Contradictory deceptive behavior in online dating

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\section*{Abstract}

Deceptive behavior is common in online dating because personal profiles can be easily manipulated. This study conducts two experiments to examine contradictory deceptive behavior in online dating. The results of Experiment 1 showed that users have lower perceptions of authenticity evaluations of daters’ self-provided photographs with strong physical attractiveness than those with low physical attractiveness, and the authenticity perceptions of daters’ self-provided photographs have a positive relationship with the authenticity evaluation of online daters’ text-based self-presentations. Although users are suspicious of the authenticity of beautiful or handsome daters’ photographs, the results of Experiment 2 showed that people still employ higher levels of deception in self-presentations toward daters with highly attractive photographs to increase their possibilities of securing a date with those daters. The results also show that women employ higher levels of deception in self-presentation than men in online dating environments.

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\section*{1. Introduction}

Deception is an omnipresent social phenomenon within daily interpersonal interactions. DePaulo and Kashy (1998) posited that lying is a common occurrence in everyday life and is seldom intended to cause harm. Deceptive behavior is more common on the Internet because online communication lacks nonverbal cues and all information can be easily manipulated (Hancock & Toma, 2009, 2010). This is especially true in online dating; personal profiles are photograph and text-based; therefore, it is considerably easier for online daters to deceive others. Several studies have recently discussed deception behavior in online dating. For example, the results of a survey showed that approximately 20% of online daters admitted their deceptions, and people felt that approximately 90% of other online daters were lying (Boston University & MIT; Epstein, 2007). Toma and Hancock (2010) found that online daters lacking attractiveness are more likely to enhance their profile photographs and lie regarding their height, weight, or age. Although online dating provides numerous opportunities for users to meet others, most users do not know who they are communicating with; therefore, they think that online dating is full of deceptive information (Toma, Hancock, & Ellis, 2008).

Prior studies have found that physical attractiveness is an important variable in initiating interpersonal relationships. Attractive people appear to have greater assertiveness, better social skills, more interpersonal warmth, and appear more trustworthy and kind (Dollinger, 2002; Lemay, Clark, & Greenberg, 2010). When people choose dates, they often pursue people with high physical attractiveness (Berscheid, Dion, & Walster, 1971; Berscheid & Walster, 1974; Feingold, 1992; Johnz, 1988; Korabik, 1981; Townsend & Levy, 1990a; Walster, Aronson, Abdahams, & Rottmann, 1966). In an online dating environment, where physical interaction is absent, users are more likely to review a dating profile that contains a photograph (Hancock & Toma, 2009). Profile photographs provide the only visual cue for users to judge daters’ appearances, and are a central component of online self-presentation (Hancock & Toma, 2009). However, according to Gibbs, Ellis, and Heino (2006), 86% of users feel that online daters misrepresent their physical appearance because daters can easily manipulate their photographs in the virtual world. When daters present attractive and flawless photographs, users may think that this information can be manipulated and misrepresented easily, further resulting in perceptions of deception (Toma et al., 2008; Walther, 1996). This raises a question: Do users think that online daters with physically attractive photographs are less genuine than those who are less physically attractive? According to the Nielsen NetRatings’ report (2005, August)\textsuperscript{1}, most users view the photographs of online daters before reading their profiles. Once users suspect the authenticity of a dater’s appearance, they might not fully believe daters’ text-based self-presentation through the ‘halo effect’. Experiment 1 was conducted to examine this question.

\textsuperscript{1} http://www.nielsen-online.com/pr/pr_050802_uk.pdf.
Although users may suspect that the photographs of beautiful or handsome daters are false representations, this doubt does not influence them when evaluating the interpersonal attraction of the person in an image. When viewing attractive people, those exposed intuitively have a positive attitude and feel affection toward these people, which can generate the motivation for an interpersonal approach characterized by a desire to establish or maintain bonds with physically attractive people (Lemay et al., 2010). To establish social bonds with attractive daters, users adopt deceitful approaches to form good impressions because displaying defects or negative features may lead to losing chances to be in contact with attractive daters (Gibbs et al., 2006). Deception is a means to attract other daters. Therefore, another issue emerges: How does the physical attractiveness of online daters influence users' deceptive behavior in self-presentation? Experiment 2 was conducted to address this question.

These two questions show that contradictory deceptive behavior exists in online dating. In other words, although users are suspicious of highly attractive photographs, they are still eager to embellish their own self-presentations to meet these attractive online daters. Using a laboratory experiment, we conducted two experiments to address this contradictory deceptive behavior. In Experiment 1, we examine whether users have lower authenticity evaluations toward online daters who are highly attractive in photographs. In Experiment 2, we examine whether users are deceptive in self-presentation when they encounter attractive online daters. In addition, gender is adopted as a variable and we examine whether male and female daters have significant differences regarding deceptive self-presentation. Furthermore, we conducted additional analyses to understand the effect of physical attractiveness on deception valence (positive and negative). That is, whether participants present more positive (negative) deception to daters with high (low) physical attractiveness than to daters with low (high) physical attractiveness. We further analyze the effect of gender and deception valence (positive and negative) on deception levels and discuss the difference of both sexes on positive deception and negative deception to understand the effects of gender differences.

This study is based on theories of physical attractiveness and self-presentation in the field of interpersonal relationships to explain the phenomenon of contradictory psychology and deceptive behavior in online dating. The unique features of this study are as follows: first, prior studies have suggested that people like to pursue physical attractiveness to obtain good interpersonal attractiveness and interpersonal relationships (Berscheid & Walster, 1974; Johnson, 1988; Korabik, 1981; Lo, 2008; Townsend & Levy, 1990a). However, we suggest that users question the authenticity of an attractive dater's photograph. Second, the evaluation of a dater's photograph is positively related to the authenticity evaluation of the dater's text-based self-presentation. Third, this study offers important insights into online dating deceptive behavior. Although users might not believe in the authenticity of an attractive dater, they still use deception on their own profiles to make a good impression on attractive daters. Fourth, this study presents a discussion on how users deceive in their self-presentation based on the physical appearance of other daters, which is different from a previous study that focused on how daters rely on their own physical appearance to form a deceptive self-presentation in an online dating environment (Toma & Hancock, 2010). Finally, this study is different from previous research that focused on discussing the content of self-presentation and items of deception; we focus more on online daters' psychological mechanisms behind deceptive self-presentation. The results of this study provide new insights and directions for the field of online dating research.

2. Theoretical background

2.1. Physical attractiveness and online dating

People's outward appearances are conspicuous characteristics in initiating interpersonal relationships. Studies have verified that physically attractive people are likely to have better interpersonal attractiveness and greater interpersonal relationships, whereas unattractive people frequently fail in interpersonal interactions (Berscheid & Walster, 1974; Johnson, 1988; Korabik, 1981; Townsend & Levy, 1990a). Studies have also shown that attractive people not only have numerous friends, but also have a higher frequency of dating compared to unattractive people (Berscheid et al., 1971; Feingold, 1992). The effect of individual outward appearance on interpersonal relationships exists not only in offline social environments but also in online interactions (Behrend, Toaddy, Thompson, & Sharek, 2012; Brand, Bonatsos, D'Orazio, & DeShong, 2011; Lo, 2008; Yee & Bailenson, 2007).

Online dating, or using Internet services designed to facilitate interactions between potential intimate partners (Heino, Ellison, & Gibbs, 2010), has recently grown in popularity. The number of dating sites has recently increased worldwide, with certain sites, such as eHarmony and Match.com, reporting a two-digit percentage increase in memberships in 2008 (Ellison, Lai, & Gibbs, 2011). Online dating services allow users to create a personal profile, with attributes, such as height, weight, interests, and personality types, to describe themselves and contact or allow other members to contact them directly (Toma et al., 2008). Compared to dating in face-to-face (FTF) settings, online dating provides database-driven search queries, which affects the process by which people present themselves and assess potential partners. Users are not only capable of looking for partners using a search engine that filters out profiles that do not meet the stated criteria but they can also post their personal information to match themselves with potential partners (Heino et al., 2010).

Rheingold (1993) reported that people often assess others' appearances before deciding whether to pursue a relationship further. This phenomenon also occurs in online dating. For example, the Nielsen NetRatings (2005, August) reported that most users examine other daters' photographs first, and then browse their text-based profiles when deciding whether to initiate a relationship with other daters. Thus, similar to FTF communication, a dater's appearance remains a main factor affecting behavior in online interactions.

2.2. Imperfect information of online daters

Prior studies have divided information into positive and negative valences and applied this classification in numerous fields, especially when forming impressions (Kellermann, 1984). Research has verified that negative information is more powerful than positive information in changing attitudes when someone is forming an evaluation (Anderson, 1965; De Bruin & Van Lange, 2000; Peeters & Czapinski, 1990; Skowronski & Carlson, 1989; Vonk, 1993).

Kellermann (1984, 1989) suggested that negative information is considered informative because it is thought to be non-normative (Walther, Van Der Heide, Hamel, & Shulman, 2009). People usually assume that others tend to express positive aspects and hide information with negative valence. Thus, this practice of regularly disclosing positive information may be discounted when developing social relationships (Walther et al., 2009). Conversely, negative information is generally considered more credible than positive
information because it is more unique, and could possibly reveal
more of someone’s actual attributes, whereas positive information
commonly presents flattering or normal standards (Fiske, 1980).

In a virtual environment, people may not fully believe any infor-
mation from computer-mediated communication (CMC) because
users can easily manipulate information on the Internet. Walther
et al. (2009) proposed that people are more suspicious of positive
information when they are in an environment where they can
manipulate and distort the impression others receive, especially
in online dating. Brym and Lenton’s (2001) survey of Canadians’
online dating behavior showed that people assume that others dis-
tort their age, appearance, and even marital status to appear to
possess more favorable traits. In other words, people feel that on-
line daters lie regarding their self-presentation, especially when
they present information that appears perfect rather than
imperfect.

To attract more people and enhance popularity, most online
daters may choose their most attractive photograph or one that
is not their own to pretend that they are an attractive person.
We attempted to verify the effect of perfect/imperfect information
(photographs of high/low physical attractiveness) on people’s
authenticity assessment of other daters self-provided photographs.
We offer the following hypothesis:

H1. In online dating, daters with high physical attractiveness
in their photographs receive a lower authenticity evaluation from
others than daters with photographs that display low physical
attractiveness.

Other than negative information, the halo effect is also an
important concept in forming beliefs and attitudes (Bagozzi,
1996). Thornhill (1920) was the first to support the halo effect
with empirical research; he indicated that the evaluations of com-
manding officers on single characteristics of soldiers affected their
other characteristic evaluations. Feeley (2002) stated that the halo
effect is a cognitive bias whereby a person or specific traits of a
person are judged according to the general impression the rater
has created of this person. For example, if a person has a particular
“negative” attribute, it affects the rest of that person’s evaluation.

The halo effect is common in social situations. In an online envi-
ronment, because people communicate in leaner media, they can
calculate others only by limited cues (Daft, Lengel, & Trevino, 1987;
Lo & Lie, 2008). Thus, in online dating, previously judged photo-
graphs provided by daters is a cue for users to evaluate daters.
When users judge the authenticity of a dater’s profile photograph
to be low, through the halo effect, they also judge the text-based
profile that daters provide on the online dating website to be low
in authenticity, and vice versa.

H2. In online dating, a user’s authenticity evaluation of a dater’s
photograph is positively related to the authenticity evaluation of
the dater’s text-based self-presentation.

2.3. Self-presentation and deception

Previous studies have indicated that people with higher physi-
cal attractiveness possess stronger interpersonal attraction and
easily acquire better interpersonal relationships (Berscheid &
Walster, 1974; Johnson, 1988; Korabik, 1981; Townsend & Levy,
1990b). Most people automatically feel positive emotions toward
attractive people and want to become acquainted with them
(Adams & Huston, 1975; Dion, 1974; Huston, 1973; Lemay
et al., 2010). This phenomenon has also been examined in online
environments. For online games, Lo (2008) indicated that avatars
with high outward attractiveness receive higher interpersonal
attraction evaluations than those with low outward
attractiveness, and other players are inclined to interact with
more attractive avatars.

Self-presentation strategies are important for pursuing relation-
ships, especially in initiating interpersonal relationships (Derlega,
Winstead, Wong, & Greenspan, 1987). Goffman (1959) defined
self-presentation as the process by which people manage how oth-
ers perceive them. Specifically, people form their behavior to fit an
ideal state to create a good impression in others’ minds (Walther,
2007). Rowatt, Cunningham, and Druen (1999) used the expecta-
tion-discordance model of relationship deception to discuss the ef-
fects of physical attractiveness on deceptive behavior during
dating initiation. This model suggested that people may engage in
acts of deception when it is difficult or impossible to attract
an ideal match’s attention through honest communication (Rowatt
et al., 1999). That is, when facing an attractive prospect, people
may lie about their appearance, personality, or capabilities to ap-
pear more desirable to an attractive prospect and promote their
willingness to date.

In online environments, one of the features of CMC is a lack of
communication cues. This enables users to manipulate linguistic
cues, leading to online self-presentation being more selective or
malleable in CMC than in FTF interactions (Walther, 1996). Another
feature of CMC is the potential asynchronism. It provides users
more time to consciously construct communication messages.
Thus, the mediated nature of online dating provides users with
more opportunities to present themselves positively and deliber-
ately (Gibbs et al., 2006). Because online dating services allow dat-
ers to list their criteria for ideal partners openly, users alter their
profiles to fit attractive daters’ dating criteria, to increase their dat-
ing opportunities. A level of deception exists within online self-
presentation, which is used by daters to manage their presentation
to appear more desirable and compare favorably with others
(Schlenker, 2003; Toma et al., 2008). This also enhances the possi-
bility of becoming closer to another dater.

As mentioned, a more physically attractive dater prompts oth-
ers to heighten their level of deception in self-presentation.

H3. In online dating, users deceive more in their self-presentation
to daters with high physical attractiveness in their photograph
than they do to daters with photographs that display low physical
attractiveness.

2.4. Gender

Tyler and Feldman (2004) suggested that women exhibit a high-
er frequency of lying than men do and tend to be more agreeable
and less quarrelsome during social interactions (Moskowitz, Suh,
& Desaulniers, 1994). In addition, to elicit favorable reactions, wo-
men are more likely to consider their partner’s perspectives and
adjust their behavior to ensure smooth and harmonious interac-
tions (Davis & Franzoi, 1991; Tyler & Feldman, 2004). This helps
foster closeness, connectedness, and supportive in their future
social interactions (DePaulo, Epstein, & Wyer, 1993). These studies
have demonstrated that women may attempt to present an agree-
able and alluring image by molding their outward behavior to better
fit different situations (Tyler & Feldman, 2004).

When reviewing personal advertisements, men have been
shown to pay more attention to appearances, and prefer youthful
and slender women (Jonason, 2009; Lynn & Bolig, 1985; Scheib,
Gangestad, & Thornhill, 1999). Similarly, women drew more atten-
tion to their physical attractiveness and body shape in their per-
sonal profiles to serve men’s needs (Jagger, 2001; Tyler &
Feldman, 2004; Whitty, 2008). Because women usually regulate
their responses based on other’s perspectives (Tyler & Feldman,
2004), it is possible that women are more likely to misrepresented
their appearances, such as age, photographs, and weight than men (Hall, Park, Song, & Cody, 2010; Hancock & Toma, 2009) to obtain other daters’ interest and agreement in online dating. Therefore, we present the following hypothesis:

**H4.** In online dating, women present a higher level of deception in their self-presentations than men.

### 3. Experiment 1

Although all of the hypotheses can be tested in a single experiment, measuring the dependent variables of H1 and H2 may cause reactive effects on measuring the dependent variables of H3 and H4. Hence, two experiments were conducted for this study.

#### 3.1. Procedure

To test H1 and H2, which address the effects of the physical attractiveness of dater’s self-provided photographs in online dating personal profiles on users’ perceptions of daters’ deceptive behavior, Experiment 1 consisted of constructing a mock dating website and manipulating physical attractiveness (high vs. low). Participants were randomly assigned to one of two treatments. Each treatment contained six daters, with one manipulated profile (high or low physical attractiveness) and five physically average profiles. Participants were asked to browse six opposite-sex online daters’ photographs on the experiment webpage and were told to then evaluate the authenticity of the manipulated dater’s photograph. After evaluating the authenticity, participants were instructed to click the button “more about me” under the dater’s photograph. Participants then continued to a page containing the dater’s text-based profile. The text-based profile included a brief introduction, background, and interests. After reading the information, participants were asked to evaluate the authenticity of the dater’s text-based self-presentation.

#### 3.2. Participants

The age of the manipulated profiles of the online daters in both experiments was 24 years. Experiment 1 recruited participants whose ages ranged from 20 to 26 years. This was done to avoid a large age gap, which may have influenced participants’ intentions to become acquainted with other daters. A total of 172 volunteers were recruited for this experiment (87 men, 85 women, average age = 21.78 years). The average Internet usage experience of participants is 13.7 years (SD = 2.91); 47.09% of the participants had online dating experience.

#### 3.3. Materials

**3.3.1. Manipulated daters**

For the pilot test, 30 models were invited, comprising 15 male and 15 female models. They were each asked to provide a personal photograph. Fifty subjects were recruited for the pilot test to evaluate the physical attractiveness of the models’ photographs. The scale of physical attractiveness, adapted from Dollinger (2002), ranged from 1 (unattractive) to 7 (attractive). The Kendall coefficient of concordance for interjudge reliability is .87, indicating that the subjects reached consensus among the judges regarding the physical attractiveness of the models’ photographs. Based on the results of the pilot test, the most attractive female (M = 6.3, SD = 1.57) and male models (M = 6.2, SD = .94), and the least attractive female (M = 1.7, SD = .87) and male models (M = 2.1, SD = .59) were selected as the manipulated high/low physical attractive daters (Fig. 1). Furthermore, we conducted tests to ensure that the selected models were adequate. An independent sample t test showed that the physical attractiveness score of the selected attractive female model was not significantly different from the selected attractive male model (p = .831). The t test results also showed that the physical attractiveness score of the selected unattractive female model was not significantly different from the selected unattractive male model (p = .743). The physical attractiveness score of the selected attractive female (male) model is significantly higher than the selected unattractive female (male) model (female: p = .001; male: p = .001). The five male and five female models who were not selected as high/low physically attractive daters in the experiment, whose physical attractiveness score ranged between 3 and 5, were randomly assigned as average physically attractive models on the experiment webpages. An ANOVA analysis showed that those ten models had no significant differences on their physical attractiveness score (p = .584).

Because all the pictures were self-provided by the models, to confirm that the evaluation of models’ physical attractiveness in their pictures was not influenced by different postures, gestures, facial expressions, and clothes, we also conducted two additional pilot tests to ensure the adequacy of the four pictures. A total of 54 participants were recruited for the pilot test (23 men, 31 women, average age = 21.24 years). First, we used drawing software to change the bodies (using different postures, gestures, and clothing) of two male (female) models with fixed faces; the results of the t test showed that the physical attractiveness of the model with Body A was not significantly different from Body B (male: p = .179; female: p = .116). In second pilot test, we fixed the bodies and faces of two male (female) models but changed their smiles. The results of the t test showed that the physical attractiveness of the model with Smile A was not significantly different from Smile B (male: p = .077; female: p = .094). The results of these two pilot tests supported that the postures, gestures, and facial expressions of the selected models did not influence the participants’ evaluation of daters’ physical attractiveness. The selected models were adequate for two formal experiments.

**High physically attractive daters**

**Low physically attractive daters**

*Fig. 1. The manipulated daters (high and low physical attractiveness).*
showed that users’ authenticity evaluation of a dater’s photograph of unattractive photographs (evaluation of physically attractive daters’ photographs than that of unattractive) and authenticity evaluations. The results showed a significant primary effect for physical attractiveness ($F = 67.51$, $p = .001$, $\eta^2 = .287$), indicating that participants have a lower authenticity evaluation of physically attractive daters’ photographs than that of unattractive photographs ($M_{\text{high}} = 2.89$, $SD_{\text{high}} = 1.75$; $M_{\text{low}} = 5.06$, $SD_{\text{low}} = 1.59$). Therefore, $H1$ was supported. For gender, no primary effect was found ($F = .24$, $p = .626$, $\eta^2 = .001$), and no interaction was observed between physical attractiveness and gender ($F = .05$, $p = .816$, $\eta^2 = .001$; Tables 1 and 2).

For testing $H2$, we employed regression analysis; the results showed that users’ authenticity evaluation of a dater’s photograph has a positive relationship with the authenticity evaluation of a dater’s text-based profile ($b = .25$, $R^2 = .096$, $p = .001$; Table 3), supporting $H2$.

### 4. Experiment 2

$H3$ and $H4$ were tested in Experiment 2, which considered the effects of physical attractiveness of daters’ self-provided photographs in online dating personal profiles on users’ own deceptive behavior.

#### 4.1. Procedure

Experiment 2 involved constructing a mock webpage (an online dater’s personal profile) to manipulate physical attractiveness (high/low). The high and low physically attractive daters from the pilot test result in Experiment 1 were used. The daters’ personal profile pages contain the daters’ photographs, text-based information, and dating criteria. Participants were randomly assigned to one of two conditions (physical attractiveness: high and low) and were instructed to imagine that they were users on an online dating website. After viewing an opposite-sex dater’s profile, participants were instructed to provide their own profiles to this dater to encourage a date. Participants were required to fill out two pages of profile information. The first page was the profile that participants wanted to send to the dater. On the first page, we explained that participants could freely choose their self-presentation, similar to an actual dating site. After finishing the first profile, we conducted a debriefing process to announce the end of the experiment to the participants and to explain the purpose of this study. After debriefing, participants were asked to turn to the second page and write down their true personal profile. All profiles were anonymous.

#### 4.2. Participants

This study limited the participants’ ages because age is one of the most important deception factors in self-presentation when dating. According to Hall et al. (2010), men usually seek younger women, whereas women seek partners of the same age or older than themselves. To match daters’ desired ages for partners, daters are likely to strategically misrepresent their age on their profile. In this study, to provide a stimulus for the deception of age in the self-presentation profile, the daters’ ages were manipulated. Male daters’ ages were set to 20 years and female daters’ ages were set to 24 years when all participant ages ranged between 21 and 23 years. In total, 88 participants were recruited (45 men and 43 women, average age = 21.73 years). The average Internet usage experience of participants was 8.9 years ($SD = 3.18$), and 58.4% of participants had online dating experience.

#### 4.3. Measures

The dependent variable in this experiment was the deception level of self-presentation, which is defined as the level of incongruence between the personal profiles that participants sent to daters and their true personal profiles. The nine items in the personal profile were adapted from Match.com and from items by Toma et al.

### Table 1

<table>
<thead>
<tr>
<th>Physical attractiveness</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>F</th>
<th>p</th>
<th>$\eta^2$</th>
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<tr>
<td>Low</td>
<td>80</td>
<td>5.06</td>
<td>1.59</td>
<td>67.51</td>
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<td>.287</td>
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<tr>
<td>High</td>
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<td>2.89</td>
<td>1.75</td>
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<tr>
<td>Men</td>
<td>87</td>
<td>4.13</td>
<td>1.90</td>
<td>.24</td>
<td>.626</td>
<td>.001</td>
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<tr>
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<td>3.67</td>
<td>2.08</td>
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$p < .05$

### Table 2

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<th>Gender</th>
<th>Physical attractiveness</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>F</th>
<th>p</th>
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<tbody>
<tr>
<td>Men</td>
<td>Low</td>
<td>52</td>
<td>5.04</td>
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<td>.816</td>
<td>.001</td>
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<td></td>
<td>High</td>
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<td>1.46</td>
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<tr>
<td>Women</td>
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<td>5.11</td>
<td>1.62</td>
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<td>1.92</td>
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### Table 3

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<th>$t$</th>
<th>$R^2$</th>
<th>$p$</th>
<th>$\eta^2$</th>
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<tbody>
<tr>
<td>Authenticity evaluation of dater’s text-based profile</td>
<td>Authenticity evaluation of dater’s photo</td>
<td>25</td>
<td>4.38</td>
<td>.096</td>
<td>.001</td>
</tr>
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</table>

$p < .05$
interaction is not significant ($M_{high} = 4.20$, $SD_{high} = 1.39$; $F_{high} = .246$, $p = .529$, $\eta^2 = .008$; Table 8).

### 4.4. Results

An ANOVA was performed for physical attractiveness and gender, indicating that physical attractiveness is a main effect ($F = 17.64$, $p = .001$, $\eta^2 = .174$), which is in line with H3: People present higher deception levels of self-presentation to daters with high physical attractiveness than they do to daters with low physical attractiveness ($M_{low} = 5.63$, $SD_{low} = 1.39$; $M_{high} = 4.20$, $SD_{high} = 1.71$). We also found that gender is a main effect ($F = 5.96$, $p = .017$, $\eta^2 = .066$), which is in line with H4: Women have higher deception levels in self-presentation than men ($M_{male} = 5.42$, $SD_{male} = 1.56$; $M_{female} = 4.56$, $SD_{female} = 1.73$) in online dating environments (Table 4). Physical attractiveness x gender interaction is not significant ($F = .64$, $p = .426$, $\eta^2 = .008$; Table 5).

### 4.5. Additional analyses

According to the experiment data, we found that not all participants’ deceptive behaviors involve presenting better profiles; certain users alter their personal profiles negatively to be less compatible with another dater’s dating criteria. To further interpret this phenomenon, coding was conducted to separate deceptive behavior into positive deceptions (e.g., a person who is optimistic but claims to be pessimistic in his or her personal profile). Results showed that 40.7% of deceptive participants present negative deceptions when they encounter less physically attractive daters. To further understand the effect of gender and daters’ physical attractiveness on deception valence, we conducted ANOVA. Results showed that searchers have significantly different deception valence based on other daters’ physical attractiveness ($F = 19.76$, $p = .001$, $\eta^2 = .105$; Table 6). When users meet daters with low physical attractiveness, the differences between positive and negative deceptions are not significant ($M_{positive} = 2.20$, $SD_{positive} = 1.40$; $M_{negative} = 2.00$, $SD_{negative} = 1.43$; $F = .40$, $p = .529$, $\eta^2 = .005$). When searching for daters with high physical attractiveness, they exhibit more positive than negative deception ($M_{positive} = 4.13$, $SD_{positive} = 1.93$; $M_{negative} = 1.75$, $SD_{negative} = 1.58$; $F = 43.54$, $p = .001$, $\eta^2 = .317$; Table 6). However, no significant difference was observed in deception valence between male and female users ($F = .69$, $p = .407$, $\eta^2 = .004$; Table 7). In addition, no significant difference was observed in deception valence when different genders met different physically attractive daters ($F = 1.35$, $p = .246$, $\eta^2 = .008$; Table 8).

### 5. Discussion and conclusion

The purpose of this study was to examine deceptive behavior in online dating services; specifically, physical attractiveness is a vital variable when discussing two aspects of deception. Four hypotheses were supported by two experiments. Experiment 1 established that online users judge the authenticity of a dater’s photograph with high physical attractiveness (positive information) as lower than that of those with low physical attractiveness (negative information). H1 was verified according to the halo effect, indicating that the physical attractiveness of an online dater in his or her photograph affects a user’s evaluation of the authenticity of the online dater. The results of H2 show that, in online dating, a user’s authenticity evaluation of a dater’s photograph is positively related to the authenticity evaluation of the dater’s text-based profile. Furthermore, to understand whether the differences in dater’s attraction levels can encourage users to present different deception levels on self-presentation, the Experiment 2 was designed to ask participants to actively send personal information to a specific dater (with low or high physical attractiveness) to ask for a date. The results show that when online daters meet physically attractive daters of the opposite sex, a user’s deception level of self-presentation is significantly higher than when meeting a dater with low physical attractiveness (H2). Female users also present higher levels of deception than men (H4).

### Table 4

<table>
<thead>
<tr>
<th>Physical attractiveness</th>
<th>Deception valence</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>F</th>
<th>p</th>
<th>$\eta^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Positive</td>
<td>40</td>
<td>2.20</td>
<td>1.40</td>
<td>.40</td>
<td>.529</td>
<td>.005</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td>40</td>
<td>2.00</td>
<td>1.43</td>
<td>.69</td>
<td>.407</td>
<td>.004</td>
</tr>
<tr>
<td>High</td>
<td>Positive</td>
<td>48</td>
<td>4.13</td>
<td>1.93</td>
<td>43.54</td>
<td>.001</td>
<td>.105</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td>48</td>
<td>1.75</td>
<td>1.58</td>
<td>.69</td>
<td>.407</td>
<td>.004</td>
</tr>
</tbody>
</table>

$p < .05$
Additional analyses further explored the issue of deception valence. The results of additional analyses revealed that when users meet daters with high physical attractiveness, they behave with more positive deception than negative deception; results also indicated that certain daters use negative deception because of other daters’ low attractiveness although negative deception is not significantly higher than positive deception. These results provide another compelling insight: it is likely that users present worse personal profiles intentionally to lower their own attractiveness.

This study has several unique points. First, prior studies have suggested that people like to be physically attractive to obtain good interpersonal attractiveness and relationships (Berscheid & Walster, 1974; Johnson, 1988; Korabik, 1981; Lo, 2008; Townsend & Levy, 1990a). However, we verified that in an online dating environment, highly attractive daters cannot be trusted. Second, the authenticity evaluation of a dater’s photograph is positively related to the authenticity evaluation of a dater’s text-based self-presentation. Third, we found that although users do not believe in other daters’ attractiveness, they are still deceptive on their own profiles to form a good impression on attractive daters. Fourth, we discussed how users deceive in self-presentation according to the physical appearance of daters, which is different from previous studies that focused on how users relied on their own physical appearance to form a deceptive self-presentation in an online dating environment (Toma & Hancock, 2010). Finally, this study is different from previous research that focused on discussing the content of self-presentation and items of deception; this study focuses more on online daters’ psychological mechanisms behind deception in self-presentation. The results of this study provide new insights and directions for the field of online dating research.

One research limitation here is that the behaviors and perceptions observed in this study might be age dependent. In both experiments’ personal profiles, the age of the manipulated online dater was controlled at 24 years. To avoid a large age gap, we only recruited participants whose ages ranged from 20 to 26 years for the experiment. Another limitation is that the experimental conditions had little relevance to actual online dating conditions, which is that most dating sites do not provide a function where users can create a specific profile for each specific date. However, to understand the differences in deceptive levels regarding self-presentation according to the physical appearance of other daters (i.e., when encountering a profile of a dater with low attractiveness, deception levels of self-presentation are lower than when encountering profiles of highly attractive daters), the experimental conditions must be designed in such a manner to ask participants to send personal information to specific daters to invite them on a date.

Future research in this area might focus on several areas. First, in Experiment 1, we tested the relationship between the authenticity evaluation of a dater’s photograph and the authenticity evaluation of a dater’s text-based self-presentation and found a significant positive relationship between them. However, the value of R-squares in regression is low ($R^2 = .096$), which indicates that other factors affect the data. Further research may explore other influential factors on the dependent variable. For example, this study is based on perfect/imperfect information to verify if daters’ physical attractiveness can affect searchers’ authenticity evaluations of daters’ photographs. According to this effect, future studies may test the relationship between the attractiveness of text-based self-presentation and daters’ authenticity evaluations. Furthermore, the consistency of attractiveness between daters’ photographs and text-based self-presentation may also influence the authenticity evaluation of a dater’s text-based self-presentation; future research could investigate this issue. In addition, when users have higher levels of self-presentation, receivers usually feel higher levels of trust and have favorable impressions of them (Fisher, 1984). Therefore, if daters reveal more information about themselves in their text-based self-presentation, users may judge the text-based self-presentation as high in authenticity. Second, the results of this study may be moderated by the anticipation of future physical interaction. Previous research has verified that those who anticipate future interactions with their partners reveal more personal information (Berger, 1979; Roloff & Berger, 1982; Tidwell & Walther, 2002), and believe that these disclosures make the follow-up interactions proceed more smoothly; thus, forming a favorable impression on each other (Roloff & Berger, 1982). When people have pleasant feelings toward each other in the initial stages, they anticipate future physical interactions. This may cause people to change their deceptive self-presentation and present the truth to avoid alienating potential mates by revealing deceptions in the future. Examinations of the anticipation of future physical interactions that may moderate the use of deceptive behavior are worth pursuing. Third, additional analyses showed that users intentionally present worse personal profiles to daters with low attractiveness. One of the reasons may be that users want to lower a dater’s interest in them. However, this behavior may also increase the likelihood of being acquainted with unattractive daters if considering their equivalent profile conditions. Future research can provide deeper understanding of the effect of negative deception in self-presentation.

References
