

Using the Implicit Relational Assessment Procedure (IRAP) to Investigate Attractiveness Bias in the Domain of Employability

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ABSTRACT

Attractiveness bias is a robust finding in social domains, but the data is less clear regarding attractiveness bias in other domains including employability. The Implicit Relational Assessment Procedure (IRAP) was used to investigate implicit attractiveness bias favouring employability for attractive versus unattractive facial image stimuli with a sample of university students ($N = 35$; 25 Females). The IRAPs four trial-type methodology facilitated a nuanced analysis to determine if participant data showed pro-attractive bias, anti-attractive bias, some combination of both, or no evidence of any such bias. A pro-attractive bias was found in D-scores on three of the four IRAP trial-types. Results from an explicit Beliefs About Appearance Scale (BAAS; Spangler, 1999) showed high ratings for the importance of appearance for employability across both genders with no statistically significant gender impact. Findings extend extant research providing nuanced data about implicit attractiveness bias beyond social domains in the important area of employability.

Key words: IRAP, attractiveness bias, employability, BAAS.

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Novelty and Significance

What is already known about the topic?

- The belief that individuals who are physically attractive have more desirable personality traits is called the "attractiveness bias".
- The IRAP has been demonstrated to be a useful tool for assessing the attractiveness bias for the broad area of successfulness, but more specific and nuanced studies are needed.

What this paper adds?

- The current research examined directionality of attractiveness bias in the domain of employability.
- The results of the IRAP showed a pro-attractive bias, and an anti-unattractive bias regarding employability for a sample of undergraduate students.

The physical appearance of an individual is one of the most prominent characteristics that others initially notice, and it is a characteristic that may influence first impressions (Eagly, Ashmore, Makhijanie, & Longo, 1991; Feingold, 1992). Being physically attractive promotes the idea that an individual has more socially desirable personality characteristics, and that they have more success and opportunities in their lives, as well as more happiness (Dion, Berscheid, & Walster, 1972; Lorenzo, Biesanz, & Human, 2010). The belief that individuals who are physically attractive also have more desirable personality traits is called the "attractiveness bias" (Dion *et alii*, 1972;

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Feingold, 1992). Dion *et alii* (1972) summarised this concept as a “what is beautiful is good” effect. Research has shown that individuals who are more physically attractive are perceived as being more sociable, more mentally healthy, and having better social skills when compared to unattractive individuals (Feingold, 1992).

The findings of attractiveness bias have been found to be robust in the research literature, however the bulk of research has been conducted with self-report questionnaires pertinent to social domains. There have been less studies conducted in the area of employment that have looked at the effects of the attractiveness bias in choosing potential candidates for vacant positions (Hosoda, Stone-Romero, & Coats 2003; Maurer-Fazio & Lei, 2015; Watkins & Johnston, 2000). Some studies have found that individuals who are more attractive are believed to be more highly qualified (Dipboye, Fromkin, & Wiback, 1975), more intelligent (Talamas, Mavor, & Perrett, 2016), and to earn a higher salary compared to average or less attractive individuals (Heilman & Stopeck, 1985; Pfeifer, 2011; Wong & Penner, 2016). Evidence supporting attractiveness bias in the employment industry is not clear-cut, however, and it is important to note that attractiveness in some situations can actually be a hindrance when seeking a job (beauty-is-beastly effects; Heilman & Saruwatari, 1979). Ruffle and Shtudiner (2015) found that while being more physically attractive was of benefit to male applicants in terms of receiving call-backs for an interview; attractive women received fewer call-backs than average women, and women who did not have a photograph attached to their résumé. These findings suggest that attractiveness has an effect in decision-making that may be relevant to employment and the hiring process.

The research in this area has traditionally used self-report or questionnaire style ratings to assess attractiveness bias. While these are an efficient means to collect data from large numbers of participants, limitations of self-report data pertain to problems of introspection (i.e., whether an individual can accurately examine and report on his/her inner experiences) and social desirability effects. For example, data may be distorted or inaccurate due to an individuals’ ability to present themselves in a socially desirable or “correct” way when responding about sensitive topics such as social stereotypes (Van de Mortel, 2008; Dovidio & Fazio, 1992; Nosek, Greenwald, & Banaji, 2007). Implicit measures have been developed to overcome these limitations by examining participant behaviour rather than asking them to self-report on their own behaviour or feelings. As such, procedures such as the Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998), the Extrinsic Affective Simon Test (EAST; De Houwer, 2003), the Go/No-Go Association Task (GNAT; Nosek & Banaji, 2001), and the Implicit Relational Assessment Procedure (IRAP; Barnes-Holmes, Barnes-Holmes, Power, Hayden, Milne, & Stewart, 2006) may be considered useful research methodologies to provide complementary data that may diverge from explicit self-report data when issues are socially sensitive.

The IRAP is based on a behavioural approach to human cognition and language called Relational Frame Theory (RFT; Hayes, Barnes-Holmes, & Roche, 2001) and uses participant response latencies in a computerised relational task, to detect bias. The IRAP has been designed as a behaviour-analytic measure of implicit cognition (Barnes-Holmes *et alii* 2006). Participant responding on the IRAP that more rapidly affirms stereotype relations compared to anti-stereotype relations, is deemed a demonstration of implicit stereotype. Indeed, there have been many IRAP studies that have demonstrated implicit stereotypes, related for example, to gender (e.g., Farrell, Cochrane, & McHugh, 2015), and many other sensitive social issues such as smoking (e.g., Vahey, Boles, & Barnes-Holmes, 2010) and the use of sexual language (e.g., Stockwell, Walker, & Eshleman, 2010).

The IRAP is comprised of a computer-based task that presents stimulus relations onscreen, and the underlying rationale is that participant responding will be faster when asked to affirm relations that are consistent with their beliefs as opposed to converse relations. Participant response latencies in the IRAP are recorded and later subject to statistical analysis at the group level to determine if there is a difference in consistent versus inconsistent trial-type responding. The IRAP can help the researcher to circumnavigate the problems associated with self-report measures, and the four trial-type methodology can provide data showing the direction of the bias (Hughes *et alii*, 2017). For example, in a study on implicit attitudes towards weight, IRAP data can show if participants' implicit bias is pro-thin but neutral toward overweight; or if bias is anti-fat, or whether there is some combination of pro-thin/anti-fat or if no implicit bias is evident.

Murphy, MacCarthaigh, and Barnes-Holmes (2014) used the IRAP as a direct measure for the first time in examining attractiveness bias in relation to successfulness within an adult population ($N=47$). The study assessed the directionality of the attractiveness bias and investigated gender differences. The authors found gender differences in the magnitude of attractiveness bias regarding successfulness of attractive versus unattractive photographic facial images which was greater for male compared to female participants. In addition, the explicit data which involved participants rating attractive and unattractive images of faces found a beauty bias for all participants. Unlike the IRAP data, however, statistical analysis of this explicit data failed to indicate any gender difference. In another study, Murphy, Hussey, Barnes-Holmes, and Kelly (2015) used the IRAP to examine gender effects on attractiveness bias in the context of the attribute of "successfulness" of attractive or unattractive facial images. The authors invited thirty undergraduate students to complete an IRAP designed to examine attractiveness bias in the context of attributes of successfulness in addition to an explicit measure called the Beliefs About Appearance Scale (BAAS; Spangler, 1999). The BAAS was included to measure the degree to which participants affirmed beliefs about the impact of their own appearance on interpersonal relationships, personal achievement, self-perception and emotional well-being. The results from both implicit and explicit measures (i.e., the IRAP data and the BAAS) found a significant attractiveness-bias for male and female participants.

The current study extends the research conducted by both Murphy *et alii* (2014) and by Murphy *et alii* (2015) by examining implicit bias in the context of employability. Murphy *et alii* (2014) mentioned a limitation of their study being that the concept of "successfulness" may be too general, and participants may have interpreted it differently. The current research is consistent with recommendations that more nuanced implicit studies are also needed (see Griffin & Langlois, 2006, re. different domains, different genders, different age cohorts, different socio-economic-status, different education status). As such, the current study had three main aims. The first was to test the IRAP methodology to analyse the directionality of the attractiveness bias in the domain of employability. The second was to investigate any gender differences for our undergraduate sample in this regard. Finally, to explore the relationship between the explicit measure of participants' beliefs about appearances (using the BAAS) and IRAP responding.

METHOD

Participants

There were 35 participants (10 males and 25 females), ranging in age from 19 to 38 years old ($M=23.5$, $SD=5.8$). Six additional individuals had volunteered for the

study however, their data were excluded due to a failure to meet the predetermined performance criterion of 80% accuracy in two or more of the test blocks of the IRAP. Participants were undergraduate and postgraduate students at the first author's university. The imbalance of male and female participants was a result of a sample of convenience and time constraints. All participants were Caucasian, of Irish nationality, and fluent in English with normal vision or corrected-to-normal vision.

Images are from Face Research Lab London Set [figshare.com](https://doi.org/10.6084/m9.figshare.5047666.v3) (<https://doi.org/10.6084/m9.figshare.5047666.v3>). Images are of 102 adult faces 1350x1350 pixels in full colour. Template files mark out 189 coordinates delineating face shape, for use with Psychomorph or WebMorph.org. Self-reported age, gender and ethnicity are included in the file `london_faces_info.csv`. Attractiveness ratings (on a 1-7 scale from "much less attractiveness than average" to "much more attractive than average") for the neutral front faces from 2513 people (ages 17-90) are included in the file `london_faces_ratings.csv`. All individuals gave signed consent for their images to be "used in lab-based and web-based studies in their original or altered forms and to illustrate research (e.g., in scientific journals, news media or presentations)." Images were taken in London, UK, in April 2012.

Instruments

Beliefs About Appearance Scale questionnaire (BAAS; Spangler, 1999). The BAAS was included as an explicit measure. It is a 20-item, self-report scale that assesses the degree of importance that individuals place on their own appearance in separate areas of their life. The four subscales are "interpersonal relationships", "personal achievement", "self-perception", and "emotional wellbeing". The statements in each subscale were rated for agreement on a 5-point Likert scale, ranging from zero (not at all) to four (extremely). The scale has an acceptable internal consistency (coefficient alpha .95), test-retest reliability ($r = .83$), as well as convergent and divergent validity (Spangler, 2002; Spangler & Stice, 2001).

Implicit Relational Assessment Procedure (IRAP; Barnes-Holmes *et alii*, 2006). The 2009 version of the IRAP was completed by participants on a Dell OptiPlex 790 computer running on Windows 7 Enterprise with an Intel Core processor, a colour monitor and a standard keyboard. There were 12 different colour picture stimuli used in this study. Six of the images were of individuals categorised as attractive (three attractive males and three attractive females), and the remaining six images were of individuals that were categorised as unattractive (three male and three female). All of the images were obtained from <http://faceresearch.org/demos/average>. These are images which were previously rated as attractive/unattractive by psychology undergraduate students. Attractive images were generated by selecting several images and averaging them together to form faces that were very symmetrical. The unattractive images were chosen from the gallery and were not combined with other images, resulting in faces that were not symmetrical. Onscreen, the IRAP presented a "Label" stimulus (i.e., image of either attractive or unattractive face that was male or female) with either a positive or a negative target word beneath (see Table 1). The response options available to the participant were "Similar" and "Opposite", presented in the bottom right and bottom left hand side of the screen in fixed positions (see Figure 1). The face images in the demo averages are from DeBruine & Jones (2017).

Table 1. Word stimuli (relational stimuli) presented with target stimuli (picture stimuli).

Positive/Employable Word Targets	Negative/Unemployable Word Targets
Confident	Withdrawn
Team-Player	Loner
Punctual	Late
Ambitious	Lazy
Skilled	Incompetent
Productive	Waster

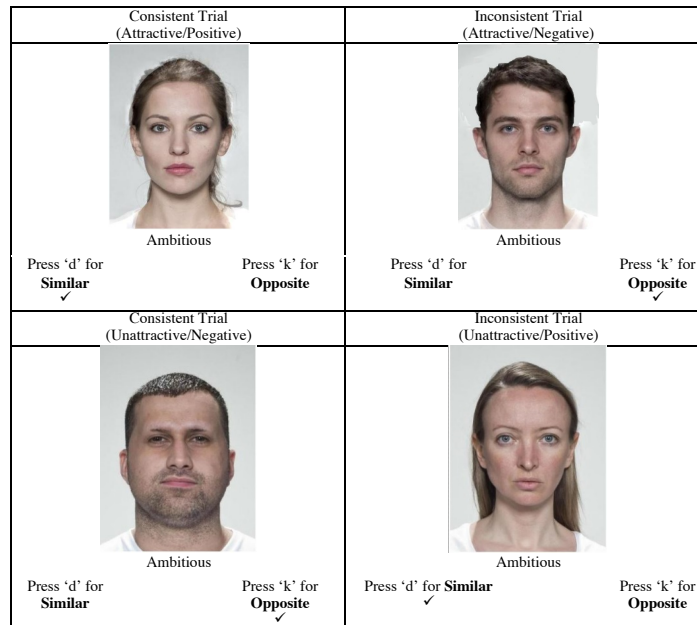


Figure 1. An example of the presentations of each of the four IRAP trial-types.

Procedure

All procedures performed in this study involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. The authors have no conflict of interest to declare. Each participant completed the study in a small, quiet lab cubicle at the department of psychology at the first author's university. Before beginning the experiment, each participant was provided with an information sheet and a consent form. Informed consent was the main ethical issue, and it was obtained for all participants. The procedure of the study was the same for each participant in that they first completed the explicit measure and then the implicit measure.

For the explicit measures participants were provided with the BAAS questionnaire and asked to answer the questions as truthfully and as accurately as possible. They were asked to respond to each of the 20 questions by circling the response that most nearly accorded to their own beliefs.

For the implicit measure (IRAP) participants were presented with a sheet of paper including the word stimuli that would be used during the experiment, and told which words were negative and positive to avoid confusion. Participants were also provided with the 12 image stimuli that had been pre-selected as attractive stimuli and unattractive, and were told which belonged to each category. This was done with the aim of reducing any potential confusion that might be a confound. The target positive and negative attributions were presented. These reflected qualities that were considered either desirable or undesirable in an employee. They were developed after consulting the relevant research literature. An initial list of attributes was developed, which was later rated by undergraduate psychology students and then reviewed and approved by

senior academics on the research team. Once the oral instructions were completed, the participant was provided with onscreen instructions. These onscreen instructions showed illustrations of four different types of tasks that would be presented to the participant in the experiment (see Figure 1).

Underneath each illustration was an explanation of what choosing “Similar” or “Opposite” would mean during the task. The positioning of the response options (“Similar” or “Opposite”) remained the same throughout to avoid confusion for participants. Each participant was informed that the IRAP would be presented in discrete trial blocks, and that the rule for responding correctly would alternate across the trial-blocks. The rule was presented as either “attractive is positive/unattractive is negative” (consistent trial-blocks), or “unattractive is positive/attractive is negative” (inconsistent trial-blocks). Participants were informed that they were required to respond in accordance with the rule even if the correct response was not consistent with their own beliefs. The sequence of the trial-blocks alternated between consistent and inconsistent trial-blocks with every participant. Participants were asked to respond quickly and accurately for all trials. Participants were told that initially they would be presented with two practice blocks and that their accuracy had to be correct at least 80% of the time, and that the median response latency had to be 2000ms or less. If they did not perform as required, participants could repeat the practice blocks an additional two times. Once the practice blocks were successfully completed, the participants were informed that there would be six test blocks, after which, the experiment would begin. Failure to meet the performance criteria for these practice blocks resulted in an on-screen notification thanking the participant for their participation and terminating the IRAP.

Participants sat in front of the computer screen and were asked to rest whichever finger they felt comfortable with on the “d” and “k” keys of the keyboard. The “d” key corresponded to the onscreen response option “Similar” and the “k” key responded to the response option “Opposite” which were presented on screen. Participants were told that they had to press one of these keys to respond to the onscreen prompt and that if they chose the incorrect answer, a red X would show up on screen and they would need to press the correct key in order to move on to the next prompt. Each trial consisted of four stimuli appearing onscreen simultaneously. An attractive or unattractive image was located at the top-centre of the screen, with a positive or negative target word located underneath it, and the words “Press “d” for Similar” and “Press “k” for Opposite” situated in the bottom left-hand and right-hand corners. The investigator stayed seated beside the participant for the first consistent and inconsistent practice blocks to ensure that they understood the instructions. Once the participant passed the practice blocks, the investigator left the room and allowed the participant to complete the task alone.

RESULTS

Possible scores on the BAAS ranged from 0-80. Overall scores for the entire sample indicated that participants had high ratings for the importance of their appearance ($M=39.63$, $SD=16.064$). When divided into groups by gender, both males ($M=41.1$, $SD=15.39$) and females ($M=39.04$, $SD=16.6$) scored highly in their rating of appearance (see Figure 2). A 2x4 mixed repeated analysis of variance (ANOVA) was conducted for all participant data, with gender as the between-participant variable and the four BAAS subscales as the within-participant variable (i.e. the importance of appearance in relation to participants’ interpersonal relationships, work and achievements, self-view,

and emotional wellbeing). A significant main effect was found for subscale [$F(3,31)=10.09$, $p<.001$], indicating a change in scores among the four subscales. There was no significant interaction between gender and the subscales [$F(3,31)=1.48$, $p=.24$] and no significant main effect for gender [$F(1,33)=.13$, $p=.73$].

The steps involved in calculating *D*-scores (Implicit Measure) were as follows: (1) response-latency data from the six test blocks for 35 participants were used; (2) latencies above 10,000 ms were removed from the data set; (3) if any of the participants' data contained response latencies less than 300 ms in more than 10% of test block trials, that participant's data was removed from the analysis; (4) 12 standard deviations for the four trial types were calculated: four *SD*s for the response latencies from test

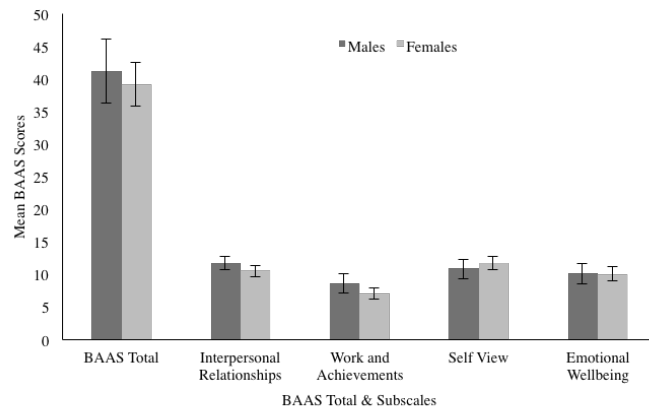


Figure 2. Overall mean BAAS score and mean subscale scores for male and female participants. Error bars denote standard error.

blocks 1 and 2, four *SD*s from the response latencies from test blocks 3 and 4, and four *SD*s from test blocks 5 and 6; (5) 24 mean latencies were calculated for each of the 4 trial-types for each of the test blocks; (6) each of the difference scores were divided by their corresponding standard deviation from step 4, resulting in 12 *D*-IRAP scores; one score for each of the trial-types for each pair of test-blocks; (7) four IRAP trial-type *D*-scores were calculated by averaging the scores for each trial-type for the three pairs of test blocks. The *D*-IRAP scores were calculated automatically by the IRAP software. Positive *D*-IRAP scores demonstrated a pro-attractive bias and negative *D*-IRAP scores showed an anti-attractiveness bias (see Figure 3).

A 2x4 mixed repeated measures ANOVA was conducted using participant gender as the independent variable (IV) and trial-type as the within-participant IV, and *D*-scores as the dependent variable (DV). There was a statistically significant main effect for trial-type [$F(3,31)=14.88$, $p<.001$, partial $\eta^2=.59$ (the direction of the bias was attractive-employable)]. The main effect for gender was non-significant [$F(1,33)=1.353$, $p=.253$]. However, a significant interaction effect was found between gender and trial-type, [$F(3,31)=2.99$, $p=.046$, partial $\eta^2=.22$].

As there was a significant effect for trial type, four subsequent one-sample t-tests were conducted in order to identify which of the trial-types differed significantly from zero. Due to the multiple comparisons, Bonferroni corrections were applied. There were significant differences from zero for the attractive-employable (attractive-positive-similar)

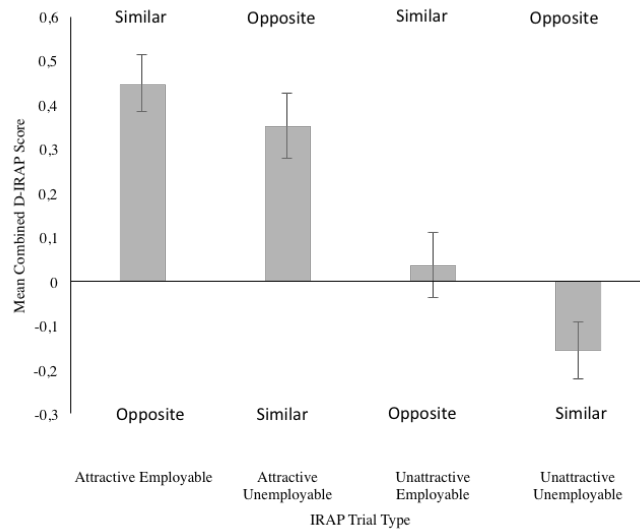


Figure 3. The combined male/female participants ($N=35$) D -score data for four IRAP trial-types: Attractive-Employable, Attractive-Unemployable, Unattractive-Employable, Unattractive-Unemployable. Error bars denote standard error.

trial-type; and attractive-unemployable (attractive-negative-opposite) trial-type; and the unattractive-unemployable (unattractive-negative-similar) trial-type (see Table 2). There was no significant difference for participant responding on the unattractive-employable trial-type.

Table 2. Mean IRAP trial-type D -scores.

Trial-type	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Attractive-employable	.45	.38	6.93	<.0001
Attractive-unemployable	.35	.43	4.78	<.0001
Unattractive-employable	.04	.43	.49	.63
Unattractive-unemployable	-.16	.38	-2.47	<.05
Overall D-IRAP	.23	.26	5.2	<.005

Four one-way between participant ANOVAs were conducted to analyse which of the four trial-types showed a statistically significant difference depending on participant gender (see Figure 4). There was a statistically significant difference for gender on participant D -scores on the unattractive-unemployable (unattractive-negative-similar) trial [$F(1,33)=6.19$, $p<.05$, partial $\eta^2=.16$] indicating that male participants held a stronger anti-attractive bias compared to females. There was no statistically significant difference in D -scores found on the remaining trial-types for gender (all $ps>.05$).

In summary, there was a pro-attractive bias found on the IRAP trial-type D -scores of attractive/employable, attractive/unemployable, and unattractive/unemployable trial-types. Male and female D -scores differed significantly on the unattractive/unemployable trial-type, with males showing a stronger pro-attractive bias compared to females.

Participants' D -scores from each trial-type and their data from the four BAAS questionnaire subscales were tested for correlations using Pearson's coefficient r . There was a significant correlation between the attractive-employable trial type and the

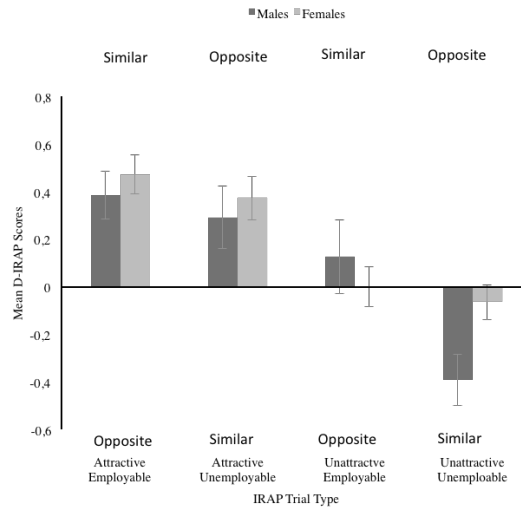


Figure 4. Mean IRAP trial-type D-scores for male and female participants for the four trial-types.

achievement subscale of the BAAS ($r = -.36$, $n = 35$, $p < .05$) and between the attractive-unemployable trial type and self-view subscale ($r = .42$, $n = 35$, $p < .05$; emotions; $r = .36$, $n = 35$, $p < .05$). There was a significant correlation between the unattractive-employable trial-type and all sub-scales of the BAAS (i.e., interpersonal relationship sub-scale, $r = -.51$, $n = 35$, $p < .01$; achievement, $r = -.46$, $n = 35$, $p < .01$; self-view, $r = -.48$, $n = 35$, $p < .01$ and emotions, $r = -.36$, $n = 35$, $p < .05$). Finally, for the unattractive-unemployable trial type there was a significant correlation with the interpersonal relationship subscale ($r = -.34$, $n = 35$, $p < .05$).

DISCUSSION

This was an exploratory study to assess if university students demonstrated an implicit attractiveness bias regarding the employability of individuals based on their physical appearance. The results of the four IRAP trial-types showed a pro-attractive bias, and an anti-unattractive bias regarding employability, which is consistent with previous studies in which participant data demonstrated the “what is beautiful is good” stereotype in social domains (Dion et alii, 1972; Feingold, 1990). Both males and females in the current research showed this pro-attractiveness bias on the IRAP attractive-employable trial-type, suggesting that all participants placed a high value on attractiveness in the context of employment. This would suggest that attractive individuals were considered to possess more positive employee traits.

This study found that response latencies for male participants were shorter (statistically significant difference) indicating they were faster at agreeing to the ‘unattractive-is-unemployable trial-type’ in comparison to female participants, indicating a slightly stronger anti-unattractive prejudice compared to women although women also showed this bias. This finding of stronger attractiveness-bias in males is consistent with the literature in the area of selecting future partners where male participants tend to show a stronger attractiveness bias in comparison to females (Feingold, 1990). However, much more research is required to determine if this is a robust effect in other contexts, particularly considering the low number of males in the current study. Research findings

of implicit bias could ultimately have an impact for companies in advising hiring panels regarding unconscious bias, however, whether this has a desirable effect of reducing bias in hiring strategy remains unclear in real world applications.

An important point to note is that both male and female participants had high overall scores on the BAAS indicating that both groups placed a high value on their own attractiveness and the impact it has on their lives. This is in contrast to what is expected intuitively, where females would indicate higher importance of attractiveness, given the huge disparity for example between females and males who consider cosmetic surgery (approximately 90% to 10%, respectively, British Association of Aesthetic Plastic Surgeons). It is possible that the timing of the BAAS presentation may have influenced IRAP responding by somehow priming participants for a pro-attractiveness bias. However, this is unlikely. As an implicit measure, based on reaction times under time pressure, the IRAP does not require that participants are unaware of the aims of the research. Indeed, other IRAP studies have used the same procedure, where an explicit measure is presented before the implicit measure (e.g., Murphy *et alii*, 2015).

According to Finn, Barnes-Holmes, Hussey, and Graddy (2016), the type of instructions that are presented during an IRAP are significant and can have an impact on a participant's performance. In the current study, the type of instructions used were quite specific (e.g., attractive is positive/unattractive is negative or attractive is negative/unattractive is positive). In their study, Finn *et alii* (2016) found that providing a more detailed rule at the beginning of the IRAP undermined the IRAP effect for one or two of the trial types, specifically those that would be history-inconsistent (i.e. attractive is negative/unattractive is positive), and found that it may increase the effect size of trial type 1 and 4. As such, increased IRAP effects for trial type 1 and 4 and decreased IRAP effects for trial type 2 and 3 would be expected from this study. However, in the current study trial type 2 resulted in an increased IRAP effect, and participants responded more quickly to "attractive-negative-opposite" rather than "attractive-negative-similar".

The BAAS questionnaire was chosen due to its previous use in an IRAP study focussing on the attractiveness bias and attributions of successfulness (Murphy *et alii*, 2015). It was also used as an explicit measure for this particular study because it has been suggested that if individuals believe that their appearance is an important aspect in one area, such as self-view, then they will also likely place high importance on appearance in other domains such as relationships, work achievements, and emotional well-being (Spangler & Stice, 2001). Correlation tests between the explicit and implicit measures were conducted to assess whether any of the subscales correlated with any of the four trial-types, with particular interest in the "achievements" subscale, since this subscale relates to the present IRAP. There was a weak negative correlation ($r = -.36$) found between the achievements subscale (which involved questions about the influence of appearance on the participant's performance/achievements in school/work/hobbies) and the attractive-employable IRAP trial type; the unattractive-employable IRAP trial type also showed significant negative correlations between all of the subscales on the BAAS. However, the BAAS questionnaire focuses on the individuals' beliefs about their own appearance, and the IRAP assessed an attractiveness bias that is focused on others' appearance. The disparity between the importance of one's own appearance and the importance of others' appearance may have had an impact on the correlations between the BAAS scores and on the D-scores on some of the IRAP trial-types. These assumptions are speculative, not conclusive, and should be considered with caution.

The relatively small sample size with more female ($n = 25$) than male participants

($n = 10$), who were young, educated, Caucasian individuals, was less than optimal and may limit the generalisability of findings. Unfortunately, this is common in psychology research. An important avenue for future research would be to include participants who have experience of the hiring process in real world settings.

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