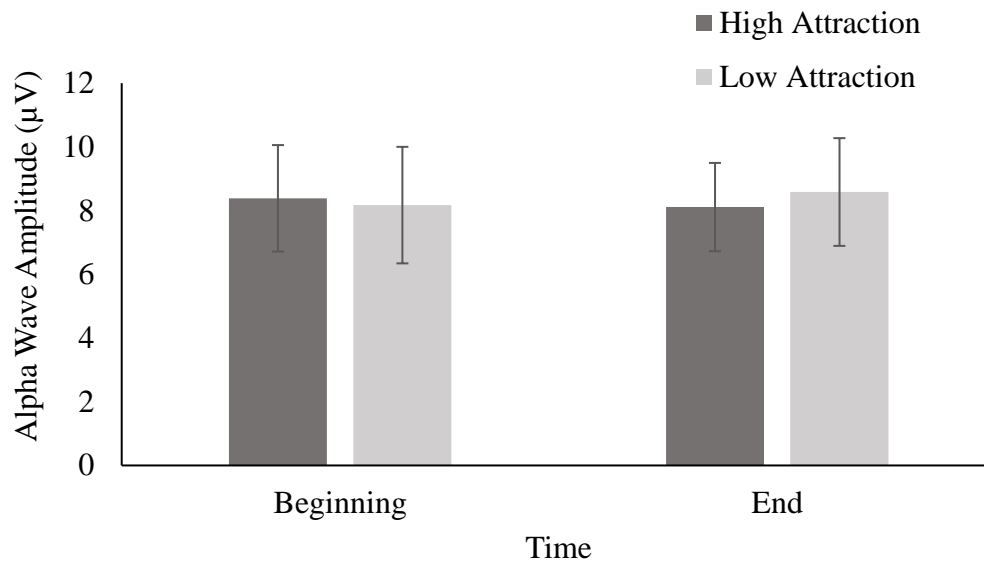


Figure 6.

Alpha Wave Amplitudes Across Time for Misleading Vignettes



Appendix A

Prolific Study

Self-Efficacy and Self-Disclosure in Online Romantic Relationships

Start of Block: Study Information Sheet

Roanoke College

Study Information Sheet

IRB: 202021_Hunt_Ignoring

Key Information About this Study:

We would like to invite you to be in a research study about how emerging adults' beliefs in their ability to behave effectively and positively in a relationship effects what and how much they disclose about themselves to a potential romantic partner online.

Participation in this research is voluntary; you don't have to take part if you don't want to. Interested participants must be between the ages of eighteen and twenty five, and not be married or have ever been married. If you decide to take part, you will be asked to indicate how strongly you agree or disagree with statements about yourself and respond to a series of vignettes. Participation in the study will be for about thirty minutes. There are no known risks that we are aware of for participants of this study. We also believe there are no immediate potential benefits for participants but information about this topic could potentially benefit society in the future.

Study Information: The purpose of the study is to investigate how an individual's belief in their ability to behave effectively and positively in a relationship effects what and how much they disclose about themselves to a potential romantic partner online. At the end of the study, more information about what we hope to learn from this research will be explained.

What will I do if I choose to be in this study? You will be asked to indicate how strongly you agree or disagree with statements about yourself and romantic relationships before giving responses about how willing you would be to give certain information to potential romantic partners you hypothetically met online represented by a picture and a vignette.

Study time: Study participation will take no more than thirty minutes.

Study location: All study procedures will take place online.

What are the possible risks or discomforts? To the best of our knowledge, the things you will be doing have no more risk of harm than you would experience in everyday life.

What are the possible benefits for me or others? This study is designed to learn more about how beliefs about ability affects behaviors. Participants may use this study to reflect on their own behaviors in online dating. The study results may be used to help other people in the future.

How will you protect the information you collect from me, and how will that information be shared? Results of this study may be used in publications and presentations. Your study data will be handled as confidentially as possible. If results of this study are published or presented, data will be aggregated. To minimize the risks to confidentiality, we will not collect any personal information about you that could reveal your identity.

What are my rights as a research participant? Participation in this study is voluntary. You do not have to answer any question you do not want to answer. If at any time and for any reason, you would prefer not to participate in this study, please feel free not to. You may withdraw from this study at any time, and you will not be penalized in any way for deciding to stop participation. If you decide to withdraw before finishing the study, the data collected will not be used.

Who can I contact if I have questions or concerns about this research study? If you have questions later, you may contact the researchers at RC.ParentingLab@gmail.com. If you have any questions about your rights as a participant in this research, you can contact the following office at Roanoke College: Institutional Review Board Roanoke College 221 College Lane—Admin 204A Salem, Virginia 24153 540-375-5249 e-mail: irb@roanoke.edu

Q284 Paste your prolific ID here

Q278 Click the --> button to indicate that you wish to proceed with the survey.

End of Block: Study Information Sheet

Start of Block: Self-efficacy in romantic relationships



Q2 Please read each of the following statements and indicate the extent to which you agree with each statement in relation to your romantic relationships in general.

	1=strongly disagree (1)	2 (2)	3 (3)	4 (4)	5=neither agree/disagree (5)	6 (6)	7 (7)	8 (8)	9=strongly agree (9)
I am just one of those people who is not good at being a romantic relationship partner (1)	<input type="radio"/>	()	()	()	<input type="radio"/>	()	()	()	<input type="radio"/>

Failure in
my romantic
relationships
only makes
me want to
try harder (2)



When I
make plans
in my
romantic
relationships,
I am certain I
can make
them work
(3)



I have
difficulty
focusing on
important
issues in my
romantic
relationships
(4)



If I can't do
something
successfully
in a romantic
relationship
the first time,
I keep trying
until I can
(5)



I do not
seem capable
of dealing
with most
problems
that may
come up in
romantic
relationships
(6)



Sometimes I avoid getting involved romantically because it seems like too much work (7)

Having a
successful
romantic
relationship
is very
difficult for
me (12)

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

I am paying
attention
and,
therefore,
will select
seven (13)

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Q2 For the next part of the study, you can see MALE prospective romantic partners or FEMALE prospective romantic partners. Which do you prefer to see?

- ☐ Male (1)
- ☐ Female (2)

End of Block: Self-efficacy in romantic relationships

Start of Block: Vignette 1_M-T

Q4 Vignette a of 8

After a few days of talking online with Jordan, a twenty-four-year-old elementary school teacher, you two decide to meet. After moving around along the east and west coasts quite a bit during their childhood due to their mother's job, they decided they wanted to settle down in Virginia for the time being. However, this never stops them from traveling to different states as often as they can. Their favorite place to go is Florida, especially the theme parks and NASA's Kennedy Space Center. They love space exploration and the roller coasters remind them of space's lack of gravity. While discussing plans for meeting, they mention a school function they're chaperoning that they would be interested in having you come as their date to, since otherwise it might be boring. Otherwise, they would have to push back your first date to the following week since they had already planned a trip to the southern states to see some old college friends that weekend. If that is the case, they suggest rock climbing since they're not afraid of heights or even the nearby planetarium, if you're interested.

	Extremely unlikely (1)	Somewhat unlikely (2)	Neither likely nor unlikely (3)	Somewhat likely (4)	Extremely likely (5)
How likely are you to continue communicating with this person? (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How likely are you to disclose your place of residency to this person? (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How likely are you to disclose your favorite place to go to this person? (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How likely are you to disclose a secret to this person? (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Page Break

Q5 How attracted to this person are you?

- ☐ Not at all (28)
- ☐ A little (29)
- ☐ A moderate amount (30)
- ☐ A lot (31)
- ☐ A great deal (32)



Q6 What's the person you just read about's favorite place to go?

- ☐ Florida (4)
- ☐ California (5)
- ☐ Paris (6)

Q7 Do you have any doubts about whether any of the information was honest? If yes, please identify the information and why you feel this way.

Page Break

End of Block: Vignette 1_M-T

Start of Block: Vignette 2_M-D

Q9 Vignette b of 8

After a few days of dating through an online dating app, you meet Kai, a twenty-two-year-old pest control worker. At the moment, they aren't really on the dating app often and are only talking to three other people. They consider themselves very much of a clean freak and love cleaning, but express that they live a pretty exciting life. They've met several celebrities being from Nashville but wouldn't say they know any of them personally. Their hobbies include painting and baking, and they believe either activity would be fun for a first date. When trying to plan a date, they say that this month is busy with all of the parent teacher meetings they've scheduled and with all the homework they've assigned to their students. They do assure you that they love teaching as a job. The only thing they dislike is how much cleaning they have to do for the classroom. The job does also give them another opportunity to meet some celebrities and political figures as well, so it has some other perks. However, they can make time to meet you on the last weekend of the month if you're still interested.

	Extremely unlikely (56)	Somewhat unlikely (57)	Neither likely nor unlikely (58)	Somewhat likely (59)	Extremely likely (60)
How likely are you to continue	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

communicating
with this
person? (1)

How likely are
you to disclose
your
occupation to
this person? (2)

How likely are
you to disclose
your opinions
on online
dating to this
person? (3)

How likely are
you to disclose
whether you
have dealt with
any mental
health issues to
this person? (4)

☐ ☐ ☐ ☐ ☐
☐ ☐ ☐ ☐ ☐
☐ ☐ ☐ ☐ ☐

Page Break

Q10 How attracted to this person are you?

- ☐ Not at all (20)
- ☐ A little (21)
- ☐ A moderate amount (22)
- ☐ A lot (23)
- ☐ A great deal (24)



Q11 Where is the person you just read about from?

- ☐ Nashville (1)
- ☐ Virginia (2)

☐ New York (3)

Q12 Do you have any doubts about whether any of the information was honest? If yes, please identify the information and why you feel this way.

End of Block: Vignette 2_M-D

Start of Block: Vignette 3_M-T

Q14 Vignette c of 8

After a few days of dating through an online dating app, you meet Charlie. They are twenty-two years old and are currently working as an administrative assistant for a tech company. They just recently graduated from the University of Michigan and moved back to Virginia for the job opportunity. They're really into fitness and can usually be found working out either at home or at the gym. When they aren't working or working out, they're taking care of their grandmother on their mother's side. They love volunteering with the elderly in general and do so as often as they can. They ask if you want to join them on one of the weekends they go volunteer, but before the meeting they suddenly cancel. Their reasoning is that it had been a pretty stressful week. The tech company they work at has been going through an information leakage so paperwork is piling up. In addition, their grandmother also became pretty sick and has been in the hospital for two days. However, they're willing to try again the following week.

	Extremely unlikely (23)	Somewhat unlikely (24)	Neither likely nor unlikely (25)	Somewhat likely (26)	Extremely likely (27)
How likely are you to continue communicating with this person? (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How likely are you to disclose where you go	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

to school to
this person? (3)

How likely are
you to disclose
your hobbies
to this person?
(4)

How likely are
you to disclose
family troubles
to this person?
(5)

☐☐☐☐☐☐☐☐☐☐

Page Break

15 How attracted to this person are you?

- ☐ Not at all (21)
- ☐ A little (22)
- ☐ A moderate amount (23)
- ☐ A lot (24)
- ☐ A great deal (25)



Q16 What was the person you just read about named?

- ☐ Finley (4)
- ☐ Charlie (5)
- ☐ Emerson (6)

Q17 Do you have any doubts about whether any of the information was honest? If yes, please identify the information and why you feel this way.

End of Block: Vignette 3_M-T

Start of Block: Vignette 4_M-T

Q19 Vignette d of 8

Recently you've been communicating on an online dating app with Blake, a twenty three year old medical student who has just ended their first relationship of three years about one year ago. They're trying online dating to get back on the dating scene after taking some time to heal. They still have the dog the couple bought together, whose name is ToTo and the two of them do still share custody. Usually though, the dog is with Blake and they spend their time watching movies. They aren't really into going out to clubs or bars and they're not much of a drinker. For a first meeting they've invited you to a cafe, halfway between their home and yours. Before the date though, they message you to tell you that they need to cancel. The night before a bunch of their friends dragged them to a bar. Even though they didn't want to be there and did not drink, they stayed to make sure everyone got home safely. Unfortunately, this caused them to drop off their dog ToTo late at their ex's place and they have studying to catch up on.

	Extremely unlikely (24)	Somewhat unlikely (25)	Neither likely nor unlikely (26)	Somewhat likely (27)	Extremely likely (28)
How likely are you to continue communicating with this person? (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How likely are you to disclose your age to this person? (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How likely are you to disclose whether or not you drink to this person? (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How likely are you to disclose your dating history to this person? (4)

☐ ☐ ☐ ☐ ☐

Page Break

Q20 How attracted to this person are you?

- ☐ Not at all (18)
- ☐ A little (19)
- ☐ A moderate amount (20)
- ☐ A lot (21)
- ☐ A great deal (22)



Q21 Where did this person invite you for your first meeting?

- ☐ Cafe (4)
- ☐ Bar (5)
- ☐ Park (6)

Q22 Do you have any doubts about whether any of the information was honest? If yes, please identify the information and why you feel this way.

End of Block: Vignette 4_M-T

Start of Block: Vignette 5_M-T

Q24 Vignette e of 8

On an online dating app, you've recently become in contact with Quinn. They're twenty-five years old and studying agriculture in a graduate program. They're a big fan of exotic animals and currently have a possum. As a part time job, they work as a bartender. They grew up in a military family and have considered joining the army, especially after being in ROTC in high school and college. They are visiting Virginia for a few days, because they like going back to their old college and talking to new students as an alumnus. For your first date, they invite you to a school gathering with them and a couple of friends at their alma mater. They're interested in seeing their old teachers in the environmental studies department, especially those that encouraged them to go into agriculture. They expected the trip to not be too long, but they decided to bring Tito, their possum with them since they're staying with a friend. They're also really interested in checking out the local bars and potentially watching what other bartenders do.

	Extremely unlikely (44)	Somewhat unlikely (45)	Neither likely nor unlikely (46)	Somewhat likely (47)	Extremely likely (48)
How likely are you to continue communicating with this person? (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How likely are you to disclose your major to this person? (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How likely are you to disclose your opinions about the army to this person? (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How likely are you to disclose your salary to this person? (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q25 How attracted to this person are you?

- ☐ Not at all (18)
 - ☐ A little (19)
 - ☐ A moderate amount (20)
 - ☐ A lot (21)
 - ☐ A great deal (22)
-



Q26 What activity did this person do in high school and in college?

- ☐ ROTC (4)
 - ☐ Soccer (5)
 - ☐ Robotics (6)
-

Q27 Do you have any doubts about whether any of the information was honest? If yes, please identify the information and why you feel this way.

Page Break

End of Block: Vignette 5_M-T

Start of Block: Vignette 6_M-D

Q29 Vignette f of 8

After a few days of talking online with Avery, you two decide to meet. They are a twenty-one-year-old, Literary Studies major in college. Their family is on the other side of the world, but they decided to participate in their school's exchange program to experience the world. They love reading, but don't really enjoy writing. Their favorite book is Harry Potter and they even have a tattoo of a symbol from the series on their back. Avery is also a large fan of musicals and

listens only to showtunes while driving. They've been to five different musicals on Broadway over the course of their life and have seen Wicked three times. The plan to meet involves waiting until the weekend since usually their classes are in the afternoon and they aren't a morning person. In addition, this is one of the weekends they've decided not to drive home to see their parents because they've heard traffic is going to be bad. Instead, they suggest watching a movie based on their favorite book, Forrest Gump. However, on the day of the date they say they suddenly need to reschedule since they won a lottery to see Wicked and they want to experience it for a second time.

	Extremely unlikely (23)	Somewhat unlikely (24)	Neither likely nor unlikely (25)	Somewhat likely (26)	Extremely likely (27)
How likely are you to continue communicating with this person? (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How likely are you to disclose where your family is from to this person? (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How likely are you to disclose your favorite book to this person? (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How likely are you to disclose your address to this person? (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Page Break

Q30 How attracted to this person are you?

- ☐ Not at all (32)
- ☐ A little (33)

- ☐ A moderate amount (34)
- ☐ A lot (35)
- ☐ A great deal (36)
-



Q31 What was this person's major?

- ☐ Physics (4)
- ☐ Literary Studies (5)
- ☐ Psychology (6)
-

Q32 Do you have any doubts about whether any of the information was honest? If yes, please identify the information and why you feel this way.

End of Block: Vignette 6_M-D

Start of Block: Vignette 7_M-D

Q34 Vignette g of 8

On an online dating app, you've recently come in contact with Kamryn. They're currently still in school but are studying architecture. They are twenty-four years old. They love traveling, but prefer the cold to hot weather and hate the beach. However, they love swimming and have competed in competitions since they were young. They're from Virginia, but their parents moved to Florida after retiring. You two have the same taste in music. They've been a vegetarian their whole life since their parents are as well. They are great at responding to your messages in a timely manner and are communicative about when they'll be unable to chat for a few days due to a really busy schedule. During one interaction, they mention a vacation they are taking to Alabama to see their parents with some friends from school. They're actually really excited for the beaches, though they are less excited about sharing a room, something they haven't done in

years. They plan to do a lot of grilling and they've been preparing burgers for all of them to enjoy.

	Extremely unlikely (23)	Somewhat unlikely (24)	Neither likely nor unlikely (25)	Somewhat likely (26)	Extremely likely (27)
How likely are you to continue communicating with this person? (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How likely are you to disclose activities you participated in as a child to this person? (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How likely are you to disclose your opinions on eating meat to this person? (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How likely are you to disclose an embarrassing moment to this person? (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Page Break

Q35 How attracted to this person are you?

- ☐ Not at all (18)
- ☐ A little (19)
- ☐ A moderate amount (20)
- ☐ A lot (21)
- ☐ A great deal (22)



Q36 What place does this person hate?

- ☐ Restaurants (4)
- ☐ Beaches (5)
- ☐ Malls (6)

Q37 Do you have any doubts about whether any of the information was honest? If yes, please identify the information and why you feel this way.

End of Block: Vignette 7_M-D

Start of Block: Vignette 8_M-D

Q39 Vignette h of 8

Recently you've been communicating on an online dating app with Taylor, a twenty five year old registered nurse. From your interactions, you learn that they have never taken a vacation because they're always working. They're also allergic to cats and dogs, so they've never had either as pets. Plus they live alone in an apartment that doesn't allow them anyway. They are the oldest of three children. Their original home is California but they moved to Virginia for a job opportunity after college. They love hiking and would love their date to join them on the trails. After a few days of talking and making plans to meet, Taylor ceases communication for almost twenty four hours. When they finally return they apologize saying that their cat, Mochi, became very ill and they had to take them to the vet. However, they would still love to go hiking if you're interested and suggested a trail near their apartment. They even offered to cook you lunch as well, since their roommate won't be there. They asked about your favorite food and you two share that in common.

	Extremely unlikely (24)	Somewhat unlikely (25)	Neither likely nor unlikely (26)	Somewhat likely (27)	Extremely likely (28)
How likely are you to continue	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

communicating
with this
person? (1)

How likely are
you to disclose
how many
siblings you
have this
person? (2)

How likely are
you to disclose
if you like
hiking or not to
this person? (3)

How likely are
you to disclose
any allergies to
this person? (4)

☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Page Break

Q40 How attracted to this person are you?

- ☐ Not at all (18)
- ☐ A little (19)
- ☐ A moderate amount (20)
- ☐ A lot (21)
- ☐ A great deal (22)



Q41 How many siblings does the person you just read about have?

- ☐ One (1)
- ☐ Two (2)
- ☐ Three (3)

Q42 Do you have any doubts about whether any of the information was honest? If yes, please identify the information and why you feel this way.

End of Block: Vignette 8_M-D

Start of Block: Vignette 1_M-T.2

How likely are
you to disclose
your favorite
place to go to
this person?
(7)

☐ ☐ ☐ ☐ ☐

How likely are
you to disclose
a secret to this
person? (8)

☐ ☐ ☐ ☐ ☐

Page Break

Start of Block: Demographic Questions

Q282 In order to facilitate our research we are interested in knowing certain factors about you. Specifically, we are interested in whether you actually take the time to read the directions; if you do not read the instructions and then you answer questions, we will have trouble interpreting the data. So, in order to demonstrate that you have read the instructions, please click on I have read the instructions at the bottom of the list of states in order to proceed. Do not click on the state you are from. Thank you very much.

▼ Alabama (1) ... I have read the instructions (54)

Q163 How old are you?

Q164 What gender do you identify with?

- ☐ Female (2)
- ☐ Male (1)
- ☐ Non-binary (3)
- ☐ Other (4) _____

Q165 What race/ethnicity do you identify as?

- ☐ American Indian or Alaska Native (3)
- ☐ Asian (4)
- ☐ Black or African American (2)
- ☐ Native Hawaiian or Pacific Islander (5)
- ☐ White (1)
- ☐ Other (6) _____

Q166 Which sexual orientation do you identify with?

- ☐ Asexual (5)
- ☐ Bisexual (3)
- ☐ Heterosexual (2)
- ☐ Homosexual (1)
- ☐ Pansexual (4)
- ☐ Other (6) _____

Q167 What is your current relationship status?

- ☐ Single (1)
 - ☐ "Talking" (2)
 - ☐ Dating Casually (3)
 - ☐ Dating Seriously (7)
 - ☐ Long-term committed relationship (1 year or more) (6)
 - ☐ Engaged (5)
-

Q168 How attractive do you perceive yourself as?

- ☐ Not at all (1)
 - ☐ A little (2)
 - ☐ Moderately (3)
 - ☐ A lot (4)
 - ☐ A great deal (5)
-

Q169 Have you ever partaken in online dating?

- ☐ Yes (1)
- ☐ No (2)

End of Block: Demographic Questions

Start of Block: Online Dating Demographics

Q170 Have you ever used dating applications? If yes, please identify the ones you have used.

- ☐ Tinder (1)
- ☐ Bumble (2)
- ☐ Hinge (3)

- ☐ Grindr (4)
- ☐ Plenty of Fish (5)
- ☐ Hily (6)
- ☐ Other (7) _____

Q171 What has been your overall satisfaction on these platforms?

- ☐ Extremely satisfied (11)
- ☐ Moderately satisfied (12)
- ☐ Slightly satisfied (13)
- ☐ Neither satisfied nor dissatisfied (14)
- ☐ Slightly dissatisfied (15)
- ☐ Moderately dissatisfied (16)
- ☐ Extremely dissatisfied (17)



Q172 How strongly do you agree each of the following is essential information to have on a dating profile?

[illegible]

Children (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hobbies (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interests (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Religious Beliefs (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Racial or Ethnic Background (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Occupation (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Height (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Political Affiliation (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q173 How often do you feel you have been catfished?

- ☐ Never (21)
 - ☐ Sometimes (22)
 - ☐ About half the time (23)
 - ☐ Most of the Time (24)
 - ☐ Always (25)
-

Q174 Have you ever misrepresented information about yourself?

- ☐ Yes (1)
- ☐ No (2)





Q175 Have you ever catfished someone?

- ☐ Yes (1)
- ☐ No (2)

Q176 For the following states, place the slider on the number that indicates your best estimate of how many matches of your total matches you have interacted with in that way.

Percentage of Total Matches

0 10 20 30 40 50 60 70 80 90 100

What percentage of matches do you only chat with? ()	
What percentage of matches have you met in real life? ()	
What percentage of matches have you gone on multiple dates with? ()	
What percentage of matches have you established an official relationship with? ()	

Q177 What are your thoughts about online dating? (e.g. pros and cons, safety, successfulness)

End of Block: Online Dating Demographics

Start of Block: Debrief Questions

Q178 What do you believe was the purpose of the study?

Q179 Is there any other information or thoughts you wish to share about the study?

Page Break

Q279

It is very important that we have high-quality data, and the accuracy of responses will directly impact our research findings, so if you feel that we should not use your data for any reason, click "no" below, and we will remove your responses from the study with no penalty to you! It's just important that we have truthful and accurate responses here.

Should we use your data from this survey in our study?

- ☐ Yes (4)
- ☐ No (5)
-

Q180 Thank you for participating in a study about how an individual's belief in their ability to behave effectively and positively in a relationship and the attractiveness of a potential romantic interest effects what and how much they disclose about themselves to a potential romantic partner online. This explanation is missing a key component which was not shared with participants before hand, given that it may have affected responses. Half of the vignettes contained information that was not coherent with information provided in the vignettes. The true purpose of this study is to investigate if an individual's romantic self efficacy or an individual's belief in their ability to behave and positively in a relationship effects what and to compare the amount of disclosure about themselves to a potential romantic partner online when there is deceit and when there is none.

Q280

Please click the --> button to submit your response.

End of Block: Debrief Questions

Appendix B

Visual Stimuli

Attractive Males



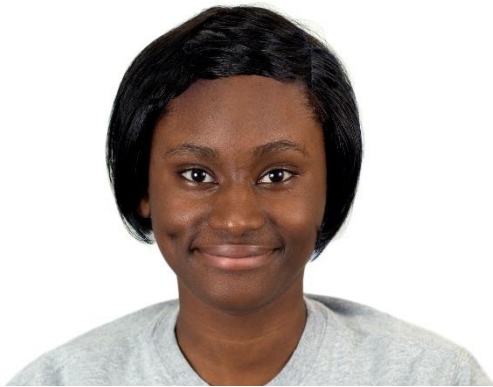




Attractive Females







Unattractive Males







Unattractive Females





