The Relationship between Babyfaceness and Competence in the Workplace.

Amy Louise Stephenson

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School of Psychological and Social Sciences

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The candidate confirms that the work submitted is their own and that appropriate credit has been given where reference has been made to the work of others.

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Abstract

Due to a lack of consensus in the literature, the present study aims to answer three questions: Is there a relationship between babyfaceness and perceptions of competence in a variety of jobs? Does babyfaceness influence the jobs in which individuals are perceived to be most suited? Does babyfaceness affect who will be hired for a particular role? Through gaining ratings of photographs of real people which were divided into high and low babyface categories, it was found that the answer to all questions in short is yes. Babyfaced men were perceived as significantly more suited to being carers than mature-faced men. Babyfaced males and females were significantly more likely to be 'hired' as scientists than the mature-faced, with the same being found for babyfaced male carers and the opposite for babyfaced female lawyers. Babyfaced males were rated as significantly more competent as carers, nurses and surgeons, while significantly less competent as police officers, doctors and CEOs than mature-faced males. Babyfaced females were rated as significantly more competent as carers and politicians, while significantly less competent as managers, teachers, doctors, CEOs, surgeons and fire fighters than mature-faced females. Findings are discussed in relation to the wider literature and limitations are identified which leads to providing suggestion for further study.

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Introduction

Facial appearance is an important source of first impressions (Zebrowitz, 2004). Faces convey information relating to age (Porcheron, Mayger & Russell, 2013), emotion (Planalp, 1996), health (Henderson, Holzleitner, Talamas & Perrett, 2016) and attractiveness (Perrett et al., 1999) which we access in everyday life. In addition to this, research has suggested that we make a number of social judgements regarding personality, intelligence, and intentions based on facial appearance, which can have consequential outcomes (Ormiston, Wong, & Haselhuhn, 2017). These judgements are based on a number of facial characteristics such as facial width-to-height ratio (Alrajih & Ward, 2014), inferences about height based on facial traits (Batres, Re, & Perrett, 2015), and facial maturity (Zebrowitz, 1997). This paper will focus on inferences based on facial maturity. The present study will investigate the relationship between facial maturity and perceptions of competence as well as if, and how, this is influenced by the job in which the individual is employed. Additionally, it will investigate the relationship between facial maturity and hiring decisions both in the context of personnel selection for a particular role and when selecting the most suitable job for a candidate.

A ‘babyface’ refers to the facial characteristics of a round face shape, large round eyes, high eyebrows and a high forehead, a small nose and chin, which largely resembles the facial structure of a human infant (Berry & McArthur, 1985). Research has indicated that facial maturity, the extent to which an individual is ‘babyfaced’, has an impact on the psychological traits they are thought to possess (Zebrowitz, 1997). Berry and McArthur (1986) state that babyfaced individuals are perceived as more warm, trustworthy, honest and naïve than those with mature faces. They go on

to suggest that these assumptions occur as a result of the Babyface Overgeneralisation Hypothesis which states that the psychological characteristics observed in infants are thought to apply to babyfaced adults.

Moreover, Zebrowitz, Luevano, Bronstad and Aharon (2009) conducted research based on the knowledge that neural activation differs when fixating on adult faces and babies' faces. Their results indicated that neural activation when fixating on babyfaced men was more similar to that of babies than mature-faced men. It can be concluded from this that the brain reacts to babyfaced men in the same way that it reacts to babies. This provides evidence in support of the Babyface Overgeneralization Hypothesis (Berry & McArthur, 1986), suggesting that the preparedness to respond to infantile facial characteristics is generalised to babyfaced men in the neural responses of perceiver's just as it is observed in their behavioural reactions. Regardless of the accuracy of these inferences, they appear to serve an adaptive function as the cost of inaccurately inferring infantile traits from babyfaced adults is less than the cost of failing to respond to the needs of infants (Todorov, Said, Engell, & Oosterhof, 2008).

McArthur and Berry (1987) found almost perfect agreement between US and Korean participants regarding ratings of babyfaceness and strong agreement in perceptions of the traits held by babyfaced individuals. As previously found with US samples, Korean participants also perceived babyfaced individuals to possess more childlike psychological traits than mature-faced individuals. This provides evidence not only for cross-cultural agreement in the physiological traits which constitute a 'babyface' but also in the psychological traits these individuals are perceived to have. Cross-cultural agreement as strong as this suggests a robust effect and provides

support for the theory of inferring infantile traits in babyfaced adults being an adaptive response (Todorov et al., 2008).

Perceptions formed of individuals based on their facial structure can have consequential outcomes (Ormiston et al., 2017). Berry and Landry (1997) explored the impact of facial maturity on daily social interactions. They found that babyfaced men reported having less control and influence over interactions with members of the opposite-sex than did mature-faced men. Additionally, there was a positive relationship between babyfaceness and the amount of intimacy and disclosure involved in men's interactions. Facial maturity, however, was not a strong predictor of the social experiences of women. From this it can be concluded that there are differences in perceptions of daily social interactions for babyfaced and mature-faced individuals, particularly men. Facial maturity having this influence on social interactions begs the question of what else it may impact. The finding that babyfaced males felt less in control of opposite sex encounters also poses the question of how reflective this is of reality. Perhaps a self-fulfilling prophecy occurs, with babyfaced men being aware of their perception as less in control leading to a change in behaviour reflective of the babyface stereotype, as found by Gary, Hinmon, and Ward (2003) in relation to facial dominance.

However, the opposite effect was found by Zebrowitz, Andreoletti, Collins, Lee, and Blumenthal (1998), that babyfaced adolescent boys across a number of class backgrounds reached higher academic achievement than those with mature faces, which refutes the stereotypical perception of babyfaced individuals being intellectually weaker. In contrast with this positive outcome, similar compensatory behaviour was found to produce negative results. Adolescent boys of low socio-economic status were more likely than mature-faced peers to be delinquent.

Furthermore, of such delinquents, it was found to be the babyfaced who committed more crimes, countering the stereotype of babyfaced individuals being submissive, warm and weak. This demonstrates that babyfaced individuals can react to stereotypes differently, it may produce a self-fulfilling prophecy in some and a self-defeating one in others. This may be dependent on age (Zebrowitz, Collins & Dutta, 1998) and other contextual factors (Gary et al., 2003).

Further research has been conducted on the effects of facial maturity on social interaction but focusing on helping behaviour. Keating, Randall, Kendrick, and Gutshall (2003) tested the hypothesis that babyfaced adults would elicit more help using the 'lost letter' technique. Photographs of babyfaced or mature-faced individuals were printed on fictional resumes, attached to envelopes which were 'lost' in the US and Kenya. 'Helping' was measured as whether or not the resumes were posted. Researchers found that resumes featuring babyish, white and black female faces and babyish white male faces were returned more often than were resumes depicting mature faces. There was no significant difference in returns of resumes displaying black male faces across the conditions. Overall, findings supported the hypothesis that babyish facial features cue social approach and elicit help while mature, facial characteristics signal avoidance. These findings indicate that differences in daily encounters, in this case in relation to helping behaviour, occur as a result of differences in facial maturity.

Furthermore, Hareli, Smoly, and Hess (2018) also investigated the impact of facial appearance on helping behaviour. Participants rated those with submissive facial appearance as more likely to help than those with dominant facial appearance. Submissive-looking individuals were perceived as more likely to help when asked by a dominant-looking individual but only in the context of financial help. Participants

also showed preference for a submissive-looking potential helper when choosing a helper for themselves. These findings may be explained in terms of the traits perceived in babyfaced individuals. If, as research has suggested, babyfaced individuals are viewed as warmer and more trustworthy it makes sense that they would also be viewed as more likely to offer help and therefore would be an ideal candidate to select as a helper.

Zebrowitz and McDonald (1991) conducted research into the impact of babyfaceness on judgements in a court setting. Findings revealed that as the babyfaceness of defendants increased, they were more likely to win cases involving intentional actions but were less likely to win cases involving negligence. Additionally, as defendants increased in facial maturity, they were required to pay larger monetary awards to babyfaced victims, but this effect was not true of average or mature-faced victims. Similar results were found by Zebrowitz, Kendall-Tackett, and Fafel (1991) in the context of parental expectations and punishment of children. Findings revealed that parents perceived the misbehaviours of mature-faced 4- and 11-year olds as more intentional than those of same age babyfaced children. When perceived intentionality was held constant, babyfaceness decreased the severity of punishment for misbehaviours by preschool children but increased it for older children. Furthermore, parents allocated more cognitively but not more physically demanding tasks to mature-faced 11-year olds than to babyfaced children of the same age.

It is clear that facial maturity influences perceptions of psychological traits possessed by the individual. Babyfaced individuals have been found to be perceived as warmer, more naïve (Berry & McArthur, 1986) less knowledgeable, more trustworthy (Brownlow & Zebrowitz, 1990), more suggestible (Nurmoja &

Bachman, 2014), and more helpful (Hareli et al., 2018) than mature-faced individuals. It has been found that such perceptions can have a real impact on daily interactions as well as more serious effects such as courtroom settings. This research moves beyond investigating how facial maturity can impact upon daily social encounters by looking at how such factors can have serious consequences for those involved. The fact that inferences of guilt in a criminal law setting can be informed by a defendant's facial maturity (Zebrowitz & McDonald, 1991) is alarming. It also shows that consequences of babyfaceness in terms of guilt and punishment start at a young age, affecting 4- and 11-year olds in this research (Zebrowitz et al., 1991). These findings no longer depict stereotypes made on the basis of facial maturity as harmless generalisations, but as having real consequences.

There is consensus in the literature regarding the psychological traits perceived in babyfaced individuals and how this can influence social interactions. What remains unclear is the relationship between babyfaceness and perceptions of competence. A number of studies have found babyfaceness to have a negative influence on perceptions of competence (Franklin & Zebrowitz, 2016; Poutvaara, Jordahl & Berggren, 2009), however others have noted a positive effect (Livingston & Pearce, 2009) or no effect (Zebrowitz & Franklin, 2014). The present study will focus on how the previously discussed psychological traits associated with babyfaced individuals can influence their perceived employability and competence in the workplace.

Research by Zebrowitz and Franklin (2014) produced results in line with the existing literature on the babyface stereotype, with higher babyfaceness being significantly correlated with trustworthiness and lower ratings of hostility. There was no overall effect, however, for babyfaceness and competence. Researchers did note

that rater age moderated the babyface stereotype, with a significant positive effect of babyfaceness on competence ratings for older raters, but still no significant relationship for younger raters. This is an important finding, as psychological research relies heavily on student participants, if the age of raters can influence this relationship it is important for samples to be reflective of the wider population in order to accurately capture this effect.

In contrast, two studies by Livingston and Pearce (2009) revealed that black CEOs were significantly more babyfaced than white CEOs. Additionally, black CEOs were rated as warmer than white CEOs, despite black individuals typically being rated as less warm than white individuals. Babyfaced black CEOs were found to lead more prestigious corporations and earned higher salaries compared with mature-faced black CEOs; an effect absent for white CEOs. These results present babyfaceness as being advantageous for black individuals in the role of CEO. Researchers proposed that in this case, babyfaceness acts as a disarming mechanism which promotes the success of black CEOs by lessening the stereotype held regarding black individuals as threatening.

Poutvaara, Jordahl and Berggren (2009) conducted research into the effect of babyfaceness on competence and electoral success. Results confirmed predictions that babyfaceness is negatively correlated with perceptions of competence in a political context. Despite this, babyfaceness was found to be either positively correlated or unrelated to electoral success. Furthermore, Franklin and Zebrowitz (2016) also investigated judgements of political candidates' competence based on facial appearance. Ratings of attractiveness, competence, and trustworthiness were found to positively predict choice of political candidate, although this effect was weaker for older raters. Competence ratings of both older and younger raters

predicted actual election winners. Additionally, babyfaceness was found to negatively correlate with ratings of competence in this political context. Babyface ratings negatively predicted older adult choice of candidate but did not predict actual election winners. This indicates that competence is an important factor when selecting an electoral candidate, however, traits other than babyfaceness must also communicate competence as ratings of competence predicted election winners but babyfaceness did not. Actual election outcomes being predicted based solely on the appearance of candidates suggests that voters heavily rely on facial appearance when electing a political candidate (Olivola & Todorov, 2010).

Chang, Lee and Cheng (2017) hypothesised that babyfaceness would be viewed as an asset to a political candidate in a collectivist country. Researchers investigated the extent to which babyfaceness would influence election outcomes in Taiwan's 2004, 2008, and 2012 legislative election. Findings revealed that babyfaceness was the strongest predictor of vote share. Consistent patterns across elections were noted: regardless of gender and political stance, the more babyfaced the candidate, the greater the percentage of votes received. Babyfaceness was found to be more influential than perceived warmth, attractiveness, and competence.

Previous research has produced conflicting results when it comes to the relationship between facial maturity and competence in a political context and regarding electoral success. Research in the US and other Westernised countries has found a negative relationship between babyfaceness and competence in a political candidate, it has not however, been able to identify a relationship between facial maturity and real electoral success (Poutvaara et al., 2009; Franklin & Zebrowitz, 2016). In contrast, research in collectivist countries has found babyfaceness to be the strongest predictor of vote share, higher than perceived competence, warmth, and

attractiveness (Chang et al., 2017). The positive effect of babyfaceness in this context has been identified as more influential for females (Lee, 2013). Researchers identified that desirable characteristics in a political leader differ cross-culturally (Rule & Ambady, 2010). Those electing the leader of a collectivist culture value traits such as warmth, whereas, in individualistic cultures traits of power are favoured (Rule & Ambady, 2010).

Although competence is considered a desirable trait particularly for presidential candidates to possess (Franklin & Zebrowitz, 2016), competence has not always produced a positive effect within a workplace setting. Inesi and Cable (2015) found that, in a military setting, competence signals lead to lower performance evaluations for female subordinates whose pay grade approached that of the evaluator. This was not the case for male subordinates. This demonstrates that although found to be critical in predicting election outcomes (Franklin & Zebrowitz, 2016), competence may actually prove to have negative outcomes for high-achieving female employees. The present study will focus on how facial maturity influences competence in a variety of workplace settings and hiring decisions in different roles and establishments. Other factors influencing this relationship will also be discussed relating to the current literature.

Lee (2013) investigated whether the babyface stereotype is influenced by gender and social context. It was found that the effects of babyfaceness were stronger for females in the political context, but more profound for males in the medical context. These patterns were found to be similar to ratings of likeability. This presents the babyface stereotype, not as something which is always applied in the same way, but something which differs depending on the context and about whom the judgement is being made. Furthermore, it indicates that even within the

context of employment, there are differences between fields (political and medical in this case) and employee gender. Facial maturity has also been found to have both positive and negative effects within the same work environment. Chang and Chen (2015) found that babyfaced doctors perform better than mature-faced doctors in relation to patient expectations, satisfaction and loyalty, however, babyfaceness worked against doctors involved in medical fraud. Cases of medical fraud were perceived as more severe for babyfaced female doctors of internal medicine or babyfaced male surgeons. This demonstrates the varying effects of facial maturity not only in different social contexts but also in differing scenarios within the same environment.

A number of variables have been investigated regarding facial appearance and the role of CEO. As previously mentioned, babyfaceness has been found to positively relate to competence for black CEOs (Livingston & Pearce, 2009). Also, firms whose male CEOs had a greater facial width-to-height ratio achieved superior financial performance (Wong, Ormiston & Haselhuhn, 2011). Similarly, ratings of power from faces of the managing partners (encompassing facial maturity, dominance and competence) have been found to be significantly correlated with profits attained by their law firms (Rule & Ambady, 2011). However, the opposite effect was found for the CEOs of non-profit organisations, with ratings of power being negatively correlated with multiple measures of charitable success (Re & Rule, 2016). Furthermore, Rule, Ishii, and Ambady (2011) found cross-cultural agreement in ratings of power and warmth when assessing the faces of American and Japanese CEOs. However, ratings of power predicted the company profits of American CEOs but not those of Japanese CEOs. Warmth was found to be unrelated to profit for both American and Japanese CEOs. Variation was also found within cultures but across

time, with power predicting success of American CEOs before but not after the Financial Crisis of 2008 (Rule & Tskhay, 2014), showing economic context may influence the relationship between appearance and financial success. More specific than this, research has indicated an advantage to matching the face of the CEO with the message the company will articulate (Dávila & Trendel, 2010). Researchers found that babyfaced CEOs were preferable when delivering a message regarding corporate social responsibility, but mature-faced CEOs were advantageous when communicating about technology or competitor orientation (Dávila & Trendel, 2010).

Brownlow and Zebrowitz (1990) investigated the impact of appearance on perceptions of expertise and trustworthiness. Females and babyfaced individuals were perceived as delivering communications which were less expert but more trustworthy than males and mature-faced individuals. This effect has also been found with statements accompanied by babyfaced images being rated as more truthful (Masip, Garrido & Herrero, 2003). Similarly, Brownlow (1992) found that babyfaced speakers received more agreement with their position when trustworthiness was questioned than did mature-faced speakers, but mature-faced speakers elicited more agreement than babyfaced speakers when expertise was questioned. This has implications for the workplace: if babyfaced individuals are viewed as delivering less-expert communications, they may be viewed as less competent in their job. This can have consequences in the form on promotions or the initial hiring of employees (Zebrowitz, 1997).

Wang (2015) investigated the impact of babyfaceness on hiring decisions. Results show that evaluations are made about job applicants' personality and competence based solely on their facial maturity. Babyfaced applicants were viewed

as kind, trustworthy and warm which resulted in them being hired for lower positions without managerial responsibility. In contrast, mature-faced applicants were perceived as showing greater expertise and competence, resulting in them being hired when applying for higher positions with managerial responsibility. This indicates that facial maturity can influence the type of job for which an individual is hired. Moreover, a pattern like this can have implications beyond hiring decisions. Facial maturity here has been found to dictate the status of the individual's position which will in turn influence their wage. Attractiveness (Frieze, Olson & Russell, 1991), height (Collins & Zebrowitz, 1995), and weight (Mitra, 2001) have all been found to influence how much an employee earns. It follows from this that if babyfaced individuals are less likely to be hired for management positions, they will not receive the monetary rewards of such a position as frequently as a mature-faced individual.

The relationship between facial maturity and competence has also been investigated in more mainstream jobs, as well as how this can relate to hiring decisions. Copley and Brownlow (1995) aimed to investigate whether hiring recommendations would differ for babyfaced and mature-faced individuals depending on the perceived characteristics the jobs required. Participants were given two job descriptions, one advertising a role requiring warmth and the other requiring power and competence and were asked to make hiring recommendations for these positions. Participants were given resumes of applicants featuring their name and a photograph, along with other information such as grade point average, which remained consistent across applicants, and rated how strongly they would recommend the applicant for each job. In line with expectations, results revealed that babyfaced applicants were rated as more appropriate for jobs requiring warmth than

were mature-faced applicants. Additionally, mature-faced applicants were considered more appropriate for jobs requiring power and competence than were babyfaced applicants. It can be concluded from this that, on the basis of facial structure, applicants were viewed as suited to jobs requiring different characteristics. The job descriptions differed between sexes: for female applicants the warmth role was that of a teaching assistant and the power role was a director's assistant, for males the warmth role was an intake counsellor at a homeless shelter and the power role was director of operations within the same establishment. This control measure was informed by the knowledge of stereotypes which indicate that females are better suited to jobs involving childcare (Zebrowitz, 1997) and designed to reduce the bias associated with jobs in this field.

When employing forced choice methodology to investigate hiring preferences between two candidates as done here by Copley and Brownlow (1995), there are a number of considerations which could impact on results. The use of the photographs of real people rather than manipulated images reduces the comparability as there will inevitably be variation within the photographs that may influence participant decisions, however, this improves ecological validity as when participants are making a hiring decisions, they are choosing between two real candidates rather than two manipulated versions of the same image, a method utilized by many researchers (Little & Perrett, 2007). A number of appearance characteristics including the wearing of glasses, facial hair and hair length have been found to influence perceptions of individuals relating to competence and forcefulness (Terry & Krantz, 1993) which may have had an impact on ratings of stimulus images in relation to these traits. Additionally, photographs which vary in ethnicity are more representative of the population, however, the impact of babyfaceness has been

found to differ depending on ethnicity, with research revealing a reversed babyfaced stereotype for babyfaced black CEOs (Livingston & Pearce, 2009). Other stereotypes, for example the stereotype of Asian is smarter (Cheryan & Monin, 2005), may influence perceptions of intelligence, making it more difficult to determine whether variation occurs as a result of facial maturity or an alternative stereotype.

In research by Zebrowitz, Tenenbaum and Goldstein (1991), participants evaluated babyfaced and mature-faced applicants' suitability for two positions within the same institution. The loan officer job description stated the position required applicants to be dominant, shrewd and, to some degree, cold. In contrast, the loan counsellor position advertised requiring applicants with traits like warmth and submissiveness, traits typically associated with babyfaced individuals. The results indicated that babyfaced applicants were viewed as more suited to the position of loan counsellor than were mature-faced applicants, and the loan officer role was recommended for mature-faced rather than babyfaced applicants. Furthermore, it was noted that females and low achievers were perceived as better suited to the loan counsellor role, while males and high achievers were rated higher for the loan officer position. An additional finding was that high achieving participants were rated as more mature-faced than moderate achieving applicants even when they were presented with the same photograph. These results do not just have implications for the influence of facial maturity on hiring decisions but also for advancement in the workplace; if mature-faced employees are perceived as higher achievers, they may receive a disproportionate share of promotions (Zebrowitz, 1997).

Additionally, these findings can be explained using the Facial Fit Principle (Zebrowitz, 1997) which suggests that the traits inferred from facial maturity lead to

individuals being perceived as more suited to jobs which require those traits. As we infer infantile traits in babyfaced individuals, the Facial Fit Principle (Zebrowitz, 1997) suggests that we will view the babyfaced as better suited to jobs requiring traits like warmth, trustworthiness, honesty, and naivety than a mature-faced individual. The opposite is also true in that mature-faced individuals, from whom dominance, competence and shrewdness are inferred, would be perceived as better suited to jobs requiring those traits. An interesting area of further investigation would be to assess the extent to which inferences on the basis of facial maturity are accurate. If babyfaced individuals are in fact warmer and more trustworthy, then their mature-faced counterparts, then the Facial Fit Principle (Zebrowitz, 1997) provides an easy frame of reference for a potential employer to select a suitable candidate. However, as Zebrowitz et al. (1998) concluded, perceptions based on facial maturity can result in a self-defeating prophecy and can produce significant effects opposite to that of the babyface stereotype. If this is the case, then employers may be selecting unsuitable candidates solely on the basis of a stereotype.

Overall, research into facial maturity and competence has elicited conflicting results, with some researchers noting a positive relationship (Livingston & Pearce, 2009), some a negative relationship (Franklin & Zebrowitz, 2016; Poutvaara et al., 2009), and some no relationship (Zebrowitz & Franklin, 2014). Factors such as gender (Chang & Chen, 2015), ethnicity (Livingston & Pearce, 2009) and job type (Copley & Brownlow, 1995) have all been found to influence this relationship. Additionally, such factors have been found to influence the relationship between babyfaceness and hiring decisions (Zebrowitz et al., 1991), with babyfaced individuals being favoured for the more customer centred role requiring warmth, and mature-faced individuals for the more senior position perceived to require

dominance. Although research is largely indicative of some relationship between facial maturity and perceptions of competence and hiring decisions in the workplace, there is still uncertainty as to the direction of this effect as well as the circumstances in which previously noted factors influence the relationship. The present study aims to clarify this.

Previous research in this area (Stephenson, 2018) aimed to investigate the relationship between babyfaceness and competence and identify whether this relationship differed depending when the individual was employed in a job requiring dominance or a job requiring warmth. Ratings of 60 faces (30 male, 30 female) for babyfaceness, competence in a warm job and competence in a dominant job were gathered from 112 undergraduate participants. It was found that babyfaceness was able to predict ratings of competence in jobs requiring warmth but not jobs requiring dominance, and subsequently found a lack of validity for the jobs selected as examples of those requiring dominance. The author also noted that the jobs selected in both categories differed on more dimensions that just those of warmth and dominance. Hence, the present study will incorporate other factors which may be linked to facial maturity which are intelligence, the ability to influence others, and responsibility. These jobs characteristics are informed by observations in the wider literature, firstly that babyfaced individuals are perceived as delivering less expert communications (Brownlow & Zebrowitz, 1990) and being lower achievers (Zebrowitz et al., 1991) which presumably is linked to perceptions of intelligence; that babyfaced males report feeling less influential in social interactions (Berry & Landry, 1997); and finally that babyfaced individuals were more likely to be found guilty of crimes relating to negligence (Zebrowitz & McDonald, 1991) paired with

their infrequent hiring for higher status jobs (Copley & Brownlow, 1995; Zebrowitz et al., 1991), which indicates the perception of a lack of responsibility.

The rationale for this study originates from a lack of consensus within the facial maturity literature. There is agreement that facial maturity influences perceptions of a number of characteristics and in a variety of contexts (Zebrowitz, 1997), however, in research surrounding the relationship between facial maturity and competence there are conflicting results. The present study aimed to answer three separate but related questions: Is there a relationship between babyfaceness and perceptions of competence in a variety of jobs? Does babyfaceness influence the jobs in which individuals are perceived to be most suited? Does babyfaceness affect who will be hired for a particular role?

The present study aims to clarify the relationship between facial maturity and perceptions of competence and whether this is influenced by the job in which the individual is employed. It is hypothesised that babyfaceness will have a negative effect on perceived competence in jobs requiring dominance, responsibility, intelligence, and ability to influence others, but a positive effect in jobs requiring warmth. Furthermore, it is hypothesised that the debilitating effect of babyfaceness will be more profound for men than women, as advised by Zebrowitz (1997). Additionally, the present study aims to investigate the relationship between facial maturity and hiring decisions both in the context of personnel selection for a particular role and when selecting the most suitable job for a candidate. It is hypothesised that babyfaced individuals will be selected more often for the role of carer than surgeon, and that the effect of facial maturity will be more impactful for men than women. Moreover, it is hypothesised that babyfaced individuals will be ‘hired’ for jobs requiring dominance, intelligence, responsibility, and ability to

influence others less frequently than mature-faced individuals, but more frequently for jobs requiring warmth.

Part one.

Ethics

Informed consent was gained from all participants involved. Prior to taking part, participants were informed of what the research would involve, how long it should be expected to take, and how their data would be used if they decided to take part. It was also stated that participants had the right to withdraw at any time during the study and, through the use of a secure ID they were asked to create, would be able to withdraw their data afterwards whilst maintaining anonymity. The deadline for this withdrawal was made clear. Participants were told that the study would be conducted using Qualtrics, meaning that all data was kept secure and could only be accessed by the researcher and supervisor. Additionally, participants were debriefed after their involvement. Their right to withdraw was emphasised in this debrief, as well as the purpose of the investigation and how their data would be used, the procedure to take if they wished to withdraw at a later date, and the contact details for the researcher, supervisor, and an independent third party. Ethical approval was granted for this study by the York St John University Cross School Research Ethics Committee (Appendix 1: Ethical Approval).

Ratings of Faces

Method

Participants

47 participants over the age of 18 were recruited using a number of social media platforms including Facebook and Twitter.

Materials

The photographs used in this study were obtained from DeBruine and Jones (2017). Photographs were of 102 individuals (53 male) with neutral expressions and featured only the face, neck and shoulders. Stimuli were presented at 1350x1350 pixels, in full colour, and forward-facing orientation, all of which remained consistent throughout.

Procedure

The questionnaire was administer online using Qualtrics. Photographs of 102 faces were presented to participants who had been randomly allocated to one of seven groups. Depending on the group to which they had been assigned, participants were required to provide ratings of dominance, warmth, babyfaceness, ability to influence others, responsibility, intelligence, or attractiveness on a scale from one to seven, where one is far above average and seven is far below average. Participants were assigned to groups evenly and randomly. Photographs within groups were presented randomly. All participants rated the same 102 faces.

Results

Firstly, reliability analyses were conducted to determine whether the number of raters gained provided sufficient reliability. Cronbach's alpha scores for all characteristics (Dominance N=7, Warmth N=9, Babyfaceness N=5, Responsibility N=5, Ability to Influence Others N=6, Intelligence N=8, and Attractiveness N=7) were above 0.797 (excellent).

Descriptive statistics were calculated for all 102 faces on each of the seven dimensions (Dominance, Warmth, Babyfaceness, Responsibility, Ability to Influence Others, Intelligence, and Attractiveness). The mean babyfaceness ratings were then used to identify the ten highest and ten lowest babyfaceness photographs

for males and females which will be used in further experiments. The mean ratings of other characteristics were used for further analysis.

Rating Jobs

Method

Participants

40 participants over the age of 18 were recruited using various social media platforms such as Facebook and Twitter.

Procedure

Participants were presented with definitions of dominance, warmth, influence, responsibility, and intelligence, and were asked to provide up to five examples of jobs which they viewed as requiring or involving high levels of these traits.

Results

The examples of different types of jobs (for example those requiring dominance) were identified by tallying how frequently each example occurred. Entries which were synonymous were classified as the same job, ‘teacher’ and ‘teaching’ for example. Those identified as the most frequently occurring examples of jobs requiring dominance were manager, teacher, police officer, doctor and CEO. Those identified as the most frequently occurring examples of jobs requiring warmth were nurse, carer, doctor, teacher and counsellor. Those identified as the most frequently occurring examples jobs involving a high degree of responsibility were doctor, police officer, teacher, lawyer, fire fighter and surgeon. Those identified as the most frequently occurring examples of jobs requiring the ability to influence others were teacher, salesperson, politician, police officer and counsellor. Those identified as the most frequently occurring examples of jobs requiring high levels of intelligence were doctor, teacher, scientist, engineer and lawyer. The three most

frequently occurring jobs in each category were selected for further use however, as a number of jobs occurred in the top three in multiple categories, it was necessary to include the fourth and fifth most frequent in some cases. This resulted in 15 jobs being selected for further study (dominance: manager, police officer, CEO; warmth: carer, nurse, counsellor; intelligence: doctor, scientist, engineer; ability to influence others: lawyer, salesperson, politician; responsibility: teacher, surgeon, fire fighter). The table of frequencies for the fifteen selected jobs can be found in Table 5, see Appendix 3.

Rating Jobs 2

Method

Participants

33 participants over the age of 18 were recruited through various social media platforms such as Facebook and Twitter.

Materials

The three jobs most frequently identified as examples of jobs requiring high levels of dominance, warmth, ability to influence others, responsibility, and intelligence were used in this study.

Procedure

Participants were required to rate each job on the dimensions of dominance, warmth, ability to influence others, intelligence based on the degree to which an individual in each job would require these traits. Additionally, participants were required to rate the extent to which each job involved a high level of responsibility. Ratings were given on a five-point scale from one (Extremely Important) to five (Not Important at All).

Results

Firstly, reliability analyses were conducted to assess whether the number of raters gained provided sufficient reliability. Cronbach's alpha scores for all categories (dominance, warmth, responsibility, ability to influence others, and intelligence) were between 0.793 (good) and 0.864 (excellent), showing strong agreement between participants as to the characteristics required for each job.

Descriptive statistics were calculated for each of the fifteen jobs for dominance, warmth, responsibility, ability to influence others, and intelligence and are displayed in table one. The mean ratings of these characteristics were used in further analysis.

Table 1.

Descriptive statistics showing the mean and standard deviation values for dominance, warmth, intelligence, influence and responsibility for the fifteen selected jobs.

	Dominance		Warmth		Intelligence		Influence		Responsibility	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Manager	2.93	1.107	1.96	.898	2.04	.980	1.70	.912	1.70	.465
Teacher	2.48	.893	1.37	.884	1.59	.797	1.56	.751	1.37	.492
Carer	3.85	.925	1.00	.000	2.77	.815	2.88	.909	1.65	.689
Nurse	3.15	1.008	1.23	.430	1.73	.778	2.50	1.105	1.50	.583
Police Officer	1.38	.637	2.46	.989	2.27	.827	1.58	.857	1.38	.697

Doctor	2.88	7.11	1.77	.765	1.12	.326	2.00	.938	1.31	.471
Salesperson	3.12	1.033	2.73	1.151	3.08	.997	1.85	1.120	3.04	.445
Politician	2.00	.980	2.96	1.113	1.73	.724	1.31	.471	1.46	.811
Scientist	3.65	1.093	4.04	1.248	1.04	.196	2.12	1.211	1.92	.744
Engineer	3.62	1.023	3.92	1.129	1.38	.571	3.27	1.079	2.27	.778
Lawyer	1.31	.618	2.96	1.183	1.23	.514	1.04	.196	1.65	.562
Counsellor	3.62	1.098	1.35	.562	2.00	.849	2.00	.938	1.96	.774
CEO	1.62	.898	3.04	1.113	1.85	.881	1.50	.707	1.35	.562
Surgeon	2.31	1.050	2.58	1.137	1.04	.196	1.96	.916	1.12	.326
Fire Fighter	2.04	.958	2.42	1.172	2.38	1.061	1.85	1.008	1.27	.533

Part two.

Ethics

Ethical procedure was the same as that of 'Part One'. Ethical approval was granted for this study by the York St John University Cross School Research Ethics Committee (Appendix 2: Ethical Approval).

Job Suitability

Method

Participants

50 participants over the age of 18 were recruited through various social media platforms such as Facebook and Twitter and through the Research

Participation Scheme at York St John University. Those recruited in this way were offered two points for their participation toward the six points required by the course.

Materials

The photographs used in this study were obtained from DeBruine and Jones (2017). Photographs were of 20 individuals (10 male) with neutral expressions and featured only the face, neck and shoulders. Stimuli were presented at 1350x1350 pixels, in full colour, and forward-facing orientation, all of which remained consistent throughout. These 20 images were selected from the 102 photographs rated in 'Ratings of Faces', with the 5 images rated as highest and 5 as lowest for babyfaceness were selected for males and females.

Procedure

The questionnaire was administered online using Qualtrics. Participants were presented with images of a babyfaced or mature-faced male or female, displayed one at a time and, for each image, presented with a binary choice between two jobs (surgeon or carer) and asked to select the job to which the individual is most suited. These examples of jobs were selected based on differences in the characteristics they are perceived to require based on data from 'Rating Jobs 2', with surgeon rated highly for dominance, intelligence and responsibility, and carer rated highly for warmth. Jobs within the same sector (health care) were selected to control for bias.

Results

Firstly, descriptive statistics were calculated for the four conditions for how frequently they were selected as Surgeon or Carer. The mean and standard deviation values are displayed in Table 2.

Table 2.

Descriptive Statistics for Female Low Babyfaceness, Male Low Babyfaceness, Female High Babyfaceness, and Male High Babyfaceness for selection as Surgeon (1.00) or Carer (2.00).

	Mean	SD
Female Low Babyfaced	1.54	.24
Male Low Babyfaced	1.50	.26
Female High Babyfaced	1.55	.26
Male High Babyfaced	1.65	.25
Overall Low Babyfaced	1.52	.18
Overall High Babyfaced	1.60	.16

Following this, a series of paired samples t-tests was conducted for Female Babyfaceness, Male Babyfaceness, Overall Babyfaceness and Overall Gender to determine whether group differences on the basis of facial maturity occurred in selection as Surgeon or Carer. Significant group differences were found for Male Babyfaceness, $t(41)=-3.23$, $p<0.05$, and Overall Babyfaceness, $t(41)=-2.28$, $p<0.05$, both of which indicated babyfaced individuals being selected for the job of carer more frequently. No significant groups difference was found for Female Babyfaceness, $t(41)=-.263$, $p=0.794$, or Overall Gender, $t(42)=-.670$, $p=.506$.

A further one sample t-test was conducted for Female Low Babyfaced, Male Low Babyfaced, Female High Babyfaced, and Male High Babyfaced. A significant effect was found only for Male High Babyfaced, $t(41)=3.88$, $p<0.05$, favouring the job of carer. Results for all other groups were found to be non-significant: Female Low Babyfaced, $t(41)=1.012$, $p=.317$, Female High Babyfaced, $t(41)=1.322$, $p=.194$, Male Low Babyfaced, $t(41)=.000$, $p=1.00$.

Discussion

The present study aimed to investigate the influence of facial maturity on job suitability. Data revealed significant group differences between high and low babyfaceness for men but not women when selecting the most suitable role, either carer or surgeon, for the candidate. A significant effect was only noted for high babyfaced men, which found them to be significantly more likely to be selected for the role of carer over surgeon. The opposite was not found, meaning mature-faced men were no more likely to be selected as surgeon over carer.

Results for carer were in line with expectations and the wider literature. With the job of carer being strongly rated as one requiring warmth, it follows that babyfaced individuals would be perceived as more suited to this job. Babyfaced individuals are perceived as warmer than mature-faced individuals (Berry & McArthur, 1986) and women are perceived as warmer than men (Ebert, Steffens & Kroth, 2014), therefore it was predicted that babyfaced men, and women generally, would be chosen as carer more frequently. As theorised by Zebrowitz (1997), it was predicted that babyfaceness would have a greater impact on images of men than women, as it provides the same limitations for men as gender does for women. This was largely the case, with babyfaced men being significantly more likely to be hired as carers than mature-faced men. However, the traditional gender stereotypes were not found, with there being no significant group differences on the basis of gender. Additionally, it would be expected that mature-faced men would be hired for surgeon more often than babyfaced men which the one sample t-test revealed was not the case. From this we can conclude that while facial maturity does influence perceptions of job suitability, at least for babyfaced men in this study, the relationship is still not clear.

Hiring Decisions

Method

Participants

48 participants over the age of 18 were recruited through various social media platforms such as Facebook and Twitter and through the Research Participation Scheme at York St John University. Those recruited in this way were offered two points for their participation toward the six points required by the course.

Materials

The photographs used in this study were obtained from DeBruine and Jones (2017). Photographs were of 60 individuals (30 male) with neutral expressions and featured only the face, neck and shoulders. Stimuli were presented at 1350x1350 pixels, in full colour, and forward-facing orientation, all of which remained consistent throughout. These 60 images were selected from the 102 photographs rated in 'Ratings of Faces', with the 15 images rated as highest and 15 as lowest for babyfaceness were selected for males and females. Images were presented in same-sex pairs which were selected at random.

Procedure

Participants were presented with two images, one babyfaced and one mature-faced, and asked to select which they would hire for a particular job. The jobs selected were the highest scoring from each category in 'Rating Jobs 2'. As a result, 'Police Officer' was selected as the example of a job requiring dominance, 'Carer' was chosen as a job requiring warmth, 'Scientist' is the example of a job requiring intelligence, 'Lawyer' was selected as a job requiring the ability to influence others, and 'Surgeon' was chosen as a job involving a high level of responsibility.

Results

Descriptive statistics were calculated for each job in relation to which individual. Babyfaced or mature-faced, were selected. The mean and standard deviation values are displayed in Table 3.

Table 3.

Descriptive Statistics for Police Officer, Carer, Scientist, Lawyer, and Surgeon for selection of either Mature-faced (1.00) or Babyfaced (2.00) individuals for these jobs.

	Mean	SD
Police Officer Female	1.48	.27
Police Officer Male	1.47	.25
Carer Female	1.58	.34
Carer Male	1.60	.32
Scientist Female	1.63	.35
Scientist Male	1.70	.29
Lawyer Female	1.33	.26
Lawyer Male	1.49	.30
Surgeon Female	1.47	.26
Surgeon Male	1.47	.25
Overall Police Officer	1.48	.21

Overall Carer	1.59	.26
Overall Scientist	1.66	.24
Overall Lawyer	1.41	.22
Overall Surgeon	1.46	.18

A one sample t-test was conducted for Police Officer, Carer, Scientist, Lawyer, and Surgeon. A significant effect was found for Scientist Female, $t(46)=2.576$, $p<0.05$, Lawyer Female, $t(46)=-4.503$, $p<0.05$, Carer Male, $t(46)=2.233$, $p<0.05$, and Scientist Male, $t(46)=4.556$, $p<0.05$, with babyfaced men being hired more frequently as carers and scientists than mature-faced men, babyfaced women being hired more frequently as scientists but less frequently as lawyers compared with mature-faced women.

Discussion

The present study aimed to investigate the impact of facial maturity on hiring decisions. The data show significant group differences between high and low babyfaceness in personnel selection for the roles of scientist and lawyer for females, and scientist and carer for males. From this we can conclude that facial maturity influences who is 'hired' for a job, with babyfaceness aiding all 'applicants' for the positions of scientist and male 'applicants' for the job of carer but hindering female 'applicants' for the role of lawyer.

As previously alluded to, babyfaced individuals perceived as warm, trustworthy and honest, would make them desirable applicants for the role of carer. As predicted, babyfaced males were 'hired' for the role of carer significantly more

often than mature-faced males. Babyfaceness in men could be described as alleviating the stereotype of men as colder than women (Elbert, Steffen & Kroth, 2014). Also in line with expectations, significant group differences were found for the job of lawyer for females, with mature-faced individuals being preferred. Lawyers are expected to exhibit a persuasive ability, however, higher babyfacedness has previously been associated with higher suggestibility (Nurmoja & Bachman, 2014). This may explain the results of the present study, with babyfaced individuals being perceived as more susceptible to influence rather than able to influence others as would be required of a lawyer. This effect being specific to females is not so easily explained.

The job of scientist, however, did not produce the expected result. It was predicted that, following from the stereotype of babyfaced individuals as less expert (Brownlow & Zebrowitz, 1990; Brownlow, 1992), mature-faced individuals of both sexes would be hired more frequently for the job of scientist given that it was rated as a job requiring high levels of intelligence. The contrary was found; significant group differences were noted between mature-faced and babyfaced applicants for both sexes, favouring babyfaced scientists. This may have occurred as a result of other personality traits associated with those employed in the sciences. Scientists are considered to be less assertive and less extraverted, which has been found to have some accuracy (Lounsbury et al., 2012), traits also observed more prevalently in babyfaced individuals (Berry & Landry, 1997).

Additionally, the jobs of Police Officer and Surgeon did not produce significant results. Hiring decisions for the role of Police officer, which was selected as an example of a job requiring dominance, were not found to be related to

babyfaceness, as was the case for the role of surgeon, selected as an example of a job requiring a high level of responsibility.

Babyfaceness and Competence

Method

Participants

50 participants over the age of 18 were recruited through various social media platforms such as Facebook and Twitter and through the Research Participation Scheme at York St John University. Those recruited in this way were offered two points for their participation toward the six points required by the course.

Materials

The photographs used in this study were obtained from DeBruine and Jones (2017). Photographs were of 60 individuals (30 male) with neutral expressions and featured only the face, neck and shoulders. Stimuli were presented at 1350x1350 pixels, in full colour, and forward-facing orientation, all of which remained consistent throughout. These 60 images were selected from the 102 photographs rated in 'Ratings of Faces', with the 15 images rated as highest and 15 as lowest for babyfaceness were selected for males and females.

The examples of jobs used were the three which occurred most frequently in each category in 'Rating Jobs', providing fifteen jobs for use in this study.

Procedure

Photographs of 60 faces were rated on a scale from 1 (strongly agree) to 7 (strongly disagree) for the degree to which participants agreed with a statement regarding their competence in a particular job. Each of the fifteen jobs were used four times, twice for each sex with one being a mature-faced and the other a babyfaced photograph.

Results

Descriptive statistics were calculated for Female Mature-faced, Male Mature-faced, Female Babyfaced, and Male Babyfaced ratings of competence in fifteen jobs. The mean and standard deviation values are presented in Table 4.

Table 4.

Descriptive Statistics for perceptions of competence in 15 jobs, 1.00 Strongly Agree the individual is competent to 7.00 Strongly Disagree.

	FM		FB		MM		MB	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Manager	2.07	1.03	3.56	1.57	3.49	1.25	3.18	1.42
Teacher	2.47	1.14	3.04	1.33	3.82	1.47	3.44	1.53
Carer	3.96	1.36	2.82	1.27	4.24	1.55	3.36	1.32
Nurse	2.35	.908	2.31	1.02	3.71	1.42	2.84	1.17
Police Officer	3.00	1.49	3.02	1.39	3.91	1.58	4.49	1.65
Doctor	2.36	1.07	3.44	1.56	2.73	1.40	3.58	1.39
Salesperson	3.20	1.36	3.20	1.39	3.24	1.17	2.98	1.32
Politician	4.59	1.60	3.82	1.37	4.71	1.63	4.22	1.49
Scientist	3.49	1.50	3.00	1.35	3.36	1.33	3.51	1.36
Engineer	3.76	1.58	3.47	1.44	3.16	1.36	3.18	1.37
Lawyer	2.64	1.13	2.93	1.32	4.23	1.61	4.29	1.41

Counsellor	2.80	1.22	2.78	1.31	3.78	1.52	3.67	1.51
CEO	2.69	1.40	4.87	1.56	2.82	1.40	4.96	1.43
Surgeon	3.18	1.27	3.82	1.54	5.09	1.44	3.67	1.31
Fire Fighter	3.40	1.67	4.22	1.78	2.69	1.29	3.18	1.47

A series of paired samples t-tests were conducted to assess group differences on the basis of facial maturity in ratings of competence in fifteen jobs. Significant group differences were found for Manager Female, $t(44)=-5.614$, $p<0.05$, Teacher Female, $t(44)=-2.534$, $p<0.05$, Doctor Female, $t(44)=-4.506$, $p<0.05$, CEO Female, $t(44)=-7.647$, $p<0.05$, Surgeon Female, $t(44)=-2.755$, $p<0.05$, Fire Fighter Female, $t(44)=-3.252$, $p<0.05$, Police Officer Male, $t(44)=-2.30$, Doctor Male, $t(44)=-3.322$, $p<0.05$, and CEO Male, $t(44)=-7.341$, $p<0.05$, with babyfaceness having a negative effect on ratings of competence. Significant group differences were also found for Carer Female, $t(44)=5.340$, $p<0.05$, Politician Female, $t(43)=3.098$, $p<0.05$, Carer Male, $t(44)=3.246$, $p<0.05$, Nurse Male, $t(44)=3.952$, $p<0.05$, $p<0.05$, and Surgeon Male, $t(44)=5.802$, $p<0.05$, with babyfaceness having a positive effect on ratings of competence. In summary, a significant group difference was found for Overall Babyfaceness Female, $t(43)=3.336$, $p<0.05$, with babyfaceness having a positive overall effect on ratings of competence, but no significant group difference was found for Overall Babyfaceness Male, $t(43)=-.329$, $p=0.744$.

Discussion

The present study aimed to investigate the relationship between facial maturity and perceptions of competence and whether this is influenced by the job in which the individual is employed. The data show that this is in fact the case,

however the relationship is not a simple one. Results from a series of paired samples t-tests indicated that the relationship is influenced by sex and, as predicted, by the job in which the individual is employed in the sense that babyfaceness did not affect competence for men and women in the same way across various jobs. Babyfaceness has been found to have a favourable impact on perceptions of competence for female in the position of carer and politician, but the opposite effect in the roles of manager, teacher, doctor, CEO, surgeon and fire fighter. Similarly, for men, babyfaceness had a positive effect on competence when employed as carer, nurse or surgeon but a negative effect for police officers, doctors and CEOs.

In terms of the categories to which the jobs were assigned, those found to show a negative relationship between babyfaceness and competence were in the category of either dominance, intelligence or responsibility for females and either dominance or intelligence for males. There was a positive relationship between babyfaceness and competence for women in jobs from the categories of warmth and ability to influence others, and from the categories of warmth and responsibility for men.

Previous research has produced conflicting results when it comes to the relationship between facial maturity and competence in a political context and regarding electoral success. Research in the US and other Westernised countries has found a negative relationship between babyfaceness and competence in a political candidate, it has not however, been able to identify a relationship between facial maturity and real electoral success (Poutvaara et al., 2009; Franklin & Zebrowitz, 2016). Research in collectivist countries, however, has found babyfaceness to be the strongest predictor of vote share, higher than perceived competence, warmth, and attractiveness (Chang, Lee & Cheng, 2017). The positive effect of babyfaceness in

this context has been identified as more influential for females (Lee, 2013). The finding from the present study that babyfaced females were rated as most competent in the job of politician, with the mature-faced male politician rated as least competent, is an interesting one. This trend follows what has been found in collectivist cultures but does not mirror that in the literature of Western politics. Researchers identified that desirable characteristics in a political leader differ cross-culturally (Rule & Ambady, 2010). Those electing the leader of a collectivist culture value traits such as warmth, whereas, in individualistic cultures traits of power are favoured (Rule & Ambady, 2010). Findings from the present study may therefore suggest a shift in desirable criteria on behalf of the electorate. The rating of a babyfaced female, an individual stereotypically perceived to be warm and trustworthy, as the most competent politician could suggest that raters are finding these to be desirable characteristics in a politician, which perhaps says something about the current political landscape.

The job of Surgeon produced an unexpected result. The role was rated highly for responsibility, intelligence, and dominance by participants, however, babyfaceness was found to have a positive effect on ratings of competence for the male surgeon. In comparison, babyfaceness had a negative effect on competence ratings for the male doctor. Perhaps it was a confounding variable within the photograph selected for the babyfaced surgeon that influenced this result. This could have been remedied by counterbalancing the stimuli presented in such a way that the image selected for male surgeon is not the same for every participant.

Due to a methodological limitation noted previously (Stephenson, 2018), participants were required to provide examples of jobs they felt required dominance, warmth, intelligence, responsibility and the ability to influence others. This aided in

overcoming the validity problem previously encountered in which ratings of dominance from faces were not found to significantly correlate with competence in dominant jobs (Stephenson, 2018). However, it appears that rather than being able to separate jobs into distinctly separate categories, there is overlap regarding desirable traits for positions; jobs can require intelligence and dominance for example, making it difficult to determine which characteristics is the most influential.

General Discussion

The present study aimed to answer three separate but related questions: Is there a relationship between babyfaceness and perceptions of competence in a variety of jobs? Does babyfaceness influence the jobs in which individuals are perceived to be most suited? Does babyfaceness affect who will be hired for a particular role? The answers to these questions, although connected, have different social implications but can collectively inform workplace practices.

Each additional experiment adds more clarity to the picture regarding facial maturity and workplace perceptions. Initially, ratings of competence give an indication as to how capable individuals are in their current job and how facial maturity influences this. There are social and workplace implications regarding the answer to this question, as if babyfaced individuals are perceived as less competent, which was the case for a number of jobs, this may result in them receiving less praise and promotion within their job and perhaps also being allocated tasks which are less challenging. Additionally, job suitability reveals which of two jobs an individual is viewed as most suited to on the basis of their facial maturity. This gives a more general insight into the types of jobs babyfaced individuals are suited to and can implicate hiring decisions as they may not be considered for a role if their face does not ‘fit’ (Zebrowitz, 1997). Finally, the practice of selecting which of two candidates

to ‘hire’ gives an indication as to whether facial maturity would influence hiring decisions, as being competent and suited to a job does not guarantee an individual to be hired. This has perhaps the most crucial implications as if babyfaced individuals are hired for a job less frequently than their mature-faced peers there is an injustice occurring. Furthermore, it is important to note the types of jobs in which this occurs as, in the present study, babyfaced female lawyers were hired less often, along with mature-faced male carers. Perhaps those responsible for recruitment in such professions should be mindful of their susceptibility to this bias.

In summary, babyfaced men were selected for the role of carer significantly more than mature-faced men. Significant group differences were found between babyfaced and mature-faced women for the jobs of scientist and lawyer, and men for the jobs of carer and scientist, with babyfaceness being preferred for carer and scientist but mature-faced preferred for lawyer. Babyfaced females were rated as significantly more competent than mature-faced women in the jobs of carer and politician, but mature-faced women were rated as significantly more competent than babyfaced women in the jobs of manager, teacher, doctor, CEO, surgeon and fire fighter. Babyfaced men were rated as significantly more competent than mature-faced men in the jobs of carer, nurse and surgeon, but mature-faced men were rated as significantly more competent than babyfaced men in the jobs of police officer, doctor and CEO. Collectively, these findings suggest that the relationship between babyfaceness and competence is influenced by the factors of gender and job characteristics.

Findings can largely be explained by the Facial Fit Principle (Zebrowitz, 1997) which expands on the Babyface Overgeneralisation Hypothesis (Berry & McArthur, 1986) by suggesting that the traits inferred from facial maturity lead to

people being perceived as more suited to jobs which require those traits. As we perceive the babyfaced to exhibit traits such as warmth, trustworthiness, honesty, and naivety, the Facial Fit Principle would suggest that such individuals are viewed as better suited to a job which requires traits such as warmth than the mature-faced. In addition to this, mature-faced individuals who are perceived to display traits such as dominance, be more knowledgeable, and better leaders, are seen as being better suited to roles requiring these characteristics. However, as this was not the case for all jobs in each category, there must be something else occurring which influences this relationship.

Carer has produced significant results across all studies, all of which indicate a preference for babyfaced carers. Carer was also the job which displayed the most agreement in relation to the characteristics required, with it being rated an average of 1.00 (extremely important) for a candidate to be warm. It is perhaps the case then that inconsistencies regarding facial maturity and other jobs may have occurred as a result of a lack of agreement over what characteristics are desirable for each role. Perhaps, in future studies, a job description or explanation of daily tasks involved in the job may help inform participants and gain a more accurate insight into this relationship. This would occur in real world decisions as those in charge of recruitment would know what is required in the job and therefore what traits would be desirable in an applicant.

As there was not one category in which all jobs elicited the same relationship with facial maturity, it could be that it is not possible to truly separate jobs into categories as all require a combination of skills and traits. It may be that in jobs which deem a number of characteristics to be desirable, a face displaying signals of both traits is most appropriate for the job. In a job which requires a combination of

traits such as warmth and trustworthiness which are perceived to be greater in babyfaced individuals, as well as characteristics perceived to be greater in mature-faced individuals such as being more dominant and knowledgeable, refers to requiring 'The Golden Mean' which alludes to a balance of both babyish and mature facial features being an indicator of the greatest competence as a combination of typically babyfaced and typically mature-faced traits being desirable (Zebrowitz, 1994). This could explain why some jobs have no significant differences on the basis of facial maturity. Perhaps it is also the case that the job category does not produce a uniform response as each different job will have a number of different connotations and factors which influence participant responses more than simply the concept of it requiring intelligence for example.

The use of methodology involving gaining perceptions from photographs of faces is perhaps not the most ecologically valid choice. Sparko and Zebrowitz (2011) noted that there was a moderating effect of facial movement on perceptions of the dominance and warmth of babyfaced women. They found that the impression of babyfaced women as warmer and less dominant was weaker when faces were moving than when they were static. If, as this research suggests, movement is a moderator of the relationship between babyfaceness and perceptions of warmth and dominance, it could be that research utilising photographs may not produce an accurate representation of the effect. Perhaps future research could imitate workplace interviews to give a more accurate experience of hiring an individual and also assess whether babyface effects are still present when movement occurs.

That being said, the photographs used in the present study were of real people rather than manipulated images. This reduces the comparability are there will inevitably be variation within the photographs that may influence participant

decisions, however, this improves ecological validity as when participants are making a hiring decisions, they are choosing between two real candidates rather than two manipulated versions of the same image, a method utilized by many researchers (Little & Perrett, 2007). A number of appearance characteristics including the wearing of glasses, facial hair and hair length have been found to influence perceptions of individuals relating to competence and forcefulness (Terry & Krantz, 1993) which may have had an impact on ratings of stimulus images in relation to these traits. Additionally, photographs varied in terms of ethnicity which was neither measured nor manipulated. Livingston and Pearce (2009) found babyfaced black CEOs to be more successful, meaning that the babyface stereotype may not have the same influence on people of all ethnicities. This also means that other stereotypes have not been accounted for example the stereotype of Asian is smarter (Cheryan & Monin, 2005) which may account for some variation in results.

Furthermore, gaining insight into the hiring decisions made by the general public may not necessarily provide insight into real-world decisions on personnel selection. The general public may not be particularly familiar with the role about which they are being asked and so may not be aware of the characteristics required. It may be an interesting follow up to use a sample of people whom would be responsible for recruiting individuals for these jobs, recruitment officers in the police force for example. This may be more ecologically valid and would allow for more of an insight into whether facial maturity does practically influence decisions regarding those hired. Although this may not necessarily alter results as managers have been found to remain susceptible to bias (Marlowe, Schneider & Nelson, 1996), it would indicate the likelihood of real hiring decisions been made on the basis of facial maturity.

An important question remains: are inferences based on facial maturity accurate? If babyfaced individuals are in fact more competent in particular jobs than mature-faced individuals, then the ability to infer this from their facial maturity can make personnel selection more efficient. However, in the more likely scenario that inferences of competence based on facial maturity do not relate to actual ability, then, in the recruitment process, suitable and capable candidates may not be selected for the job as a result of this bias. This should be a focus of future research as knowing the circumstances in which a bias occurs and the direction of this bias in context is one thing but knowing this accuracy of these judgements and how they can impact real individuals is quite another.

Overall, the three questions posed have not produced simple answers. It is clear that there is a relationship between babyfaceness and competence in the workplace, however it is a complex one. It differs depending on the characteristics the job is perceived to required and is absent completely in the case of some jobs. It is also clear that babyfaceness does influence perceptions of job suitability however, in this study only for males. Finally, it is clear that babyfaceness influences hiring decisions. However, there appears to be a relationship between gender and the type of job, with some proving significant only for women. Although there is evidence of a relationship present, there is the need for more research in the field to better determine the variables influencing the effect and whether there is an additional factor which the present study has not identified.

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Appendices

Appendix 1: Ethical Approval

York St John University,
Lord Mayors Walk,
York,
YO31 7EX

30th November, 2018

York St John University Cross School Research Ethics Committee
(Health Sciences, Sport, Psychological and Social Sciences and Business)

Dear Amy,

Title of study: The Relationship between Babyfaceness and Competence in the Workplace.
Ethics reference: Stephenson_30112018
Date of submission: 05/11/2018

I am pleased to inform you that the above application for ethical review has been reviewed by the Cross School Research Ethics Committee and I can confirm a favourable ethical opinion on the basis of the information provided in the following documents:

Document	Date
Application for ethical approval form	30/11/2018
Responses to feedback form	30/11/2018

Please notify the committee if you intend to make any amendments to the original research as submitted at date of this approval, including changes to recruitment methodology or accompanying documentation. All changes must receive ethical approval prior to commencing your study.

Yours sincerely,

Nathalie Noret

Appendix 2: Ethical Approval.

York St John University,
Lord Mayors Walk,
York,
YO31 7EX

3rd April, 2019

York St John University Cross School Research Ethics Committee
(Health Sciences, Sport, Psychological and Social Sciences and Business)

Dear Amy,

Title of study: The Relationship between Babyfaceness and Competence in the Workplace.
Ethics reference: Stephenson_03/04/2019
Date of submission: 29/03/2019

I am pleased to inform you that the above application for ethical review has been reviewed by the Cross School Research Ethics Committee and I can confirm a favourable ethical opinion on the basis of the information provided in the following documents:

Document	Date
Application for ethical approval form	29/03/2019

Please notify the committee if you intend to make any amendments to the original research as submitted at date of this approval, including changes to recruitment methodology or accompanying documentation. All changes must receive ethical approval prior to commencing your study.

Yours sincerely,

Nathalie Noret

Appendix 3: Rating Jobs 1 Frequencies.

Table 5.

Frequency of jobs given as examples of jobs requiring Dominance, Warmth, Responsibility, Ability to Influence Others and Intelligence.

Dominance	Manager	16
	Teacher	12
	Police Officer	9
	CEO	9
	Doctor	4
Warmth	Nurse	16
	Carer	12
	Teacher	12
	Counsellor	7
	Doctor	6
Responsibility	Teacher	15
	Doctor	14
	CEO	6
	Surgeon	5
	Fire Fighter	5
Ability to Influence Others	Teacher	13
	Politician	8
	Salesperson	7
	Police	5
	Lawyer	3
Intelligence	Doctor	18

	Scientist	13
	Teacher	10
	Engineer	7
	Surgeon	5