ATTRACTION AND ITS EFFECTS ON FACIAL RECALL AND RECOGNITION

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by
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Abstract

People’s memory for faces varies greatly. Emotions and facial appearance are two factors that influence memory for faces. When emotions are associated with a face, that face is more memorable. However, the literature on the effects of facial appearance on memory is contradictory. While there has been much research on romantic attraction, none of that research extends to memory for faces. The present study examined the role of romantic attraction on recall and recognition for faces. It was hypothesized that being attracted to a face would improve recall and recognition. Seventeen male and 71 female undergraduate psychology students were asked to indicate their attraction to fake profiles presented in dating profile booklets. After participants completed filler questionnaires, they were asked to recall details of the face they were most attracted to and recognize that face versus a random face from lineups. Greater attraction was not definitively associated with greater recall for faces, but number of facial details recalled was associated with the accuracy of recall. Females were found to be better able to completely recall details of the face they were attracted to if they also recognized the face, whereas males showed no difference in recall whether they recognized the face they were most attracted to or not. Study results were interpreted in relation to the literature examining the role of emotional context in facial memory.

*Key Words: Attraction, Recognition, Recall, Attractiveness, Faces.*
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Table of Contents

Abstract ......................................................................................................................... 2
Acknowledgements .......................................................................................................3
Introduction ..................................................................................................................5
Method .........................................................................................................................11
  Participants ..............................................................................................................11
  Materials ...............................................................................................................11
  Procedure ..............................................................................................................13
Results .........................................................................................................................17
Discussion ...................................................................................................................22
References ..................................................................................................................25
Appendices ..................................................................................................................28
  A (Ethics Approval) ...............................................................................................28
  B (Informed Consent Form) ....................................................................................29
  C (Example Dating Profile) ...................................................................................30
  D (Free Recall Sheet) ............................................................................................31
  E (Debriefing) .......................................................................................................32
Attraction and Its Effects on Facial Recall and Recognition

People’s ability to recall or recognize a familiar face varies. Some individuals are inherently bad at remembering faces, while others remember them with ease. One can meet someone for the first time at work and not recognize them a few days later at the supermarket. However, if you are attracted to someone, is it more likely you would be able to recognize their face? Emotions associated with love are strong and may make objects of romantic desire, including faces, more memorable (Fisher, Brown, Aron, Strong & Mashek, 2010). Therefore, when one is attracted to somebody it is plausible that romantic desire may make it easier to recognize and recall details about their face. To understand the possible relationship between attraction and memory for faces, it is important to first understand what factors help humans remember faces.

Memory for Faces

Two factors greatly influence human memory for faces. One factor is facial appearance. For example, a face perceived as either trustworthy or untrustworthy is remembered better than a neutral face. Mattarozzi, Todorov, and Codispoti (2015) inserted faces within a newspaper article with a headline; the headline stated either a positive, negative, or neutral action performed by the person pictured. If the person pictured conducted a positive or negative action, they were more easily remembered than the person who conducted a neutral action.

Context is a second factor that affects the ability to remember the face (Gupta & Srinivasan, 2009; Mattarozzi et al., 2015). A face seen in a neutral context, for example, tends to be recognized as vaguely familiar. On the other hand, a face seen in either a pleasant or unpleasant context is better recalled, as episodic details are more likely to be associated
with the memory (Mattarozzi et al., 2015). This better recall is because of the engagement of
the emotion processing system when encoding a face into the memory system (Tsukiura &
Cabeza, 2011). Since the context in which the face is seen and the appearance of the face
both increase recall, does an attractive face improve recall because of its differing context
and appearance from that of a neutral face?

**Memory for Attractive Faces**

There is better recognition memory for the faces of attractive individuals, and in
particular for attractive females (Maner et al., 2003). The human brain processes the faces of
physically attractive people differently than average faces. Maner et al. (2003) displayed an
array of 15 faces to participants for four seconds. Both male and female participants over-
reported the number of attractive women in the array, while underreporting the number of
attractive males in the array. However, when the participants were given more time than four
seconds and could attend to all of the faces fully, the participants reported an equal
proportion of attractive men and women. Therefore, the brain seems to process the faces of
attractive women first over those of attractive men. Objective facial attractiveness thus can
effect the brain’s processing and memory ability for specific faces.

This bias towards attractive female faces is also demonstrated in memory matching
games such as *Concentration* (Becker, Kenrick, Guerin, & Maner, 2005). *Concentration*
consists of having many pairs of identical playing cards placed face down in random order on
a table. The objective of the game is for a player to find each matching pair in the least
amount of turns, as one is able to flip only two cards per turn. If the cards that are turned over
match, they are kept face up. If the two cards turned over are not a match, they are turned
back over (to a face down position) and the location of these cards should then be kept in
one’s memory in order to make a future match. In an experimental version of this game in which the cards had identical pairs of male and female faces, the pairs of identical female attractive faces facilitated easier matching compared to other pairs (Becker et al., 2005).

Neural mechanisms can help to explain why attractive faces are better recognized. Activity in both the right orbitofrontal cortex and left hippocampus (the former representing emotion and reward systems in decision making; the latter being a key memory structure in the brain) is greater when looking at attractive faces (Tsukiura & Cabeza, 2011). It follows that facial attractiveness then effects our processing of faces throughout the entire memory system, as the activity in these two areas implies attractiveness is what makes a face more memorable. However, more than just neural correlates need to be considered as evidence for this effect, as other aspects of the human face can alter one’s perception of a face’s attractiveness. Some of these aspects are race, beauty, expression, and the curiosity of the observer (Milord, 1978). When these aspects of attractive faces are not considered, research regarding facial attraction may be confounded.

One such confound is distinctiveness. Wickham and Morris (2003) found no relationship between the attractiveness of a face and the ability to remember it. Rather, they found that distinctive faces are just as easily, if not better, remembered. Thus, attractiveness may have less to do with remembering a face when compared to the distinctiveness of a face. Consider the possible confound of distinctiveness and attractiveness through the example of a popular celebrity, Angelina Jolie. Jolie is often portrayed and seen as an extremely attractive female. However, her facial features, and in particular her lips, are quite distinctive when compared to other attractive and average females. Therefore, it would be difficult to objectively tell whether it is the distinctiveness or attractiveness of her face that is making
her face memorable. However, could this confounding problem be avoided altogether if studies focused on a participant’s attraction to a face instead of the details of a face itself? Would a face one is attracted to produce more accurate details from recall than an attractive face?

**Attraction and Facial Memory**

According to the common cliché *beauty is in the eye of the beholder*, different people see different things as beautiful and may not agree on who is or who is not attractive (Langlois et al., 2000). Attraction may occur towards people whose faces are attractive, but yet also to faces that some would consider not attractive, therefore changing the emotional context in which a face is seen. This process of attraction would also likely effect neural processes when looking at a person’s face and deciding if one is attracted to them or not (Tsukiura & Cabeza, 2011), as the orbitofrontal cortex (which deals with emotion) would likely be employed if one feels attracted. Therefore, attraction may effect the memory processing of faces.

There are no studies that have considered a person’s attraction to a face in the context of memory for a human face, yet there seems to be plenty of reasons as to why attraction may effect the human ability to remember a face following the literature on neuronal processes and the emotional context of faces. Who we are attracted to is a complex phenomena, as many factors come into play. One such factor is mate preference. Li et al. (2013) researched mate preferences through speed-dating and online messaging platforms. When a mating pool from which individuals choose their mates has people at the low end of both physical attractiveness and social status, the sexes display sex-differentiated mate choices. Specifically, men value physical attractiveness more so than women, whereas women value
social status more so than men. These findings suggest that women have a higher chance of being attracted to a man based on the man’s personal and occupational information about his social status over the attractiveness of his face. Therefore, attraction is not dependent on an individual’s facial attractiveness or distinctiveness, especially in the case of females experiencing attraction towards males.

A second factor that promotes attraction is facial expression. Facial expressions are used to convey differing emotions. Tracy and Beall (2011) conducted two studies using different samples and images of faces in order to examine gender differences in the sexual attraction to happiness. Happiness was the most attractive female emotional expression, yet was one of the least attractive emotional expressions in males; pride was the most attractive male expression, but was one of the least attractive expressions in women. Therefore, attraction can also be subjective in terms of facial expression and sex depending on the participant.

Could the relationship between facial expression and attraction explain why some expressive, but not attractive faces are easier to remember? In order to determine the impact attraction has on a person’s memory for a face, it is important to consider real-life scenarios such as online dating. Is the attractiveness of the partner’s face sufficient to attract the participant to the online dating profile or are more complex aspects like the greeting or text passage that reveals common interests more important in this decision? In Hefner and Kahn’s (2014) study, it was not the attractiveness of the picture given in the hypothetical online dating profile that led the participant to decide they were attracted to a specific profile, but rather profiles that seemed warm attracted participants. However, Hefner and Kahn
interpreted their results in terms of the attractiveness of profiles and not attraction to profiles.

The attribution of effects to attractiveness without consideration of attraction continues to be common. Brand, Bonatsos, D’Orazio and DeShong (2011) had participants rate profile texts and photos independently in order to see if there was a relationship between authorship of a text and physical attractiveness. The attractiveness ratings between the photos and texts were associated, even though different participants rated them separately. While Brand et al. claimed that attractiveness was the key to their results, participants’ attraction to perceived social status within text passages was not considered.

In order to answer whether or not attraction plays a role in the memory for human faces, a study should focus explicitly on the attraction participants feel towards a face before testing their memory for that face. Thus, the present study attempted to test this relationship between attraction and facial recall and recognition. It was hypothesized that attraction to a face would increase recall and recognition. Therefore, there were two goals of the proposed study: 1) to reveal whether or not attraction to a face increases the ability to recall details about that face, and 2) to reveal if attraction to a face increases the ability to recognize the face of the person whom participants are attracted to compared to a randomly selected face. Therefore, the proposed study shed light on the role of attraction in the ability to remember a face, and reveal that it may not be merely the attractiveness of a face but rather attraction to a face that makes a face easier to recognize and recall.
Method

Participants

After approval from the University of Regina Ethics Board was gained (see Appendices A & B), participants were recruited through the Psychology Department Participant Pool. Inclusion criteria required participants to be between the ages of 18 to 25, and not to have any memory impairments or prosopagnosia (i.e., the inability to recognize faces). Participants also had to be willing to self-identify as to their gender and sexual orientation in order for the appropriate photo stimuli to be provided to them. However, they could still participate even if they did not disclose this information. It was expected that a diverse range of ethnicities and socio-demographic backgrounds would be included in the participant sample (Sharpe & Poets, 2017). Participants received a 1% course credit to be added to a first- or second-year psychology class of their choosing. Participant sample size was calculated through G*Power (Faul, Erdfelder, Lang, & Buchner, 2007) using a moderate effect size $f = .25$, alpha = .05, and power = .80. It was anticipated that a sample size of $N = 108$ would be needed to demonstrate supportive findings. However, because of time constraints and time slot cancellations due to snowstorms, only 17 male and 71 female undergraduate students were run through the study in its entirety.

Materials

Photos. Twenty photos of male faces and 20 photos of female faces were randomly selected from the Glasgow Unfamiliar Face Database. This database has photos of individuals who have given written consent for their images to be used in academic publications and research (Burton, White, & McNeill, 2010). Ten photos of each sex were randomly selected to comprise fake dating profiles, and the remainder of photos served as
foils for lineup tasks. Each face was associated with a letter before the study began (e.g., face 1 = A, face 2 = B). This procedure ensured that the researcher was able to identify which face (A, B, C, etc.) a participant circled as being most attracted to and to give the participant the correct lineup tasks.

**Text Passages.** The text passages were created by the researcher in a similar fashion to Hefner and Kahn’s (2014) study, and included the occupation, age, likes, and dislikes of a fake potential partner. The text passages also included a wide yet similar range of occupations, likes, and dislikes.

**Attraction Measure.** There were two questions that composed the attraction measure. Both questions took the form of a Likert scale ranging from 1 = *not attracted/interested at all* to 7 = *very attracted/very interested*. The two questions were: 1) How attracted are you to this profile?, and 2) If you were available, would you be interested in going on a date with the person in the profile? (see Appendix C).

**Dating Profile Booklets.** Each participant received a booklet composed of fake dating profiles. The dating profiles were structured in a similar fashion to the profiles in Hefner and Kahn’s (2014) study; a profile consists of a photo of the individual and a text passage stating the individual’s occupation, age, likes, and dislikes (again see Appendix C). Within each booklet, there were 10 profiles that included text passages and photos from the Glasgow Unfamiliar Face Database. The attraction measure was situated directly below each dating profile. On the title page of the booklet, instructions were given as follows: “Please view each profile within this booklet and complete the attraction measure at the bottom of each page. Once all the profiles within the booklet have been viewed, please circle the face of the person you are most attracted to, and cross out the face of the person you are least
attracted to.” Within each booklet the profiles were generated so that photos and text passages were assigned randomly to each other and not paired due to any biases from the researcher.

**Filler Tasks.** To introduce a delay of 15 minutes between viewing the dating profile booklet and the completion of recall and recognition measures, participants completed questionnaires in a similar fashion to Houston, Clifford, Phillips, and Memon’s (2013) study.

**Photographic Simultaneous Lineups.** There were 10 lineups in total (five male lineups and five female lineups), all of which were target present (TP). TP means that for each task either the person the participant found most attractive or the randomly selected face (the target) was present within the lineup. The lineups consisted of six faces. Two faces in each lineup appeared in the dating profile booklet, and the other four faces were foils not present in the dating profile booklets. The researcher selected the first lineup based on a participant’s dating profile booklet, as the researcher referenced the face the participant circled to note the face they were most attracted to. The researcher then selected the second lineup from referencing a list of randomly generated letters to indicate the random face the participant would be asked to identify for the second lineup task; depending on the letter the list stated as next in line, the participant would be then asked to identify that face for the second lineup task. Copies of each lineup were kept in a labeled folder with the corresponding face letters on the folder’s cover so that the researcher had easy access to the appropriate lineups.

**Procedure**

The present experiment’s procedure was a combination of Hefner and Kahn’s (2014) study on dating profile attraction, and Houston et al.’s (2013) study on emotional eyewitness
recall and recognition. After registration for an experiment time-slot of their choosing through the University of Regina’s Psychology Participant Pool website, participants came to a designated room to participate in the study. Participants were then asked to complete the informed consent form (see Appendix B) and told that they could withdraw anytime without penalty, and were informed that the data storage process was anonymous. After the participant read and signed the consent form, they were given a choice of either a male or female dating profile booklet. It should be noted that during the time in which they chose their booklet, the researcher turned away to file the consent sheet in order to let the participant choose in peace. The instructions to go through the profile booklet, complete the attraction measure at the bottom of each profile, and circle the face of the person they were most attracted to and cross out the face of the person they were least attracted to were given orally to each participant. Each participant worked independently, regardless if another participant was present in the room or not. Participants were asked to hand the researcher the booklet when completed. The participant was not allowed to see their dating profile booklet again after completion.

Once the participant completed the dating profile booklet, circled the face of the person they were most attracted to, and crossed out the face of the person they were least attracted to, they were given two filler questionnaires in a similar fashion to Houston et al. (2013). These filler questionnaires took approximately 15 minutes to complete, but the time varied depending on the participant. Either way, these filler questionnaires allowed enough time to pass so that facial recall was not influenced by the temporal proximity of the recall test to the viewing of booklets.
After the filler questionnaires were completed, the participant was given a recall sheet (see Appendix D) modeled after the free recall sheet of Houston et al. (2013). The recall sheet displayed the following instructions: “Please write down all the details you can remember about the face of the person you circled in the dating profile booklet. If needed, you will be able to write on the reverse side of this sheet.” Participants were also given these instructions orally. In order to score this recall sheet, the researcher looked at a participant’s question booklet to compare their free recall data with the face of the person they circled as most attractive. As in Houston et al.’s (2013) study, the proportion completeness of recall was calculated by dividing the number of correct details a participant recalls by the possible number of correct details they could have recalled. The set number for possible correct details recalled was seven. Proportion accuracy of recall was calculated by dividing the number of correct details a participant recalled by the total number of details recalled. After the participant completed filling out the recall sheet, they were given the first lineup task to complete.

For the first lineup task, participants were asked to identify if the person they circled was present in the lineup or not. They were told that the person they had circled in the profile booklet may or may not be present in the lineup, and if they saw them they should then write down the number corresponding with their face in the answer box. If they did not see the person they circled or were very unsure, they were instructed to write not here in the answer box. In the second lineup task, participants were asked to identify if a randomly chosen face from their dating profile booklet was present are not. The oral instructions given for this second lineup task were similar to the first, except the participants were asked if the person (identified by way of occupation in their specific dating profile booklet) was present or not.
This second lineup task acted as a within-subjects comparison group in order to see if a randomly selected face from the dating profile booklet still produced an effect on recognition/was recognizable. A random letter generator was used to pick one un-circled face within the dating profile booklet. If the letter that came up using the random letter generator was the letter for the face the participant circled, the researcher then picked the next letter. To reiterate, there were two types of lineups, one that included only male faces and the other with only female faces, which were administered depending on each participant’s dating profile booklet and the random letter generator. The lineups were organized by letter (e.g., “Lineup Including A and D”) for easy access. While the participant was completing the 15-minute filler task, the researcher chose the appropriate lineups for administration by looking at the random letter generator, the participant’s dating profile booklet, and the face of which they had circled.

To reiterate once more, participants were told that if they saw the person they circled in the lineup, they should pick them out of the lineup. If they did not see the person they circled, they should then have stated that the person is not there. As all were TP lineups, the participant could correctly pick out the person whom they were most attracted to (a hit), incorrectly pick a wrong face (a false-positive), or state the person was not there (a miss). This procedure was then repeated for the second lineup task and random face, and the participant was then asked if a person from a specific profile was included in another lineup. This procedure was intended to test the relationship between attraction and facial recognition. Upon completion of the lineup task, the participant was given the debriefing sheet (see Appendix E), asked if they were still all right with the researcher using their data and if they had any questions, and lastly thanked for their time.
Results

The proportion completeness of recall was calculated in a similar manner to Houston et al. (2013) in which the number of correct details a participant recalled is divided by the possible number of correct details they could have recalled. The highest possible number of correct details participants could have recalled about the face they were attracted to was considered to be seven, based on Miller’s (1994) widely-accepted study on the amount of chunked information people can remember from their short-term memory. Therefore, the highest a participant could score for their proportion completeness of recall was 7/7 or in terms of percentage, 100%. Only ten participants out of 88 hit this 7/7 score for the completeness of recall. The proportion accuracy of recall was calculated by dividing the number of correct details a participant recalled by the total number of details they recalled. There was a higher number of participants who scored 100% on their accuracy of recall, as a total of 27 participants recalled 100% accurate details (keep in mind this does not mean the participant recalled seven total facts, but instead means every detail they did recall was 100% accurate), whereas only ten participants only could recall a total of seven facts.

Preliminary frequency analyses were conducted in order to determine if both proportion completeness of recall and proportion of recall accuracy scores were distributed normally. Proportion completeness of recall scores are distributed normally. However, proportion accuracy of recall scores are negatively skewed. Four outlier scores were present for proportion completeness of recall. These four outlier cases all scored zero, which meant that they either recalled nothing at all or no correct details of the face they were most attracted to. There were also four outliers for the proportion of accuracy of recall. These individuals could not recall one single correct detail about the face of the person they were
most attracted to. Interestingly, both proportions of completeness and accuracy recall score outliers were the same four participants. These participants did not understand the instructions, exclaimed that they could not remember anything, and/or rushed and completed the study quickly. These four cases were thus deleted.

Pearson correlation tests were conducted to test relationships between variables. What was of interest was to see if higher ratings on attraction measure scores were correlated with a higher proportional score of participants’ recall of details about the face they experienced the most attraction towards. Participants’ proportion of completeness of recall was not correlated with attraction measure scores, $r(75) = .09, p > .41$. Participants’ accuracy of recall was also not correlated with the attraction measure score, $r(75) = .17, p > .15$. However, participants’ accuracy of recall and completeness of recall were highly correlated, $r(75) = .41, p < .001$. Therefore, if a participant was recalling a high amount of information, they were more likely to be recalling accurate information about the face they were attracted to. Participants’ attraction to the person they were most attracted to was correlated with interest in dating, $r(75) = .80, p < .001$. This finding validates the attraction measure.

A chi-square test of independence was calculated comparing participants’ outcomes of lineup task 1 and lineup task 2 as seen in Table 1, $\chi^2(4) = 10.7, p < .03$. Therefore, participants’ attraction to the target and their outcomes for lineup task 1 and the outcomes for lineup task 2 (containing a random target) were related. This finding, calculated from the values shown in Table 1, suggests that attraction target and random target recognition were related. In other words, it is likely that attraction, or the lack of attraction, impacted the outcomes for both lineup tasks 1 and 2.
Table 1

<table>
<thead>
<tr>
<th>Lineup Task 1 – Attraction Target</th>
<th>Lineup Task 2 – Random Target</th>
<th>Hit</th>
<th>False Positive</th>
<th>Miss</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hit</td>
<td>10</td>
<td>3</td>
<td>17</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>False Positive</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Miss</td>
<td>7</td>
<td>15</td>
<td>19</td>
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<tr>
<td>Total</td>
<td>19</td>
<td>20</td>
<td>36</td>
<td>75</td>
<td></td>
</tr>
</tbody>
</table>

*Participants’ Recognition Outcomes for Both Attracted and Random Lineup Tasks*
A test of the study’s hypothesis via a one-way ANOVA showed an effect of attraction in terms of participants’ completeness of recall, $F(2, 72) = 4.78, \ p < .01$, partial $\eta^2 = .12$. Tukey’s post-hoc analysis found that the percentage of facial details recalled by those who recognized the face they were attracted to in the lineups was higher ($M = .68, \ SD = .24$) by approximately 20% than for those who did not recognize the face they were attracted to ($M = .52, \ SD = .21$). False positives were rare and their percentage of information recalled ($M = .50, \ SD = .08$) did not differ from the mean percentages for hit and miss. Therefore, as hypothesized, individuals who recalled more details about the face they were attracted to also recognized said face in a lineup.

A factorial ANOVA was run in order to test if complete recall varied by gender and by recognition of the most attracted face. Six males and 24 females achieved hits; nine males and 32 females achieved misses. There was no interaction of gender and recognition for complete recall, $F(1,67) = 1.62, \ p < .21$, partial $\eta^2 = .024$ and no main effect for gender, $F(1,67) = 1.58, \ p < .21$, partial $\eta^2 = .023$, but the main effect of recognition approached statistical significance, $F(1,67) = 2.67, \ p < .11$, partial $\eta^2 = .038$. Examination of a plot of the means (see Figure 1) suggests females had better recall for a face they were attracted to than did males. Independent sample t-tests revealed that females better recalled the face they recognized than the face they did not, $t(54) = 3.18, \ p < .002, \ d = .87$; males did not better recall the face they recognized than the face they did not, $t(13) = .21, \ p > .84, \ d = .12$. 
Figure 1. Interaction of Gender and Recognition for the Completeness of Recall.
Discussion

Romantic attraction was hypothesized to improve the ability to recognize and recall details about a face a person was most attracted to. While there was no association between attraction measure scores and increased recall completeness or accuracy, both questions in the attraction measure were highly correlated, which validates the attraction measure. Attraction was related to completeness of recall as those who recognized the face they were attracted to in the lineup task recalled approximately 20% more details about the face they were attracted to during the recall task. This result shows that recognizing the face a participant indicated they were most attracted to was related to recalling more information about the face itself. This finding supports the hypothesis as recall increased for a face a participant was attracted to.

In terms of recognition, target and random target recognition was related. Therefore, attraction, or lack thereof, may have impacted a person’s ability to recognize a face. People that recognized both the attractive and random face likely have a better memory than the average person, and people who recognized the face they were attracted to but not the random face may have been impacted by any attraction they experienced. Those who missed both likely may have experienced limited or no attraction. However, further studies would have to be carried out in order to determine if this explanation is correct.

There seemed to be an interaction between gender and recognition for recall that was surprising, as it was assumed that both genders would demonstrate improved recall in the face of romantic attraction. In terms of the interaction shown in Figure 1, males performed poorly in terms of recall when compared to females. Why would females be able to recall facial details of the person they found themselves most attracted to better than males?
Horgan, Broadbent, McKibbin, and Duehring (2016) have found that women’s memory for a short-term mate (similar to how female participants may have viewed the profiles in the present study) focuses on a man’s physical attributes. Before females were to watch a videotaped male introducing himself, they were told to either think of him as a long- or short-term mate. Participants’ memory for his oral statements and features were then tested. Women in the short-term mate context demonstrated better memory for male physical features over verbal statements. Therefore, this interaction would display a similar result as to what Horgan et al. (2016) revealed, as females seemed to be able to remember the physical aspects of their potential short-term mate’s face in the present study. However, this interaction was deemed to be not statistically significant from further analyses, and thus further research could attempt to reveal if this interaction is or is not present.

There could be other possible reasons as to why this finding was produced, however. These reasons are related to the limitations of the present study, as there was not a large number of males who completed the study. Males are underrepresented and their results should be generalized to males in general with caution. Furthermore, males often rushed through the study and completed it much quicker than females. Some males rushed to the point where they disregarded instructions even when they were told orally and given to them in a written version as a reference.

There were other limitations to the present study that could have been resolved or changed in hindsight. A few participants stated during their trial that they were not attracted to any of the profiles in the dating profile booklet. This lack of attraction could have adversely affected the study results, as simply picking the profile one is most attracted to does not necessarily stimulate strong attraction. In future studies, there should be a cut-off
such that if a participant found themselves not attracted to any profiles, they would be excused from further participation. Another limitation to this study was that the format of a dating profile does not simulate face-to-face interaction in which natural romantic attraction frequently occurs. However, this circumstance would be difficult to simulate in the lab.

Future research should seek to repeat the present study in order to see if increased recall for a face one is attracted to replicates. This replication would allow the relationship between romantic attraction and the ability to recall and recognize faces to be explored in greater detail. Replication would have implications for the fields of memory and attraction research. Researchers might also focus more on gender differences in terms of memory and attraction, as there could be evolutionary reasons as to why males seem to perform more poorly in terms of recall than do females. This study and the proposed future directions are thus opening new areas of inquiry for memory and attraction research.
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http://www.jstor.org/stable/1423503
Appendix A

Research Ethics Board Certificate of Approval

PRINCIPAL INVESTIGATOR: Alexis Urszula
DEPARTMENT: Psychology
REB#: 2018-011

SUPERVISOR: Dr. Sharpe

TITLE: Attraction and its Effects on Facial Recall and Recognition

APPROVED ON: February 11, 2018
RENEWAL DATE: February 11, 2019

APPROVAL OF:
Application for Behavioural Research Ethics Review, Participant Pool Posting, Consent Form, Example of Dating Profile and Attraction Measure, Free Recall Sheet.

Full Board Meeting ☐ Delegated Review ☒

The University of Regina Research Ethics Board has reviewed the above-named research project. The proposal was found to be acceptable on ethical grounds. The principal investigator has the responsibility for any other administrative or regulatory approvals that may pertain to this research project, and for ensuring that the authorized research is carried out according to the conditions outlined in the original protocol submitted for ethics review. This Certificate of Approval is valid for the above time period provided there is no change in experimental protocol, consent process or documents.

Any significant changes to your proposed method, or your consent and recruitment procedures should be reported to the Chair for Research Ethics Board consideration in advance of its implementation.

ONGOING REVIEW REQUIREMENTS
In order to receive annual renewal, a status report must be submitted to the REB Chair for Board consideration within one month of the current expiry date each year the study remains open, and upon study completion. Please refer to the following website for further instructions: http://www.uregina.ca/research/faculty-staff/ethics-compliance/human/forms1/ethics-forms.html.

Raven Sinclair, BA, CISW, BISW, MSW, PhD
REB Chair

Please send all correspondence to:
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Appendix B

Attraction and its Effects on Facial Recall and Recognition

**Purpose of the Study:** The main purpose of this study is to examine the relationship between attraction and memory.

**Explanation of Procedures:** You will be asked to view a booklet of dating profiles and answer two questions for each profile viewed. Upon completion of viewing the booklet of dating profiles, you will be asked to fill out a questionnaire on your own likes and dislikes, and then be asked to perform two memory tasks. The total amount of time will be approximately 40 minutes in order to complete the booklet, questionnaire, and two memory tasks.

**Potential Risks and Discomforts:** There is no foreseeable risk to participating in this study. Please note that Dr. Sharpe will have no knowledge of who does and does not participate in this study, so there is no risk to your studies should you choose to not participate. If you feel uncomfortable at any time while participating in the study, you may withdraw.

**Confidentiality of Data:** There will be no identifying information (e.g., your name and/or student number) attached to your pre-assigned booklet of dating profiles, questionnaires, or memory task data. Your responses are anonymous. This consent form will be separated from and stored separately from the data.

**Withdrawal from the Study:** Participating in this study is completely voluntary. If you decide to participate, then you are free to withdraw your consent and discontinue your participation at any time.

**Offer to Answer Questions:** Please feel free to ask the experimenter if you have any questions. If you wish to learn the general findings from this study, then you may contact either Alexis Urszulan or Dr. Donald Sharpe in the Department of Psychology, University of Regina. If research participants have any questions or concerns about their rights or treatment as participants, they may contact the Chair of the Research Ethics Board at 585-4775 or by e-mail: research.ethics@uregina.ca.

You are making a voluntary decision to participate in this study. Your signature below indicates that you have decided to participate upon reading and understanding the information provided above.

Participant Signature __________________________________________ Date: ________________

Researcher Signature __________________________________________ Date: ________________

Withdrawal Date: ________________________

Researchers: Alexis Urszulan and Dr. Donald Sharpe
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Appendix C

Example of Dating Profile and Attraction Measure

Occupation: Dental Hygienist
Age: 21
Likes: Ringette, hockey, trips to the beach, and going to the dog park.
Dislikes: Mornings, rush hour traffic, dusting, and spiders.

1) How attracted are you to this profile?

   1                2               3                4               5                 6                7
very unattracted somewhat neutral somewhat attracted very attracted
unattracted

2) If you were available, would you be interested in going on a date with the person in this profile?

   1                 2            3              4               5                6                7
very uninterested somewhat neutral somewhat interested very interested
uninterested
Appendix D

Free Recall Sheet

*Please write down all the details you can remember about the face of the person you circled in the dating profile booklet. If needed, you may write on the reverse side of this sheet.*
Appendix E

Debriefing

The study is now over. Thank you very much for completing the experiment. The purpose of this research was to specifically investigate the relationship between facial attraction and facial recall and recognition. In order to measure attraction, the answers to the questions within the dating profile booklet will be examined. The sheet on which you recalled aspects of the face you had circled in the dating profile booklet will be used to measure the relationship between attraction and facial recall ability. The lineup will be used to measure facial recognition and whether or not attraction had an effect on the ability to recognize a face. There has been no research on whether or not attraction has an effect on facial recall and recognition. This study seeks to reveal if there is an effect and therefore fill this gap in the literature.

You were not told to focus solely on the face of the person you were most attracted to in the dating profile booklet because we did not want to elicit socially desirable responding. In other words, if you knew we would have tested you specifically on your ability to remember the face you circled in particular, your ability to recall and recognize that circled may have been influenced because of that knowledge, and not due to attraction alone.

If you have any questions about the outcomes of this study or the research, please feel free to contact me (Alexis Urszulan) at urszulaa@uregina.ca or leave a message in the Psychology Department at the University of Regina for Alexis Urszulan (585-4157 or 585-4221) or Dr. Donald Sharpe (585-4221). Thank you again for participating in this study.