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Confidence is sexy and it can be trained: Examining male social confidence in initial, opposite-sex interactions

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Abstract

Objective: We investigated whether men's social confidence in an initial, opposite-sex chatting context can be improved through a video tutorial and the extent to which being perceived as socially confident results in being seen as more romantically desirable and worthy of future contact.

Method: Women chatted with men who had received or not received a tutorial on how to handle speed-dating chats (Study 1: N = 129; Study 2: N = 60) or with male targets selected for having high versus moderate confidence in handling initial, opposite-sex encounters (Study 3: N = 46).

Results: Tutorial-trained men felt more confident going into the chats and they, as well as male targets selected for their confidence, were perceived by female chat partners to be higher in social confidence, status, and dominance. However, only perceptions of social confidence were further associated with being perceived as more romantically desirable (as a short-term mate) and worthy of future contact.

Conclusions: Findings indicate that social confidence is trainable and that other-perceived social confidence can impact the outcomes of social interactions.

Keywords: attraction, evolutionary psychology, mate selection, short-term mating, social confidence

1 INTRODUCTION

On the pages of Ian Fleming novels and on movie screens, James Bond appears calmly effective in the presence of lethal villains and dangerously attractive women. On television and social media, politicians like Donald Trump come across as highly self-assured, able to take on numerous opponents at home and abroad. Abundant confidence appears to inspire awe and trust in a variety of contexts, including romance, politics, sales, and the workplace, thereby allowing those who are perceived as confident to receive significant social benefits. Interestingly, social psychologists, who have extensively studied people's evaluations of their own competence (i.e., self-efficacy), have not paid much attention to *other* people's perceptions of one's confidence. We show how a consideration of other-perceived confidence can shed light on important interpersonal dynamics. In particular, we investigate whether individuals receiving a relevant tutorial are perceived as more confident by others and provide the first examination of the ramifications of social confidence perception in the context of romantic first impressions.

1.1 Social confidence

Confidence is a topic that garners wide interest. As suggested by the vast number of books, articles, seminars, and videos on the topic, having and exuding confidence may be beneficial across many social contexts including those that entail securing sales, making new friends, courting mates, and getting hired, promoted, or elected. The abundance of materials also suggests, though, that people are not naturally confident.

1.1.1 Evolutionary underpinnings

Perhaps confidence is a particularly elusive quality because many social situations are those with which people have little or no experience and, furthermore, are evolutionarily novel—they did not exist in the ancestral world that humans lived in for millions of years up until very recently (Tooby & Cosmides, 1990). Thus, most humans may lack a natural ability or the relevant successes to feel confident in various modern contexts.

From an evolutionary perspective, confidence may have evolved in part as a signal (e.g., Hasson, 1997) that benefits both senders (in quickly conveying their competence in social situations) and perceivers (in saving time and effort otherwise needed to fully evaluate senders). The signal is honest because, throughout evolutionary history, humans typically lived in small groups of no more than 150 people (Dunbar, 1995). Thus, the competence suggested by an individual's confidence could largely be verified if need be, and people could be held accountable for the competency suggested by their confidence. In the modern world, however, with urban populations in the millions and a globally connected society of billions, we often deal with strangers. As such, there is now much more opportunity than in the ancestral past to overdisplay (Murphy et al., 2015)—and even entirely fake—one's confidence and thus, to manipulate such signals for the benefit of the sender and detriment of receivers.

1.1.2 Past research and shortcomings

Much of our scholarly understanding of confidence comes from research on self-efficacy, or belief (confidence) in one's own ability to accomplish a goal or succeed in specific situations (Bandura, 1977, 1997). Bandura (1986) argued that how people behave may often be better predicted by self-efficacy than by actual ability, as self-efficacy determines what individuals do with the abilities that they have. Indeed, self-efficacy predicts performance across various tasks (Stajkovic & Luthans, 1998), solving math problems (Pajares & Miller, 1994), reaching sales targets (Barling & Beattie, 1983; Lee & Gillen, 1989), and publishing academic papers (Taylor, Locke, Lee, & Gist, 1984). Self-efficacy and self-confidence are largely overlapping and, consistent with others (e.g., Shipman & Mumford, 2011), we consider them to be equivalent.

Despite a significant body of research on self-efficacy, confidence is still understudied in important ways. First, relatively little if anything is known about how confidence affects the outcomes of social interactions. Self-confidence occurring in social contexts, or *social confidence*, is important to examine because the formation and maintenance of all relationships central to human living—mateships, friendships, coalitions, status hierarchies, etc. (Kenrick, Li, & Butner, 2003)—are commonly and implicitly negotiated and determined in social interactions (e.g., Li et al., 2009) and require social skills. Moreover, we know little if anything about *others'* perceptions of individuals' social confidence. Especially in social contexts, others' perceptions may comprise an important pathway for whether a person is able to achieve his or her goals. Being perceived as confident may encourage others to give a person more leeway in pursuing his or her goals, and it also may inspire others to help in achieving those aims. Indeed, people who are confident tend to increase the confidence of others in carrying out shared goals (e.g., Bandura, 1990), and self-confident leaders tend to have followers who are willing to work toward achieving the leaders' objectives (Luthans & Peterson, 2002). As such, self-confidence may lead to positive social outcomes in large part because people tend to favor, cooperate with, and bestow opportunities upon those who they perceive to be self-confident (Konnikova, 2016).

Moreover, it is not clear if social confidence, as suggested by the opening examples, is a fixed trait that just comes naturally to some individuals, or whether it might also be learnable. By examining the learnability of social confidence, we can gain insights into how adaptive signals can be altered in a modern setting to induce a potentially maladaptive response—in this case, the favoring of individuals who have learned to be socially confident regardless of their actual qualifications. Such an examination also provides support for the evolutionary mismatch hypothesis (Li, van Vugt, & Colarelli, 2018), which purports that many psychological mechanisms, when operating in modern contexts, produce responses that are maladaptive. At the same time, we can also gain empirical insights into the effectiveness of an understudied yet booming industry of social confidence projection.

There are reasons to believe that even a brief tutorial can be effective in increasing one's self- and other-perceived confidence. Research on work-related tasks and decision making has shown that by viewing a very brief video of others performing a task (Kardas & O'Brien, 2018), receiving some relevant information (Hall, Ariss, & Todorov, 2007; Marteau, Wynne, Kaye, & Evans, 1990), or interacting with others who need to make a decision on the same matter (Heath & Gonzalez, 1995), people's perceived self-efficacy in handling a specific task can be boosted, regardless of their abilities. Accordingly, these results demonstrating momentarily improved task confidence might also apply to social confidence. Just as importantly, this training literature has also focused on the individual rather than on how individuals are viewed by others.

1.2 Confidence in mate selection contexts

A domain where confidence may be particularly important is in romantic interactions: people self-report that they highly value self-confidence in potential mates (Buunk, Djikstra, Fetchenhauer, &

Kenrick, 2002). If social confidence is an honest signal of one's capabilities, which include the ability to garner resources and effectively deal with people, then it makes adaptive sense for people to respond positively to potential mates who display confidence.

Social confidence may be related to social status, which is highly valued by women in long-term mates (Buss, 1989; Li, Bailey, Kenrick, & Linsenmeier, 2002; Sundie et al., 2011), and social dominance, which has been shown to be sexually attractive to women (Ainsworth & Maner, 2012; Sadalla, Kenrick, & Vershure, 1987). Such traits indicate access to resources, for which women have likely evolved preferences, given the necessity of resources for offspring survival in ancestral times (Buss, 1989; Li et al., 2002). Like social dominance (Sadalla et al., 1987), social confidence may also denote genetic benefits. Social confidence, however, is not the same as social status or dominance. Social status suggests one's relative position in a social hierarchy and social dominance involves one's ability to assert superiority or hierarchical position over others. In contrast, social confidence reflects self-assessments of one's ability to succeed and be effective in social situations, particularly where an individual is being evaluated for important outcomes. Confidence is displayed through the ease and comfort with which a person approaches and handles such evaluative social interactions. Thus, social confidence is complementary to, yet distinct from, status or dominance. Given the above considerations on social confidence comprising an evolved honest signal, we propose that people—especially women—have evolved to respond favorably to potential mates who display social confidence in evaluative social situations, above and beyond the status or dominance suggested by their confidence.

Despite self-reported indications, there is little empirical evidence that confidence is attractive in actual social situations. In one study, researchers examined the photos and accompanying text found in male profiles of online dating websites (Brand, Bonatsos, D'Orazio, & DeShong, 2012). Women's perceptions of the level of confidence expressed in the texts correlated with how attractive the women considered the men to be for potential romantic relationships. This study adeptly provided important initial evidence that perceived confidence is desirable in a romantic context. However, it did not involve actual social interactions, which is a limitation given that social confidence is hypothesized to be important in social interactions, and that men's behavior may be an especially important determinant of attraction (e.g., Gangestad, Simpson, Cousins, Garver-Apgar, & Christensen, 2004; Renninger, Wade, & Grammer, 2004). Moreover, the study was correlational and thus, causal relationships could not be established.

Another study showed that people's *over*confidence, as measured by their propensity to overclaim knowledge of nonexistent words and the difference between self-assessed and actual performance on a vocabulary task, predicted both the extent to which they chose to compete with others for a potential mate and the degree to which potential competitors avoided competing with them (Murphy et al., 2015). Overconfidence was also linked to writing personal profiles that were rated by others as more confident, and such perceptions of confidence were linked to perceptions of being more romantically desirable. The findings were interesting and informative; however, the studies were also correlational and based on hypothetical scenarios. Importantly, both sets of studies are also silent on whether confidence can be (quickly) learned.

Thus, although plausible, ideas on the positive consequences of confidence in actual social interactions and its learnability have yet to be tested. To better understand if social confidence can be quickly boosted and the impact that *other*-perceived confidence has on social outcomes, we focus on the mate choice domain, where major life outcomes are determined. Much work in this area has provided key insights into preferences for ideal mates (e.g., Buss, 1989; Chang, Wang, Shackelford, & Buss, 2011; Conroy-Beam, Buss, Pham, & Shackelford, 2015; Edlund & Sagarin, 2010; Jonason, Nolland, & Tyler, 2017; Kenrick, Groth, Trost, & Sadalla, 1993; Shackelford, Schmitt, & Buss, 2005; Sprecher, Sullivan, & Hatfield, 1994); yet, outside of social status and physical attractiveness, relatively few studies have examined how perceptions of an individual's traits affect attraction in

actual face-to-face mate selection contexts (e.g., Luo & Zhang, 2009; Valentine, Li, Meltzer, & Tsai, 2020).

1.3 The current research

In the current research, we investigated social confidence in three experiments using a live-interactive mate selection context. Given that the mating literature has extensively theorized and also demonstrated that women are choosier than men and value confidence in potential mates more than men do (e.g., Ackerman, Griskevicius, & Li, 2011; Ackerman & Kenrick, 2009; Bressler, Martin, & Balshine, 2006; Buss & Schmitt, 1993; Clark & Hatfield, 1989; Schmitt, 2005; Symons, 1979; Wilbur & Campbell, 2011), we focused this initial investigation on women's evaluation of men. Consistent with previous work on task performance confidence being boosted from brief training (e.g., Hall et al., 2007; Heath & Gonzalez, 1995; Kardas & O'Brien, 2018; Marteau, Wynne, Kaye, & Evans, 1990), we hypothesized that men's confidence can be boosted through a tutorial providing information on how to view and approach interactions in this context. Drawing on and extending previous work on self-efficacy and mate preferences, we also hypothesized that confidence will be perceived as romantically desirable.

Specifically, we predicted that in initial conversations, heterosexual male participants who receive a speed-dating tutorial (Studies 1 and 2) and male targets who are confident in handling initial opposite-sex encounters (Study 3) will be perceived by women as having more confidence and that this other-perceived confidence would translate into (mediate) perceptions that such individuals are more romantically desirable and worthy of additional contact.

2 STUDY 1

We began by examining whether men who receive a tutorial video on speed dating would appear more socially confident to women with whom they subsequently and sequentially chat, and the extent to which women's perceptions of men's social confidence increases the men's romantic desirability in these live interactions. To obtain insight into the extent to which content specificity matters, we included a comparison condition featuring a tutorial aimed more broadly at making conversation in general, in addition to a no tutorial condition. To explore discriminant validity, we included evaluative measures for social status and social dominance.

2.1 Method

2.1.1 Participants

Participants were 68 male undergraduates (*M* age = 22.78, *SD* = 2.50) at a major university who earned a combination of course credit and $10 per hour, and 61 female undergraduates (*M* age = 20.93, *SD* = 1.58) recruited from another university (to minimize the possibility that chat partners were already acquainted) of equal prestige (to keep social status equal) who received $10 for their participation. We note that our sample sizes across the studies were restricted by the labor-intensive nature of the study and limited resources. All participants across all three studies were single. All three studies took place in the rooms of a psychology lab.

2.1.2 Procedure

Male participants were randomly assigned to come to the laboratory during a week to watch a video tutorial on speed dating or general conversation, or no tutorial (control). All participants watched their assigned videos. In the following week, we held 12 speed-dating-style chatting sessions scheduled at different times. In each session, a different set of six male participants—two from each of the three

conditions—was scheduled to chat individually and sequentially for 4 min with a different set of up to six female participants.

2.1.3 Materials

We obtained the assistance of a local dating skills company (www.davidtianphd.com) to design a 3-hr video tutorial for holding conversations with new people in general, and a video tutorial of similar length for speed dating. The general video describes a conversation structure and offers advice on getting the other person to talk more, keeping the conversation going, moving the conversation to a more personal level, and using humor. The speed-dating video covers these topics but also includes suggestions on how to create attraction in a brief speed-dating chat. For instance, a "screen-and-qualify" approach is discussed in which the man casually describes a personal quality that he values in others, which may then implicitly encourage the woman to indicate how she might have that quality. Subsequently, he would indicate a liking for her response. Importantly, by encouraging individuals to view new social interactions as enjoyable and by providing guidance for how to approach them, both tutorials may reduce pressures normally associated with handling new conversations and being socially evaluated. Moreover, given that the speed-dating tutorial provides guidance that is more specific to the context of this study, we expected it to be more effective at increasing perceived composure and confidence.

Pretest trials indicated that men who watched the speed-dating tutorial felt more confident ($M = 4.76$; $SD = 1.39$) than those who watched the general-conversation video ($M = 3.69$, $SD = 1.62$) and those who watched nothing ($M = 3.44$, $SD = 1.58$) about their ability to achieve positive outcomes in speed-dating-style initial opposite-sex encounters ($1 =$ not at all confident, $7 =$ very confident), $F(2, 48) = 3.61$, $p = .035$.

After each 4-min chatting round, participants rated their partner ($1 =$ extremely below average, $7 =$ extremely above average) on social confidence (composed/together, socially confident; $\alpha = .79$), social dominance (powerful/dominant, assertive; $\alpha = .89$), social status (career prospects, ambitious/driven; $\alpha = .81$), and romantic desirability (sexually attracted to, willing to date; $\alpha = .80$). Comparative confirmatory factor analyses (CFAs) confirmed the distinctiveness of the confidence, dominance, and status constructs. Fit statistics met acceptable criteria for the unconstrained Three-Factor Model: $\chi^2 = 6.41$, $df = 6$, $p = .378$, $CFI = 1.00$, $RMSEA = 0.01$, but not for the one- and Two-Factor Models with the covariance between confidence, dominance, and status set equal to one: $0.80 < CFIs < .94$, $0.17 < RMSEA < .26$. Correlation coefficients between these three constructs were positively significant ($r_{range} = 0.47–0.66$, all $ps < .001$). A chi-squared difference test confirmed that our Three-Factor Model was significantly better than the one- and Two-Factor Models, all $ps < .001$. Thus, we averaged the confidence, dominance, and status items separately.

2.2 Results

To account for participants' repeated evaluations, we estimated multilevel models with unique chatting sessions and female participants' identification numbers as random intercepts. Ratings regarding male targets were nested within female raters nested within sessions. To take into account random effects in multilevel regression analyses, we reported effect sizes of significant findings based on *r*-squared change values (Rabe-Hesketh & Skrondal, 2008). Two sets of two dummy variables (first set: speed-dating tutorial vs. no tutorial and speed-dating tutorial vs. general-conversation tutorial; second set: speed-dating tutorial vs. general-conversation tutorial and no tutorial vs. general-conversation tutorial) were used as the independent variables to make the three possible dependent variable comparisons between the three experimental conditions. Figure 1 presents the means across the three conditions regarding the dependent variables in Study 1.

Men who received the speed-dating tutorial were perceived as having higher social confidence ($M = 5.02$, $SD = 0.91$, 95% $CI = [4.85, 5.19]$), dominance ($M = 4.66$, $SD = 0.94$, 95% $CI = [4.48, 4.83]$) and status ($M = 4.90$, $SD = 1.00$, 95% $CI = [4.71, 5.09]$) than men in the control condition (confidence: $M = 4.79$, $SD = 1.04$, 95% $CI = [4.60, 4.99]$, $B = 0.24$, $\Delta R^2 = .01$, $p = .035$; dominance: $M = 4.24$, $SD = 1.14$, 95% $CI = [4.03, 4.46]$, $B = 0.43$, $\Delta R^2 = .03$, $p = .001$; status: $M = 4.61$, $SD = 1.01$, 95% $CI = [4.42, 4.80]$, $B = 0.29$, $\Delta R^2 = .01$, $p = .039$), but only marginally higher socially dominance and status than those who received the general tutorial (dominance: $M = 4.48$, $SD = 0.99$, 95% $CI = [4.30, 4.66]$, $B = 0.21$, $\Delta R^2 = .003$, $p = .088$; status: $M = 4.67$, $SD = 1.37$, 95% $CI = [4.42, 4.91]$, $B = 0.24$, $\Delta R^2 = .01$, $p = .076$). Men who received the speed-dating tutorial were not considered significantly more socially confident than those who watched the general-conversation tutorial ($M = 4.92$, $SD = 1.00$, 95% $CI = [4.73, 5.10]$, $B = 0.13$, $p = .255$). Men who watched the general tutorial were considered marginally more socially dominant ($B = 0.22$, $\Delta R^2 = .01$, $p = .074$) but not significantly more socially confident ($B = 0.11$, $p = .325$) or to have higher social status ($B = 0.05$, $p = .738$) than men in the control condition.

FIGURE 1: The means of the dependent variables across the conditions in Study 1. Error bars indicate one standard error above and below the means
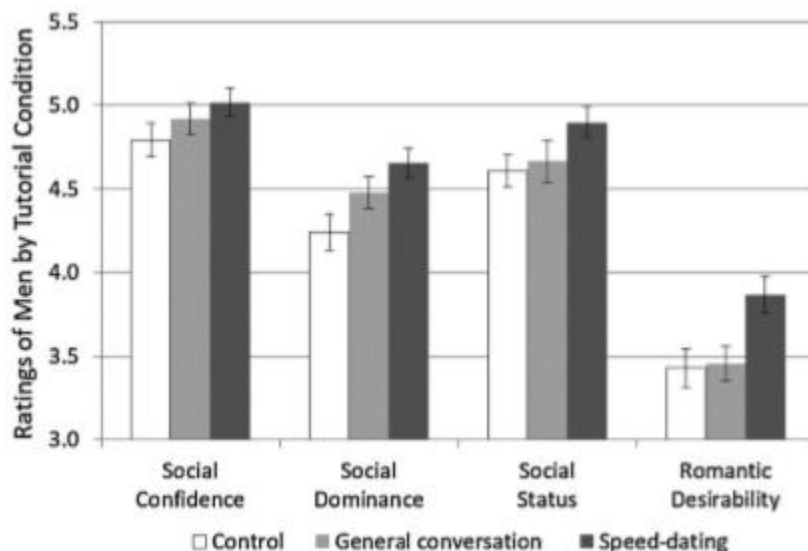
2.2.1 Romantic desirability

Men in the speed-dating condition were considered significantly more romantically desirable ($M = 3.87$, $SD = 1.16$, 95% $CI = [3.65, 4.08]$) than men in the general-conversation ($M = 3.46$, $SD = 1.14$, 95% $CI = [3.25, 3.67]$, $B = 0.41$, $\Delta R^2 = .02$, $p = .003$) and control ($M = 3.43$, $SD = 1.23$, 95% $CI = [3.20, 3.66]$, $B = 0.45$, $\Delta R^2 = .03$, $p = .001$) conditions. Men who watched the general-conversation tutorial were not considered more romantically desirable than men in the control condition ($B = 0.04$, $p = .762$).

When social confidence, dominance, and status were entered into the regression model predicting romantic desirability, confidence was a significant predictor, $B = 0.44$, $\Delta R^2 = .08$, $p < .001$, but not dominance, $B = -.01$, $p = .899$, or status, $B = 0.09$, $p = .187$. Given that confidence only differed significantly between men in the speed-dating versus control condition, we tested it as a mediator of the speed-dating tutorial's (vs. control) effect on romantic desirability. Given that social confidence, dominance, and status were all associated with each other, we used the three traits as simultaneous mediators. Only confidence significantly mediated the effects of the speed-dating tutorial versus no tutorial on romantic desirability, $B = 0.11$, 95% $CI (0.01, 0.22)$.

2.3 Discussion

Men who received a tutorial on speed dating—an activity upon which the current social situation is modeled—were perceived as having higher social confidence, dominance, and status, as well as romantic desirability, than those who did not. However, only perceptions of social confidence mediated the effect that watching a specialized tutorial had on romantic desirability. A tutorial on general conversation led to similar levels of confidence, dominance, and status as the speed-dating tutorial, though there was a (marginally) significant difference between the perceived dominance of those receiving the general-conversation video versus no video. The similarity in trait perceptions for men in the speed-dating and general-conversation conditions suggests that confidence may be boosted by receiving training on social interaction broadly. To help evaluate this further, participants in the next study received the same tutorials as in Study 1.

3 STUDY 2

We conducted Study 2 to replicate and extend Study 1 using a within- rather than between-subjects design. To maximize within-subject power and thereby reduce rating variance due to any situational or rater-specific uniqueness, we had one set of female perceivers chat with and rate each of the male participants. To provide an additional measure of romantic interest, we added an item assessing interest in having future contact (exchanging emails).

3.1 Method

3.1.1 Participants

Participants were 60 male undergraduates (M age = 21.64, SD = 1.09) at a major university who earned a combination of course credit and $10 per hour. The three female raters were fourth-year undergraduates (M age = 22) who were not told the hypotheses of the study (nor did they express suspicion at the completion of study when asked).

3.1.2 Procedure

As with Study 1, participants were randomly assigned to receive Study 1's speed-dating video tutorial or general-conversation video tutorial, or no tutorial. After the tutorial manipulation, we held 20 chatting sessions. In each session, a different set of three male participants—one from each of the three tutorial conditions—was scheduled to chat individually with each of three undergraduate female chatters who participated in all the sessions. To buffer against potential no-shows, we scheduled an extra male participant in sessions where not all male participants responded to a confirmation email sent a day before the session. Due to a male participant leaving the chat to take a phone call during one session for one female chatter and another male participant following suit (thinking that there was a break), the female chatter missed two chats in that session. Thus, that entire session for that chatter was not included.

3.1.3 Materials

After each 4-min speed-dating round, female raters rated their date-target (1 = extremely below average, 7 = extremely above average) on social confidence (composed/together, socially confident; α = .91), social dominance (powerful/dominant, assertive; α = .77), social status (career prospects, ambitious/driven; α = .87), and romantic desirability (sexually attracted to, willing to date), and their interest in continued contact via exchanging emails ("yes = 1" or "no = 0"). To increase the diversity of dependent measures, two items indicating mutual liking were added (liked partner, partner liked you). Due to a lack of theoretical predictions for the relationship of these items to the original two romantic desirability items used in Study 1, an exploratory factor analysis was performed on the two

new items and the two previous ones. The four items ($\alpha = .81$) formed a single factor and the total percentage of variance accounted for by this factor was 57.41% (we also replicated the EFA findings in Study 3 and the total percentage of variance accounted for by the four-item single factor was 58.14%); thus, the four items were averaged together as one romantic desirability measure.

Comparative CFAs confirmed the distinctiveness of the confidence, dominance, and status constructs. Fit statistics met acceptable criteria for the unconstrained Three-Factor Model: $\chi^2 = 10.29$, $df = 6$, $p = .113$, $CFI = 0.99$, $RMSEA = 0.06$, but not for the One- and Two-Factor Models with the covariance between confidence, dominance, and status set equal to one: $0.83 < CFIs < .97$, $0.11 < RMSEA < .25$. The correlation coefficients between these three constructs were significantly positive ($r_{range} = 0.52–0.74$, all $ps < .001$). A chi-squared difference test confirmed that our Three-Factor Model was significantly better than the One- and Two-Factor Models, all $ps < .001$. Thus, we averaged the confidence, dominance, and status items separately.

3.2 Results

To promote fair comparisons across different studies, we conducted multilevel linear regression and logistic regression analyses with the same random intercepts used in Study 1 for the dependent variables romantic attraction and interest in continued contact (yessing), respectively. We also followed the same method of only reporting mediation analyses for unique significant pairwise comparisons. We reported odds ratios as an effect size indicator for significant findings in multilevel logistic regression analyses. Figure 2 presents the means across the three conditions regarding the dependent variables in Study 2.

Men who received the speed-dating tutorial were perceived to have higher social confidence ($M = 5.11$, $SD = 1.30$, 95% $CI = [4.77, 5.44]$), dominance ($M = 4.43$, $SD = 1.01$, 95% $CI = [4.17, 4.69]$), and status ($M = 4.85$, $SD = 1.11$, 95% $CI = [4.56, 5.14]$) than men in the control condition (confidence: $M = 4.60$, $SD = 1.10$, 95% $CI = [4.33, 4.88]$, $B = 0.77$, $\Delta R^2 = .14$, $p < .001$; dominance: $M = 4.06$, $SD = 0.88$, 95% $CI = [3.84, 4.28]$, $B = 0.64$, $\Delta R^2 = .16$, $p < .001$; status: $M = 4.63$, $SD = 1.14$, 95% $CI = [4.34, 4.91]$, $B = 0.38$, $\Delta R^2 = .05$, $p = .027$). Men who watched the speed-dating tutorial and men who watched the general-conversation tutorial did not differ—differences were nonsignificant for confidence ($M = 4.86$, $SD = 1.06$, 95% $CI = [4.56, 5.16]$, $B = 0.29$, $p = .100$) and dominance ($M = 4.25$, $SD = 0.80$, 95% $CI = [4.02, 4.48]$, $B = 0.14$, $p = .318$), and marginally significant for status ($M = 4.59$, $SD = 0.90$, 95% $CI = [4.34, 4.84]$, $B = 0.28$, $\Delta R^2 = .02$, $p = .076$). Men who received the conversation tutorial were considered to have significantly more confidence ($B = 0.48$, $\Delta R^2 = .06$, $p = .018$) and dominance ($B = 0.50$, $\Delta R^2 = .11$, $p = .002$) but not more status ($B = 0.10$, $p = .566$) than men who received no tutorial.

3.2.1 Romantic desirability

Men who received the speed-dating tutorial were considered more romantically desirable ($M = 4.31$, $SD = 0.98$, 95% $CI = [4.06, 4.57]$) than those who received the general-conversation tutorial ($M = 3.82$, $SD = 0.98$, 95% $CI = [3.54, 4.09]$, $B = 0.51$, $\Delta R^2 = .07$, $p = .002$), and those who received no tutorial ($M = 3.64$, $SD = 0.90$, 95% $CI = [3.41, 3.86]$, $B = 0.91$, $\Delta R^2 = .22$, $p < .001$). Men who received the conversation tutorial were considered more romantically desirable than men who received no tutorial ($B = 0.40$, $\Delta R^2 = .06$, $p = .023$). When social confidence, dominance, and status were entered into the regression model predicting romantic desirability, confidence was a significant predictor, $B = 0.50$, $p < .001$, but not dominance, $B = 0.07$, $p = .431$, or status, $B = 0.09$, $p = .134$. Thus, mediation tests were conducted to evaluate the mediating effects of confidence. Results indicated that social confidence significantly mediated the effects of the speed-dating tutorial versus no tutorial, $B = 0.38$, 95% CI (0.18, 0.62), and the effects of the general-conversation tutorial versus no tutorial, $B = 0.24$, 95% CI (0.04, 0.46), on romantic desirability.

FIGURE 2: The means of the dependent variables across the conditions in Study 2. Error bars indicate one standard error above and below the means. For yessing as a dependent variable, numbers on the vertical axis indicate percentage of participants who selected "yes" for future contact in a specific condition
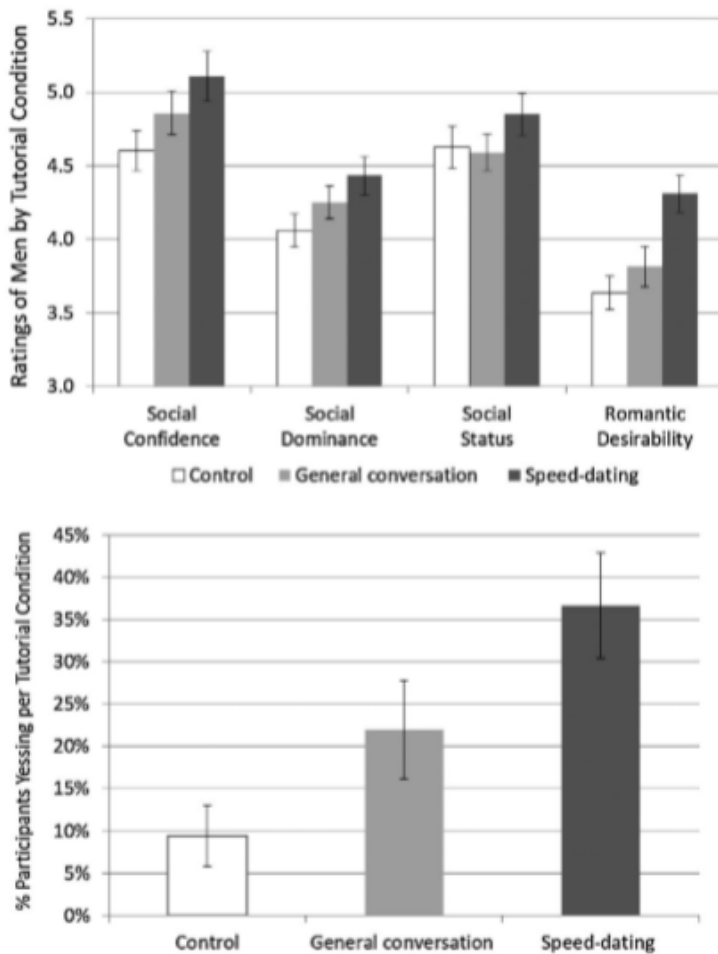
3.2.2 Yessing

Female raters yessed men who had received the speed-dating tutorial ($M = 0.37$, $SD = 0.49$, 95% $CI = [0.25, 0.50]$) and general-conversation tutorial ($M = 0.22$, $SD = 0.42$, 95% $CI = [0.12, 0.36]$) more often than men in the control condition ($M = 0.09$, $SD = 0.29$, 95% $CI = [0.04, 0.19]$; speed dating vs. no tutorial: $B = 1.73$, odds ratio $= 2.94$, $p = .003$; conversation vs. no tutorial: $B = 1.01$, odds ratio $= 1.77$, $p = .077$). There was no significant difference in yessing between men who received the speed-dating versus general-conversation tutorial ($B = 0.73$, $p = .116$). When confidence, dominance, and status were entered into the same regression model predicting "yessing," confidence was a significant predictor, $B = 0.99$, odds ratio $= 2.69$, $p = .001$, but not dominance, $B = -0.29$, $p = .397$, or status, $B = 0.30$, $p = .271$. Confidence mediated the effects of the speed-dating tutorial (vs. no tutorial), $B = 1.22$, 95% $CI (0.40, 3.54)$, and general-conversation tutorial (vs. no tutorial), $B = 1.00$, 92% $CI (0.01, 2.30)$, on yessing.

3.3 Discussion

Using a within-subjects design, we replicated and extended the results of Study 1. Men who received a speed-dating tutorial were perceived as having higher social confidence, dominance, and status than those who did not receive any tutorial. However, only perceptions of social confidence led to greater romantic desirability and mediated the positive effect that the speed-dating tutorial had on romantic

desirability and being yessed for further contact. Similar effects were found for the general-conversation tutorial as for the speed-dating tutorial. Taken together with the greater lack of effects found for this condition in the previous study, this suggests that receiving a tutorial on making conversation in general—something obviously relevant, albeit not as directly, to the specific social situation at hand—is somewhat effective in boosting perceived social confidence and desirability in a specific context.

4 STUDY 3

We sought to extend Studies 1 and 2 in two ways. First, given that the mate preference literature distinguishes between short- and long-term mating contexts and that preferences are adaptively attuned to each context (Buss & Schmitt, 1993; Confer, Perilloux, & Buss, 2010; Kenrick et al., 1993; Li & Kenrick, 2006), we wanted to explore how social confidence is valued depending on the relationship context. On the one hand, like social status (e.g., Buss, 1989; Li et al., 2002), confidence may be more valued by women for long-term, committed relationships. On the other hand, like social dominance (e.g., Sadalla et al., 1987), confidence may be more highly valued for short-term sexual relationships. As the literature is not clear on which way is more theoretically correct, we sought to obtain some clarity via empirical examination.

Second, given that the consistent pattern found across both studies suggests that a tutorial can help people be perceived as more confident and desirable in a social situation, we pondered more broadly, why isn't everyone watching such tutorials or seeking training? While an investigation of the likely multiple reasons is beyond the current scope (though these may include instrumental reasons like time and cost and psychological reasons like the self-perception that one is confident enough), we considered one potential drawback to becoming trained: people may view learning how to handle specific social situations as disingenuous. For instance, if other people somehow knew that an individual had undergone training to learn how best to handle an evaluative social interaction, this may undermine confidence perceptions and lead to negative evaluations of that person—in particular, lowered perceived trustworthiness. Such a negative evaluation may be especially detrimental to romantic desirability in long-term relationships, where cooperation is necessary (Valentine et al., 2020). Hence, in Study 3, we examined the effects of male self-confidence (using a different, quasi-experimental methodology) and female knowledge (that a man has undergone training for handling and creating attraction in opposite-sex encounters) on male short-term and long-term romantic desirability.

4.1 Method

4.1.1 Participants

Participants were 46 female undergraduates (M age = 20.10, SD = 1.03) at a major university who earned psychology course credit.

4.1.2 Procedure

To manipulate confidence, we announced a free speed-dating-like event to people at the dating skills company who had just completed an extensive, live dating-skills training program (48 hr of interactive classes) and to those who had not yet done so but intended to do so (they had just attended a free seminar held by the company). We took the first four men from each group who responded to the announcement to serve as targets. A pre-study survey (1 = not at all confident, 7 = very confident) confirmed that the trained targets felt significantly more confident about their ability to obtain positive outcomes in speed-dating-style initial opposite-sex encounters (M = 6.00, SD = 0.82) than the untrained targets (M = 3.75, SD = 0.96), $t(6)$ = 3.58, p = .012. Independent of the confidence quasi-conditions, for each female participant, half the male targets were randomly assigned to one of two training knowledge conditions. That is, female participants were told that their chat partner

(irrespective of their actual training) had either undergone a dating-skills training program (told-trained condition), or had not undergone any training program (told-untrained condition). This information was conveyed to each female participant in instructions they received upon signing in for the study:

Among each set of 4 male chatters, 2 have undergone dating-skills training, while another 2 have not undergone any such training. Men who have undergone training have been coached on how to chat up and attract women. Whether or not these male participants have undergone the training will be indicated next to their participant number.

Male targets were not informed of this random assignment or of the training knowledge variable.

We held 12 chatting sessions. In six sessions, 22 female participants individually chatted with a set of four male participants who represented each of the 2 (self-confidence) x 2 (training knowledge) within-subject conditions. In the other six sessions, another 24 female participants chatted with the other set of four male participants representing the same four conditions.

4.1.3 Materials

After each 4-min chatting round, participants rated their date-target (1 = extremely below average, 7 = extremely above average) on social confidence (composed/together, socially confident; $\alpha = .86$), trustworthiness (honest, trustworthy; $\alpha = .84$), and romantic desirability (sexually attracted to, willing to date, liked partner, partner liked you; $\alpha = .83$). After sequentially chatting with the four male targets of a set, the female participants indicated which one of the men they most preferred for a long-term, committed relationship, and which one they most preferred for a short-term, casual sexual relationship.

Comparative CFAs confirmed the distinctiveness of the confidence and trustworthiness constructs. Fit statistics met acceptable criteria for the unconstrained Two-Factor Model: $\chi^2 = 1.39$, $df = 1$, $p = .239$, $CFI = 1.00$, $RMSEA = 0.05$, but not for the One-Factor Model with the covariance between confidence and trustworthiness set equal to one: $\chi^2 = 126.20$, $df = 2$, $p < .001$, $CFI = 0.53$, $RMSEA = 0.58$. The correlation coefficient between these two constructs was nonsignificant ($r = .08$, $p = .260$). A chi-squared difference test confirmed that our Two-Factor Model was significantly better than the One-Factor Model, $\chi^2 = 124.81$, $df = 1$, $p < .001$. Thus, we averaged the confidence and trustworthiness items separately.

4.2 Results

To promote fair comparisons across different studies, we conducted multilevel linear regression analyses with the same random intercepts used in Studies 1 and 2 to examine the effects of self-confidence (confident vs. not confident) and training knowledge (told-trained vs. told-untrained). Perceived social confidence and trustworthiness served as mediators, and romantic desirability constituted a dependent variable. Figure 3 (top) presents the means of social confidence, trustworthiness, and romantic desirability across different conditions of self-confidence or training knowledge in Study 3.

FIGURE 3: The means of the dependent variables across the conditions in Study 3. Top half: Dependent variables as a function of self-confidence (left) and training knowledge (right). Bottom half: Women's choice of target-partners as a function of relationship duration and self-confidence (left), and relationship duration and what they were told about training (right). Bars indicate mean percent of being individually chosen per confidence condition (left) or knowledge condition (right) within each relationship duration (where a total four target choices were offered). Error bars indicate one standard error above and below the means
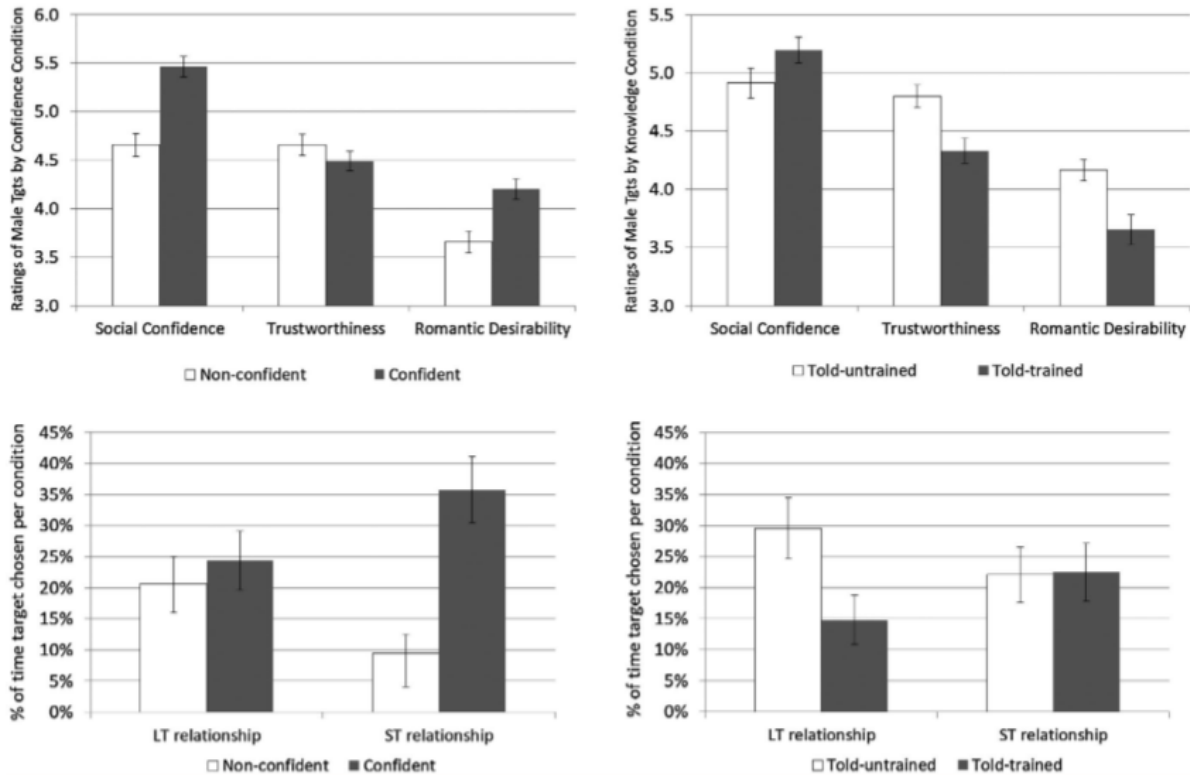
Results indicated that self-confident male targets were perceived as being more socially confident ($M = 5.46$, $SD = 0.99$, 95% $CI = [5.25, 5.68]$) than non-confident targets ($M = 4.66$, $SD = 1.10$, 95% $CI = [4.43, 4.89]$), $B = 0.82$, $\Delta R^2 = .18$, $p < .001$. The effect of self-confidence on trustworthiness was not significant, $B = -0.19$, $p = .120$. Results also indicated a positive effect of training knowledge on social confidence, and a negative effect of knowledge on trustworthiness. Specifically, male targets labeled as having received training (told-trained condition) were considered to have higher social confidence ($M = 5.20$, $SD = 1.01$, 95% $CI = [4.97, 5.42]$) but lower trustworthiness ($M = 4.33$, $SD = 1.00$, 95% $CI = [4.11, 4.55]$) than unlabeled (told-untrained) targets (confidence: $M = 4.91$, $SD = 1.20$, 95% $CI = [4.66, 5.16]$, $B = 0.31$, $\Delta R^2 = .02$, $p = .039$; trustworthiness: $M = 4.80$, $SD = 0.90$, 95% $CI = [4.61, 4.99]$, $B = -0.48$, $\Delta R^2 = .10$, $p < .001$). In addition, we did not find significant interactions effects of self-confidence and training knowledge on perceived confidence ($B = -0.49$, $p = .107$) or trustworthiness ($B = 0.44$, $p = .071$).

4.2.1 Romantic desirability

Self-confident male targets were considered more romantically desirable ($M = 4.20$, $SD = 0.98$, 95% $CI = [3.99, 4.42]$) than non-confident targets ($M = 3.66$, $SD = 1.05$, 95% $CI = [3.44, 3.88]$), $B = 0.52$, $\Delta R^2 = .13$, $p < .001$. Male targets labeled as having received training (told-untrained condition) were considered lower in romantic desirability ($M = 3.65$, $SD = 1.15$, 95% $CI = [3.40, 3.90]$) than unlabeled (told-untrained) targets ($M = 4.16$, $SD = 0.88$, 95% $CI = [3.98, 4.35]$), $B = -0.50$, $\Delta R^2 = .12$, $p < .001$.

When perceived social confidence and trustworthiness were entered into the regression model predicting romantic desirability, both perceived confidence, $B = 0.23$, $\Delta R^2 = .09$, $p < .001$, and trustworthiness, $B = 0.25$, $\Delta R^2 = .02$, $p < .001$, were significant predictors. Simultaneous mediation analyses were thus, conducted to evaluate the mediating effects of both variables. Perceived social confidence significantly mediated both the effects of self-confidence on romantic desirability, $B = 0.18$, 95% CI (0.08, 0.32), and the negative effects of training knowledge (told-trained vs. told-untrained) on romantic desirability, $B = 0.07$, 95% CI (0.003, 0.161). Given that only training knowledge significantly influenced trustworthiness, we examined trustworthiness as a mediator of the relationship between knowledge and romantic desirability. Trustworthiness significantly (and negatively) mediated the effects of training knowledge on romantic desirability, $B = -0.12$, 95% CI (−0.22, −0.04).

4.2.2 Relationship partner choice

To account for dependent responses within a female participant and the differences from different sets of male targets,[1] we conducted multilevel logistic regression analyses with the same random intercepts (i.e., females' identification numbers and identification numbers that differentiate between different sets of male participants) as used previously to examine how target self-confidence and training knowledge affect participants' choices for short- and long-term partners (target selected = 1; target not selected = 0). An additional categorical variable (relationship duration: short- vs. long-term) was created to indicate the difference between the two types of relationships. In the regression models, self-confidence, knowledge, relationship duration, and their interaction terms (relationship duration × training and relationship duration × knowledge) were used as predictors of partner choice.

The relationship duration × confidence interaction was significant, $B = 1.49$, $p = .010$. Specifically, as shown in Figure 3 (bottom left), female participants strongly preferred self-confident targets ($M = 0.36$, $SD = 0.48$, 95% $CI = [0.25, 0.47]$) to non-confident targets ($M = 0.09$, $SD = 0.29$, 95% $CI = [0.04, 0.18]$) for short-term relationships, $B = 1.68$, odds ratio = 5.38, $p < .001$. In contrast, the difference in partner preference between the non-confident target ($M = 0.21$, $SD = 0.41$, 95% $CI = [0.13, 0.31]$) and the self-confident target ($M = 0.24$, $SD = 0.43$, 95% $CI = [0.16, 0.35]$) was not significant for long-term relationships, $B = 0.19$, $p = .608$.

The relationship duration × training knowledge interaction was marginally significant, $B = 0.94$, $p = .089$. Men were less likely to be chosen as long-term partners when women were told that the men were trained ($M = 0.15$, $SD = 0.36$, 95% $CI = [0.08, 0.24]$) vs. untrained ($M = 0.30$, $SD = 0.46$, 95% $CI = [0.20, 0.40]$, $B = -0.88$, odds ratio = 0.42, $p = .025$). In contrast, there was no significant difference in partner preference for the told-trained target ($M = 0.23$, $SD = 0.42$, 95% $CI = [0.14, 0.33]$) versus told-untrained target ($M = 0.22$, $SD = 0.42$, 95% $CI = [0.14, 0.32]$) for short-term relationships, $B = 0.07$, $p = .862$ (Figure 3, bottom right).

Long-term mate choice

When perceived social confidence and trustworthiness were entered into the regression model predicting the forced-choice long-term mate, trustworthiness was a significant predictor, $B = 0.54$, odds ratio = 1.72, $p = .014$, but not social confidence, $B = 0.05$, $p = .791$. Thus, a mediation test was conducted to evaluate the mediating effects of trustworthiness. Trustworthiness significantly (and negatively) mediated the effects of training knowledge on long-term mate choice, $B = -0.26$, 95% CI (−0.54, −0.05).

Short-term mate choice

When perceived social confidence and trustworthiness were entered into the regression model predicting short-term mate choice, confidence was a significant predictor, $B = 0.57$, odds ratio = 1.76, $p = .013$, but not trustworthiness, $B = 0.02$, $p = .927$. A mediation test indicated that perceived social

confidence significantly mediated the effects of self-confidence on short-term mate choice, $B = 0.46$, 95% CI (0.09, 0.91).

4.3 Discussion

We extended previous results, finding that male targets who were self-confident about chatting with the opposite sex were perceived as more socially confident and romantically desirable than male targets who were likely equally interested in meeting and chatting with women but were not confident about their abilities. Moreover, women's perceptions of the male targets' social confidence mediated the effects of male self-confidence on romantic desirability.

To gain further insights, we examined the short-term and long-term relationship distinction as well as the effects of knowing that a target has received training on how to conduct the conversations under consideration. Self-confident male targets had a greater likelihood of being chosen as a short-term but not long-term mate, and this process was mediated through greater perceptions of social confidence.

Knowledge that target-partners had undergone training, regardless of whether they actually did, led to higher perceptions of the target-partners' social confidence and social confidence-mediated romantic desirability, but lower perceptions of their trustworthiness and lower trustworthiness-mediated romantic desirability. The negative effects of trustworthiness were relatively stronger, as the overall effect of training knowledge on romantic desirability was negative. Furthermore, knowledge of men having been trained led to a lowered likelihood of choosing the men as a long- but not short-term mate, and this process was mediated via lowered perceptions of trustworthiness. Thus, a drawback and potential reason why more men (at least those men interested in long-term relationships) don't seek out tutorials or training to boost their confidence in social situations may be that others, if they find out, may view them as disingenuous and less, rather than more, desirable. That said, being self-confident (perhaps from actual training) appears useful for improving men's short-term mating outcomes regardless of whether women think it comes from training or not.

5 GENERAL DISCUSSION

Across three experimental studies, we obtained support for the idea that an introductory tutorial can boost perceived confidence in an evaluative social situation, and that this confidence is associated with being more desirable in that situation. Specifically, men who received a video tutorial on how to approach opposite-sex speed-dating-style encounters felt more confident about their ability to handle an initial opposite-sex interactions (Studies 1 and 2). These men, as well as male targets who felt socially self-confident (from extensive training in dating skills, Study 3), were perceived by women with whom they interacted briefly to have higher social confidence and greater romantic desirability (Studies 1, 2, and 3).[2] Tutorial-trained men also received greater partner consent for exchanging contact information (Study 2) and self-confident male targets were more often chosen as a short-term––but not long-term—mate (Study 3). In Studies 1 and 2, mediation analyses indicated that a specialized tutorial led to higher levels of each of these dependent variables through greater perceptions of social confidence. The tutorial also increased women's perceptions of the male participants' social status and social dominance, though these assessments were not associated with greater desirability or desire for further contact.

Interestingly, the more-generalized tutorial video also demonstrated some effectiveness in boosting perceived social confidence, dominance, status, and romantic desirability. In Study 2, the general-conversation tutorial was similarly effective as the speed-dating tutorial. Given the overlap in content and the obvious importance of making conversation in speed dating, these results are not surprising. Moreover, these results suggest that receiving relevant information can produce positive effects on men in mating-relevant situations and that general training may extend beyond specific contexts like mating. The differences in romantic desirability associated with tutorial type, however, suggests that there are mediators yet to be identified.

Finally, our investigation revealed a potential downside of training for social situations. That is, being told that a partner had undergone training to effectively talk to and attract women in initial opposite-sex encounters led to lowered assessments of the men's romantic desirability and likelihood of being chosen as a long-term (but not short-term) partner via lowered perceived trustworthiness. Taken together, our findings indicate that social confidence can be trained and that *other*-perceived social confidence plays an important role in evaluative social interactions.

5.1 Contributions and implications

The work presented here offers several contributions. First, the findings fit with and add to the literature on self-efficacy (Bandura, 1977, 1997; Stajkovic & Luthans, 1998), which has been found to be related to actual task performance in many contexts. Confidence in one's task-related ability increases effort and persistence toward challenging tasks (Barling & Beattie, 1983) while reducing stress and anxiety experienced when engaged in a task (Pajares, 1997), and individuals who have higher self-efficacy recover faster from setbacks than those who do not (Karademas, 2006). Our studies are compatible with but also extend this research by indicating how others' perceptions of one's confidence in an evaluative social situation result in positive assessments and greater opportunities granted to that person.

Second, the current work builds on research showing that people's perceived self-efficacy or confidence in handling a specific task can be boosted by viewing a video of others performing the task (Kardas & O'Brien, 2018), receiving some relevant information about the task (Hall et al., 2007; Marteau, Wynne, Kaye, & Evans, 1990), or interacting with others faced with the same task (Heath & Gonzalez, 1995). These prior studies found that people's increased self-confidence was not matched with a similar increase in actual performance, thereby indicating that the training led to being overconfident about task performance. Similarly, in the current studies, people learned how to better handle the social interaction but not the long- and short-term relationships underlying the social situation.

Third, the current work expands the human mating literature in multiple ways. Although numerous behavioral tactics for romantic attraction have been documented (Buss, 1988), the effectiveness of self-presentation strategies has rarely been examined in actual mating contexts (e.g., Oesch & Miklousic, 2012), where behaviors can be observed and judgments and decisions have real consequences. By experimentally studying social confidence in live, interactive contexts, we expand this literature, which includes studies where women report being attracted to men who express confidence in their online profiles (Brand et al., 2012), are overconfident in their abilities (Murphy et al., 2015), come across as socially dominant in videotaped introductions (Gangestad et al., 2004; Sadalla et al., 1987), and who behave dominantly in bars (Renninger et al., 2004). Our studies suggest that social confidence is an understudied trait that is at least as important as social status and dominance and is a trait that women pay attention to and base their decisions on in mating contexts.

The present work also contributes to the mate selection research recently conducted in live-interactive contexts (e.g., Asendorpf, Penke, & Back, 2011; Fisman, Iyengar, Kamenica, & Simonson, 2006; Fletcher, Kerr, Li, & Valentine, 2014; Li et al., 2013; Luo & Zhang, 2009). With few exceptions (Buunk, Dijkstra, Fetchenhauer, & Kenrick, 2002), this work and the extensive body of research on mate preferences (e.g., Buss, 1989; Li et al., 2002; Kenrick, Sadalla, Groth, & Trost, 1990; Kenrick et al., 1993) have not included, let alone focused on, social confidence in their investigations, despite its potentially central importance in mating judgments and decisions.

Women finding social confidence to be particularly desirable for short-term but not long-term relationships are also consistent with social confidence being associated with social dominance, which has been shown to be sexually attractive to women and theorized to be a signal of good genes (Gangestad & Simpson, 2000; Sadalla et al., 1987). While some individuals may be naturally inclined toward dominance and confidence, the work here suggests that confidence, at least in some social

contexts, can be learned. Future research can further investigate the relationship between these traits as well as why they are sexually desirable.

The finding that romantic desirability is decreased through lowered perceptions of trustworthiness when people think that a potential long-term mate has acquired training for an evaluative social situation is consistent with people viewing training for such contexts as deceptive. Indeed, trustworthiness has been shown in mate preference studies to be particularly valued in long-term relationships (Fletcher, Simpson, Thomas, & Giles, 1999; Fletcher, Tither, O'Loughlin, Friesen, & Overall, 2004), and in newlywed couples (Valentine et al., 2020). Moreover, people recognize that deception occurs not only in mating but also along dimensions that reflect the mating criteria of the other sex (e.g., Benz, Anderson, & Miller, 2005), suggesting that some deception is tolerated. Moreover, attributions of deception suggest that individuals are only dressing up surface impressions but not actually improving underlying traits. Another related possibility is that male participation in dating training may indicate a greater orientation toward numerous short-term relationships, which then decreases one's trustworthiness for long-term, committed relationships. Future research can investigate the extent to which decreased trustworthiness and long-term desirability are due to such assessments, and whether decreased trustworthiness from knowledge of training extends to other domains (e.g., friendship, work).

Fourth, the findings support our reasoning that confidence evolved as an honest signal that allows senders to quickly convey their competencies and receivers to save time and effort in evaluating others. Relatedly, it demonstrates how a psychological mechanism—in this case, one that induces individuals to respond favorably to cues of social confidence—can be gamed in modern settings to trigger that mechanism. Together, these ideas shed light on why an industry on improving social confidence can thrive and how improving one's social confidence can work. Future research can further investigate these ideas, including, as described further below, the extent to which confidence signals trigger favorable responses in other social domains.

Fifth, and more broadly, the current findings are compatible with an evolutionary mismatch perspective, which purports that due to rapid technological and cultural change, we now encounter various evolutionarily novel conditions for which our psychological mechanisms are not equipped to produce adaptive outcomes (Giphart & van Vugt, 2016; Li et al., 2018). Such contexts include the presence of virtual competitors and potential mates (Sbarra, Briskin, & Slatcher, 2018; Yong, Li, Valentine, & Smith, 2017), being isolated from kin and support networks (Hahn-Holbrook & Haselton, 2014), and the presence of bureaucracy, job uncertainty, overloaded schedules, and other chronic stressors (Brenner et al., 2015). Speed dating or, more generally, mate selection that is entirely dictated by individuals without involvement from family, may be a fairly novel context (Apostolou, 2007, 2015; Apostolou, Shialos, & Georgiado, 2019). As such, people may be particularly ill-equipped by default to handle such contexts and, consistent with self-efficacy being most improvable amongst those who have low self-efficacy (Gist & Mitchell, 1992), especially likely to experience a boost in self-efficacy (and other-perceived confidence when performing in such a context) from some basic training. Future research can examine the extent to which people gain self- and other-perceived confidence from receiving tutorials for handling evolutionarily novel versus familiar contexts (above and beyond personal familiarity in general).

5.2 Limitations and future directions

Although the studies lend causal support or our hypotheses on social confidence, our research is not without limitations. As we consider here, the current set of studies opens up numerous questions and ideas for future work. In Study 3, our male targets similarly had interest in learning about how to talk to the opposite sex, but differed in their confidence, due to whether or not they had already completed a dating skills program. Although we have no reason to believe that the two types of targets differed on any other key variables that differentially affect the outcome variables, we cannot be entirely sure. Another concern is that these targets' behaviors may not extend to the entire population. Studies 1 and

2 help allay such concerns, as they showed that targets who had not previously indicated interest in dating skills and were randomly selected into the experimental conditions demonstrated similar effects. Nonetheless, future research may benefit from examining broader and larger samples of individuals.

Because women have been extensively theorized and shown to evaluate men more critically than men evaluate women for potential romantic/sexual relationships (e.g., Buss & Schmitt, 1993) and to seek confidence in mates more than men do (Buunk et al., 2002), we focused on investigating women's perception of and attraction toward male confidence (Brand et al., 2012). Regardless, as attraction is a dyadic process, it would also be informative to study whether men's attraction toward women can be similarly increased. Given the hypothesized link between social confidence and resources, and the demonstrated link between social confidence and dominance and status—traits that, for various reasons are desired more by women than men (e.g., Buss, 1989; Sadalla et al., 1987), a socially confident woman may not elicit as much positive evaluation and willingness to engage in further contact from men. Moreover, social confidence may also reflect a person's willingness to engage in the relationship that underlies an evaluative situation. Especially for short-term sexual relationships, for which men tend to be eager, readiness may be viewed positively. For instance, men interested in short-term relationships respond positively when told "I love you" by a romantic partner (an expression perhaps associated with self-confidence), but only before a relationship has become sexual (Ackerman et al., 2011). Men also react favorably to women who approach them and directly indicate interest (Wade, Buttrie, & Hoffman, 2009). Future research can examine these ideas.

Relatedly, we did not screen our participants on sexual orientation. Because non-heterosexual individuals constitute a relatively small proportion of the population and our results were obtained despite the possibility that non-heterosexual individuals responded differently than what we predicted for heterosexual individuals, this is likely not a large concern. Nonetheless, sexual orientation is an interesting factor to examine for future research. Because homosexual men tend to have similar preferences for youth and attractiveness and do not value social status in their partners as heterosexual men do, and lesbian women tend not to desire social status as much as heterosexual women do (e.g., Bailey, Gaulin, Agyei, & Gladue, 1994; Kenrick, Keefe, Bryan, Barr, & Brown, 1995), displaying confidence and responding to such displays may not be as important among people with non-heterosexual orientations versus heterosexual individuals.

More broadly, we focused on a particular setting in one social domain (initial opposite-sex encounters) to examine various aspects of our hypotheses. Further research can examine the extent to which the effects found in the current investigation generalize to other contexts. One setting to examine is the workplace, where self-efficacy has been shown to be related to task performance across diverse settings (Lee & Gillen, 1989; McCormick, 2001; Pajares & Miller, 1994). Studies can be constructed featuring opportunities to evaluate individuals in interactive workplace contexts. In line with the current framework and findings, staff, coworkers, employers, and bosses may be more likely to follow, cooperate with, hire, and promote individuals who demonstrate social confidence in various key workplace social settings. Similarly, in line with work linking self-efficacy and perceived competence, individuals who are perceived to be socially confident may be more likely to be afforded leadership positions. Moreover, researchers can examine whether occupation-specific social training is required to show such effects or if general social training could spill over into this domain as well.

Our choice of context was based on the assumption that because social pressures are higher and important outcomes such as relationships are at stake in situations where an individual is being evaluated than they are in nonevaluative situations (e.g., chatting at a bus stop), social confidence would be more diagnostic of quality in the former situation. Although this view follows from our theorizing and fits with research on social facilitation (Markus, 1978; Zajonc, 1965), we did not explicitly test this assumption. Future studies can examine this possibility by varying whether situations are evaluative or nonevaluative. We would predict that confidence is more difficult to

project and more impactful when expressed and perceived by others in situations that are more clearly evaluative and when desirable relationships are at stake.

A question left unaddressed is what makes a tutorial particularly effective in improving social confidence? Our tutorials were consistent with past research, indicating that task self-efficacy can be boosted through video-based observational learning (Kardas & O'Brien, 2018), relevant information (Hall et al., 2007; Marteau, Wynne, Kaye, & Evans, 1990), and interacting with others (Heath & Gonzalez, 1995). Although we obtained evidence that the content specificity of the tutorial may make some difference in its effectiveness, the identification and examination of factors that most successfully affect social confidence was beyond the current investigation. Future research may benefit from a more careful investigation of such factors, which are likely numerous. Similarly, although Study 3 was not set up to properly examine the efficacy of extensive social training programs, the findings are nonetheless consistent with the possibility that live training programs are effective in boosting confidence and achieving favorable social outcomes. Moreover, future research can investigate the learnability of other traits that people respond positively to in social situations, such as humor.

If people accord more benefits to those who appear confident in social situations, there is an opportunity for deception: projecting more confidence than warranted by one's abilities and qualifications (Murphy et al., 2015). This may be especially the case in situations where verifiability is lower, such as when dealing with strangers. Researchers can examine this possibility by varying the level of anonymity and verifiability in a social situation and observing the resulting effects on confidence projection. Con artists, including the legendary Fred Demara, who skillfully impersonated various professionals including a psychologist, teacher, religious leader, and surgeon (Crichton, 1959), exemplify how social confidence, when left unchecked, can lead to enormous opportunities. Similarly, the high (but potentially unwarranted) confidence projected by some narcissistic individuals can cause them to be initially perceived as highly charismatic, attractive, and capable (e.g., Campbell, 1999; Soyer, Rovenpor, & Kopelman, 1999) and thus, deserving of favorable treatment.

We did not find increased social confidence to have negative effects on trustworthiness. Researchers may wish to investigate other traits that could be negatively impacted by social confidence. Overconfidence, for instance, has been associated with arrogance, which decreases desirability (Murphy et al., 2015). Downsides of self-confidence have also been studied in conjunction with leadership. This body of literature has found that although self-confidence is beneficial to leaders in many ways, including being perceived by others as more competent and achieving greater influence over others (Anderson, Brion, Moore, Kennedy, & King, 2012), a confident individual may in some situations decrease others' participation (Locke & Anderson, 2015) and be perceived as unwilling to take advice (See, Morrison, Rothman, & Soll, 2011). As such, it is possible that social confidence might be associated with traits like lower Openness and Agreeableness, and that people may not favor confident individuals in contexts that require such traits.

Finally, we found that although increased social confidence was associated with greater perceptions of social status and dominance, these two traits did not lead to greater perceived romantic desirability or more favorable treatment. This is consistent with our hypothesis that women have evolved to respond positively to social confidence per se, above and beyond the social status and dominance suggested by such confidence. Another possibility is that social confidence is more easily observable than status or dominance, especially in the modern context that we utilized. Future research can further investigate how these three traits are interrelated and how they interact in social judgments and decision making in mating and other social domains.

5.3 Conclusion

Social confidence has been portrayed in novels and movies and has occupied the focus of numerous self-help books, videos, and seminars. Yet, until now, it has been largely neglected as a subject of study. As the results of the current investigation suggest, social confidence significantly impacts evaluations and relationship-related outcomes in social situations. Indeed, an important reason why people with high self-efficacy or self-confidence are able to successfully achieve their goals is that in social contexts, other people not only are able to perceive their self-confidence but also hold that quality in high regard. Given the strength of the current findings and their potential links to various lines of work, we have no doubt that future research in this area will continue to uncover important insights into human social dynamics.

CONFLICT OF INTEREST

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

ENDNOTES

[1] We conducted further analyses (i.e., multinomial logistic regression and mixed multinomial logit models) to account for the dependent nature of a choice set in the Supplemental Materials and found consistent patterns between the results of multilevel logistic regression models and the results of multinomial logistic regression and mixed multinomial logit models. We reported the results of the multilevel logistic regression analyses in the main text to keep our statistical analyses consistent across the different studies, which allows for fair comparisons.

[2] In the Supplemental Materials, we calculate the percentile gains on romantic desirability associated with training for each individual male in the training condition for all three studies.

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