Mistaken identification is a major issue concerning systems of justice, and cross race identification is becoming increasingly recognised as one of the flaws in the recognition process. Meissner and Brigham (2001) constructed a meta-analysis of 39 studies and found that people are twice as likely to identify own-race than other-race faces in recognition line-ups. The two journal’s compared in this essay, Nature and Nurture in own-race face processing (Bar-haim, Ziv, Lamy & Hodes, 2006) and Three-month-olds, but not newborns, prefer own-race faces (Kelly, Quinn, Slater, Lee, Gibson, Smith, Ge and Pascalis, 2005) explore whether this own race effect (ORE) is prevalent in babies of different ages and cultures. Their aims were thus to identify whether this own-race-bias is innate or a result of environmental familiarity.

Bar-Haim et al (2006) aimed to investigate whether infants as young as 3 months old showed a preference for own-race faces. They wanted to investigate whether preference for own-race faces is affected by an infants exposure to members of the other race in their immediate environment. The study explored a number of previous research journal’s in to this area to highlight the grounding for their further research. For example Katz and Downey (2002) identified a habituation-dishabituation paradigm to test 6 months olds ability to discriminate between races, and found other race homogenization. In addition Sangrigoli and DeSchonen (2004) tested 3 months olds ability to discriminate between own and other race faces. They found that the infants orientated to novel faces of own race more than novel faces of other races. From such studies Bar-Haim et al went on to investigate 3-month-old babies of different racial backgrounds, to identify whether they showed own-race-bias (ORB). Using the standard visual preference task, 36 full term infants from three different populations were tested. 12 infants were Caucasian-Israeli born and lived in a predominately Caucasian environment, 12 were African-Ethiopian born living in a primarily African population and 12 infants were African-Israeli born and were bought up in a predominately Caucasian environment. The infants sat in a darkened room with their caregiver, and 2 faces of same sex and equal attractiveness, but different ethnic origins, appeared on a screen in front of them. An experimenter recorded online which of the two pictures the infant orientated towards.

Bar-Haim et al (2006) found a significant main effect of face and group for both the Caucasian-Israeli and African- Ethiopian groups concluding that these infants had a preference for own race. Comparatively the African-Israeli born infants showed no preference for race type. From these results the importance of childrens developmental environment on own-race prejudice was highlighted and Bar-Haim et al concluded that by the age of three months infants have the ability to discriminate between own-race and other-race adult faces. They suggested that this early preference for own race bias may be a contributing factor to race related bias later in life.

Kelly et al’s (2005) journal comparatively investigated when the emergence of sensitivity to ethnicity occurred and how it is shaped by an infants visual environment. Caucasian newborns and 3-month-old infants took part in the study and were exposed to
a range of ethnic groups using a visual preference task very similar to that used on Bar-Haim et al (2006) study. They predicted that newborns would not show a preference for faces of any ethnic group compared to 3 month olds who would show an own race bias. In an initial experiment, 64 healthy full term newborns were randomly assigned to one of 4 conditions where they either saw a face of their own race (Caucasian) with an African face, a Caucasian and a Middle Eastern, a Caucasian and an Asian or the control group who saw two Caucasian faces. Eye movements were recorded on film and analysed frame by frame by two independent observers.

In a second experiment the procedure was identical but with 64 healthy full term three month olds. Kelly et al (2005) found that newborns looked equally at both Caucasian and other race faces. Comparatively at 3 months infants attended more to Caucasian faces than African, Middle Eastern, or Asian faces. It was therefore concluded that face selection based on ethnic differences is not present in the first days of life but is learnt within the first 3 months. Kelly et al (2005) suggested that this emergence was due to a tuning of a face prototype by means of prominent own race face (ORF) exposure. And that being attuned to an ORF prototype creates a preference to look at ORFs more than other-races.

Own race bias is a particularly well-documented topic in applied psychology and in particular psychologists have been interested in identifying when and how this bias develops in young children. Kelly et al's (2005) work sits comfortably amongst previous studies as findings show that 3 month olds can discriminate between own but not other race faces (Sangrigoli & DeSchonen, 2004). The journal also identified that facial input, received early in life, dramatically influences the development of infant face representation and successive face processing abilities (Pascalis, DeHaan & Nelson, 2002). Kelly et al's (2005) study therefore successfully identified when this facial input becomes influential (in the first 3 months of life), however, the aims of the study are arguably treading on some common ground. As three months olds have previously been tested (Sangrigoli & DeSchonen, 2004) it is only the introduction of newborns that makes this study novel. Pascalis et al (2002) has already identified the effect of facial input in early life and therefore perhaps Kelly et al's study provides more of a broadening to our understanding of own race bias than investigating something untested.

Bar-Haim et al's (2006) study explored many previous studies identifying own race bias as an issue in different populations, cultures and ages. Feinman and Entwisle (1976) studied Caucasian and African Americans of different ages and found that own race bias was evident in every age group from school grades 1-6. In addition research by Katz and Downey (2002, cited in Bar-Haim et al, 2006)) and Sangrigoli and DeSchonen (2004), mentioned previously, identified OWB in infants as young as 3 months and habituation effects in children as young as 6 months. Research such as this provides a firm grounding to explore further issues of age and culturally related effects on ORB as Bar-Haim et al have done. It could be argued on the basis of previous studies that Bar-Haim et al's research addresss a more novel area compared to Kelly et al's as they use 3 novel population samples to explore the effects of living in different racial environments something which to date had been untested.

Both Bar-Haim et al (2006) and Kelly et al (2005) put forward contrasting explanations to identify the reasoning behind the development of own race bias. A hypothesis for ORE called contact/differential experience was identified in Bar-Haim et
al's (2006) study which suggested that ORB occurs because we have more contact with multiple face exemplars of our own race than of other-races. We therefore develop the ability to better recognise own race faces. The hypothesis was supported by a study on children from a minority group showing increased other-race recognition (Feinman & Entwisle, 1976). Kelly et al (2005) identified a similar model, Valentines (1991) Multidimensional face space model as an explanation for the development of own race bias. This model suggested that faces are encoded according to their deviation from the prototypical average (Valentine, 1991). This provided further grounding for Kelly et al's research because at birth the prototypical face is likely to be broad and unspecified (thus no ORE) however predominant exposure to own race faces throughout life would increase the ORE. This second model by Valentine (1991) encompasses the ideas mentioned Bar-Haim et al's hypothesis and could arguably provide a better explanation.

For example the Multidimensional face space model (Valentine, 1991) provides a much wider explanation perhaps identifying how children develop recognition for other things as well as faces. For instance a child may build a prototypical average for a dog based on what he/she has seen, and thus how likely they are to recognise other dogs would depend on his/her prototype and the dogs deviation from average. This model is also in similarity to the familiar face overgeneralization hypothesis (FFO) (Zebrowitz, White & Wienke, 2008) which suggests that racial prejudice derives from negative reactions to faces that deviate from the prototype of a face that someone has formed from experience.

The method and procedures of both Kelly et al's and Bar-Haim et al's studies are somewhat similar. However they do differ in many ways too. Bar-Haim et al used a group of participants that they maintained good control of gender differences and environmental upbringings. They had equal samples in each group providing high reliability. In addition this ensured a between subjects design, preventing any learning bias across conditions. Similarly Kelly et al's study also used this design. A limitation of Kelly et al's subject population, in difference to Bar-Haim et al's study, was that they didn't have equal numbers of males and females. This becomes a particular problem as recent evidence has shown that there are gender differences in face recognition. For example Wright and Sladden (2003) found that people are better at recognising faces of their own gender. Kelly et al used 36 males compared to 28 females and such differences may have influenced the results. For instance boys may have shown no face recognition preference when female pictures were shown to them, which would have made the results less valid.

Both studies ensured accurate control over the stimuli used, pictures were paired on gender, distinctiveness and attractiveness, which independent judges rated. Kelly et al's (2005) stimuli were all resized so that they matched identically and ensured uniformity. Bar-Haim et al didn't do this, which could have caused issues when assessing children's orientation. If some of the faces were larger or differently proportioned to others, it may have been this alone that drew the child's gaze not the race of the model. The procedures used in both studies were almost identical, and they both had good control of observer reliability. Recording the infants gaze and analysing it frame by frame meant that the accuracy of observer interpretation is far better than the naked eye. In addition this ensures that any data can be revisited if necessary. Inter-rater reliabilities for both studies were also very good as they were both higher than 85. It can be argued that the standard visual preference task is limited as we can never be sure that the child is
orientating towards the face because of racial features or some other domain. However this procedure is commonly used in many studies (Wright, Boyd & Tredoux, 2003; Kowal'ski and Lo, 2001) when investigating own race bias and it can therefore be assumed that the procedures used in Bar-Haim et al's and Kelly et al's study are as reliable as can be.

Kelly et al (2005) identified that using an infant sample meant that it was unclear which facial component was responsible for the own race effect, for example face colour or physiognomy or both. Although there is a clear contrast between African and Caucasian faces there is minimal difference identifiable between Middle Eastern, Asian and Caucasian faces. Bar-Haim et al questioned this idea too and went further to examine the ambiguity. A pilot study was constructed investigating whether infants own-race-bias was merely a colour bias. Bar-Haim et al replaced the faces with a colour patch (uniform pink or brown) and ran the experiment in the same format. Findings showed no specific colour preference indicating that infants were actually showing a specific ORB.

Bar-Haim et al's (2006) results supported their original predictions. They conducted 3 ANOVAs (face x group) one for each group/condition. The results showed a significant group x face type interaction for both the Caucasian- Israeli and African- Ethiopian conditions and a non-significant interaction for the Israeli born Ethiopian condition. Caucasian-Israeli infants looked significantly more at Caucasian faces whilst African Ethiopian infants orientated more on African faces. These findings supported Bar-Haim et al's original Contact/ Differential Hypothesis as they show that living in a majority own-race environment meant that the Caucasian- Israeli and African-Ethiopian infants were better at recognising own race faces. In comparison Israeli born Ethiopian infants, who lived as a minority in a predominately African environment, showed no bias.

Findings in Kelly et al's (2005) study equally supported their predictions. In their second experiment they performed multiple 2-tailed t-tests on the data to measure total time looking at Caucasian faces versus other race faces. They found an overall significance level of p<.001 indicating that infants showed an own race preference. This falls in line with Bar-Haim et al's findings, as they both show a significant effect of own race bias in infants orientation. The results of Kelly et al's first experiment also supports their original predictions showing a non-significant effect of race on newborns orientation. These findings support the Multidimensional face space model (Valentine 1991) as it shows that faces prototype are encoded through environmental exposure to face prototypes. Findings of both studies fall in line with previous research. For example Kowal'ski and Lo (2001) did a study on Taiwanese Children aged 3-11 and found an Asian Bias in all age groups. However, in the youngest age group less than half of the children showed this bias. Such findings greatly support the development of ORB over time as shown in Kelly et al's (2005) study as well as a significant ORB in children of non-Caucasian race (as shown in Bar-Haim et al's (2006) study).

Bar-Haim et al's (2006) study successfully explored the role of childrens racial environment in the development of facial preference, comparing infants growing up in predominately own race environment, to infants living in other race environments. By comparing different race populations Bar-Haim et al ensured good external validity. Kelly et al however failed to use a wide sample population including different racial groups and by limiting the sample population in this way cross comparisons between cultures cannot be made.
Together both studies provide a greater understanding in the development of, and influences on ORB. Having found that ORB develops at such a young age identifies the importance of child rearing in early life, as influences as little as the race of a child's environment can implant early ORE. Bar-Haim's study did implicate areas for future research into this area; the minority population sample (Israeli Ethiopian) they used made up a very small percentage of the total population (1%) and in comparison, previous studies have often used samples of about 15% total population. Such figures suggest implications for future research. If 15% of the population still show a non-significant effect of ORB it would be questionable to ask how large a minority group has to be for ORB to take effect.

ORB has been highlighted in Bar-Haim et al and Kelly et al's study as a clear and dramatic reality in children as young as 3 months. Such findings have major implications for the development of racial prejudice in adults and young people. Sangrigoli and DeSchonens (2004) have shown that own race bias disappears in 3 month olds when they are exposed to other race faces- even for a short period of time. Such findings alongside the work of Bar-Haim et al and Kelly et al make it clear that exposure is a clear element in the generation of ORB and perhaps this should make us all aware of the impact of environment. In addition this also should be taken into account when eyewitnesses are asked to identify suspects in line-ups. If infants are showing an own race bias at only 3 months such a bias is likely to develop and, as other research has shown, is likely to mean that recognition for other race face would be poorer.

References


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