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**Challenging and Improving Perceptions about Autism: A Mixed Methods Study**

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**Abstract**

 The aims of this thesis were twofold. The first aim was to examine the lived experiences of autistic people in relation to how they think that they are perceived by others and what they think the autistic stereotypes are. The rationale for doing this was due to a lack of studies in this area specifically asking autistic people about their perceptions of autistic stereotypes. A qualitative study was conducted, which included semi-structured interviews with 12 autistic adults. Findings demonstrated three main themes; (1) the primary stereotype is that autistic people are ‘weird’; (2) autistic stereotypes have negative effects and consequences; (3) autistic people are heterogeneous. The findings from this study were then used to inform the second aim and remaining studies in this thesis.

 The second aim of the thesis was to test an intervention to improve attitudes and reduce stereotyping towards autistic people (imagined contact). Studies 2 and 3 tested if an intervention that enhanced imagined contact by adding a counter-stereotypic element to it (a counter-stereotypic autistic person) maximised the effects of imagined contact towards autistic people, by specifically targeting people’s beliefs (or stereotypes) and attitudes, in addition to if imagined contact on its’ own was successful at improving attitudes and reducing stereotyping towards autistic people. Findings demonstrated that neither version of imagined contact was successful at improving attitudes or reducing stereotyping towards autistic people. Overall the findings in this thesis advance understanding about attitudes and stereotypes related to autism and have implications for research, as they highlight the importance of finding interventions which challenge negative stereotypes of autistic people to prevent any negative consequences that may occur as a result of these perceptions.

# Autism

Introduction

 “Autism is many varying things to each individual stakeholder: it is argued that autism is not a thing, but a debate about a thing”. Woods, Milton, Arnold and Graby (2018, p.977)

Given there are a number of different viewpoints related how autism is conceptualised and understood, the first chapter starts by considering a range of perspectives about autism, all of which have been shaped by both past and present thinking within the area of autism research. To demonstrate how thinking and understanding about autism have changed over the years, definitions of autism both pre and post the most recent diagnostic criteria - Diagnostic and Statistical Manual of Mental Disorders 5 (American Psychiatric Association, 2013), will be considered. The rationale for providing this is to capture the fluidity of how autism has been conceptualised and re-conceptualised across time, including the most up to date definitions of autism, in addition to highlighting the contested and complex nature of the concept ‘autism’ from a number of different perspectives. Having identified various contentions about how autism is defined and understood, the second part of the introduction outlines the current problem, namely that autistic stereotypes or beliefs about autistic people are on the most part negative, including a literature review of evidence. The potential effects of negative stereotyping are discussed, as are the aims of the thesis, and a rationale for using a mixed methodology in order to answer the research question.

### What is autism?

Autism is a multi-faceted concept. Currently, there are specific diagnostic criteria that would need to be met for an individual to warrant a diagnosis (Diagnostic and Statistical Manual of Mental Disorders-5, APA, 2013). However, definitions of autism vary according to a number of different perspectives including psychological, biological and critical disability perspectives, each of which will be now be discussed in turn.

### Psychological definitions of autism

Psychological definitions of autism have evolved since its’ conception in the early 1940’s. In Kanner’s (1943) seminal paper which looked at eleven case studies of autistic children, two key features that described autism were found. These included deficits in social interaction, or in Kanner’s words “an extreme autistic aloneness” (p. 242), in addition to a desire for sameness in terms of routines. Other features were also evident, such as stereotyped movements and repetitive behaviours, in addition to some sensory disturbance in response to loud noises and moving objects, all of which Kanner noted were present from birth. Around the same time, Asperger (1944) also reported similar features that he had identified in children. Describing the children he encountered as “autists” (p.39), Asperger also found a high level of difficulty in social interaction, as well as stereotyped movements and behaviour. Both Kanner (1943) and Asperger (1944) were amongst the first people to define the key characteristic features of what autism is.

These key characteristic features defining autism were then added to by Rutter (1971) whose definition of autism included essential features that would form the basis of the World Health Organisations’ diagnostic criteria for childhood autism (Jordan, 1999). Following on from this, Wing (1981) again identified the core deficit in autism was social in nature. The triad of impairments (Wing, 1981) consisted of impairments to social interaction, communication and imagination, which also helped to shape understanding of what autism is. In addition to providing a definition as to what autism is, Asperger (1944) also highlighted that whilst autism was distinctive in terms of its features, individual differences played a role in its manifestation, something which Wing (1981) also found when she advocated that autism is on a continuum, or a spectrum.

Early psychological descriptions of autism as a developmental disorder or a group of social, language and behavioural abnormalities, are also evident in the diagnostic criteria used by clinicians to diagnose autism. In earlier versions of the Diagnostic and Statistical Manual of Mental Disorders (DSM-1V, APA, 1994, 299.00), autism diagnoses included separate categories, such as: “Autistic disorder, Asperger’s Disorder, Retts Disorder, Childhood Disintegrative Disorder, and Pervasive Developmental Disorder Not Otherwise Specified” (page 299.00). In DSM-1V (APA, 1994), the triad of impairments introduced by Wing (1981) is evident. However, in the most recent edition of the DSM-5 (APA, 2013) there are no longer three levels of impairment, as previous symptoms defining autism have now been collapsed under two classes of symptoms, and under a single heading of Autism Spectrum Disorder (Singer, 2012). Specifically, in the new diagnostic criteria, Autistic Disorder, Asperger’s Disorder, Pervasive Developmental Disorder not otherwise specified and Disintegrative Disorder have been collapsed under one heading – Autism Spectrum Disorder.

According to the DSM-5 (APA, 2013), autism spectrum disorder, is characterised by: ‘persistent deficits in social communication and social interaction across multiple contexts, including deficits in social reciprocity, non-verbal communicative behaviours used for social interaction, and skills in maintaining and understanding relationships. In addition to the presence of restricted, repetitive patterns of behaviour, interests or activities’ (DSM-5, American Psychiatric Association, 2013, 299.00 (F84.0). In line with the DSM-5 (APA,2013), the most recent revision of the International Classification of Diseases (ICD-11) (World Health Organisation, 2018) a diagnostic tool which clinicians also use to diagnose autism, has also followed suit by placing other categories, including Asperger’s syndrome under the single heading of Autism.

The evolving nature of how autism is perceived is most evident in the way that diagnostic criteria have changed since its original conception in the 1940’s. Moreover, given the variance in diagnostic tools used to diagnose autism, it is unsurprising that the validity of autism as a diagnosis has been questioned (Mandy, 2018).

Also evident is that psychological perspectives on autism describe it as range of core symptoms and/or deficits residing in the individual. Other theories such as Theory of Mind (Frith, 1989) and those which focus on executive dysfunction (Frith, 1989), also advocate a role for individual deficits in autism. Specifically, Frith’s (1989) theory of mind hypothesis, proposes that autistic people have deficits in understanding basic communication, such as understanding things from other people’s perspectives, and executive dysfunction relates to deficits in memory and ability to control behaviour. The nature of what autism is and how it is understood according to this approach is therefore focused on pathological behaviours and deficits exhibited in the individual.

### Biological definitions of autism

Other definitions of autism, especially those from a biological perspective describe autism as being a neurodevelopmental condition with a genetic cause. The role that genetics have in the aetiology of autism has been highlighted by a number of different authors (Burbach, 2016; Geschwind, 2011; Lai, Lombardo & Baron-Cohen, 2014; Levy, Mandell & Schultz, 2009). Specifically, studies have highlighted the role of hundreds of causative or susceptibility genes in autism spectrum disorders (Burbach, 2016; Waye & Cheng, 2018). Moreover, a role of epigenetics, or the combined role of the environment, genetic and biological factors has also been advocated as playing a role in the aetiology of autism (Waye & Cheng, 2018). A biological perspective of autism would therefore define autism to be a genetic disorder.

### Critical disability definitions of autism

In contrast to psychological and biological descriptions of autism, critical disability approaches towards autism advocate a different meaning. Runswick-Cole, Mallett and Timimi (2016), define autism to be a fact of human nature, as opposed to a fact of nature, highlighting that autism is part of being human, as opposed to an abnormality of the human condition. Other scholars, especially those belonging to the neuro-diversity movement within autism, define autism as being a valuable form of human diversity (Freeman-Loftis, 2015). Specifically, rather than being a neurological deficit, autism is a neurological difference (O’Dell, Bertilsdotter, Rosquist, Ortega, Brownlow & Orsioni, 2016). These descriptions are in stark contrast to those presented in the DSM-5 (APA, 2013) and ICD-11 (WHO, 2018), where autism is defined as a deficit.

Furthermore, Wood et al., (2018) describe autism as being a philosophical entity or ‘thing’. That is, autism is not a diagnosis or biological difference, it is a debate about something that exists, the definition of which will vary according to the individual. From a critical disability perspective, it is evident that autism is defined as a diverse condition that is inherently part of the human condition, the definition of which will be subjective according to each person.

### Legal definitions of autism

Autism is recognised as a disability under the Equality Act (2010) and as such autistic people have protected characteristics under the Act. The current definition of a disability outlined in the Act is: ‘a physical or mental impairment that has a substantial and long-term adverse effect on people’s ability to carry out normal day-to-day activities’ (Equality Act, 2010, p.4). By focusing on impairment, this description places autism within the individual and gives little consideration as to how society can act to disable autistic individuals.

### Social and medical models of disability

Definitions of autism are influenced by various models/ thinking about disability. Descriptions of autism as being a mental disorder (DSM-5, APA, 2013) or as a cognitive or biological deficit, define autism as being a medical problem, which can be both individualising and pathologising (O’Dell, et al., 2016). However, the social model of disability (Oliver, 1996) proposes that wider factors such as society can disable people. Rather than focus on individualised pathology, the social model of disability views disability as a social construct where people are disabled by the environment, social and political barriers (Oliver, 1996; Rosa, Bogart, Bonnett et al., 2016). One barrier that society creates for disabled people, is the way that society is designed for non-disabled people (Anastasiou & Kauffman, 2013; Dunn, 2015). Societal barriers are especially important for autistic people, given that the core features of autism are defined by difficulties in social communication and interaction.

### Summary

There is a plethora of definitions as to what autism ‘is’ all of which are informed by different viewpoints which have evolved and continue to change over time, thus highlighting the contentious nature of defining autism. Descriptions of autism include psychological definitions, which define autism to be a set of observable behaviours, to genetic definitions of autism, which define autism as having a genetic basis. Other descriptions of autism see autism as part of being human, and as a neurological difference, and a valuable form of neurological diversity. Broadly speaking definitions of autism are underpinned by different approaches that see autism as either a disorder or disability residing within the individual, or as a social construct where society acts as disabler by creating a society that is set up for non-disabled people. However, perhaps most importantly is how these definitions and conceptualisations of autism can affect our perceptions and beliefs about autistic people.

## Perceptions of Autism

Autism stereotypes are on the most part negative, where autism is often conceptualised as a being a ‘problem and deficit’ (Jones & Harwood, 2009). Autistic people are often stereotyped as being disruptive and distracting to others (White, Hillier, Fry & Makrez, 2016), unsocial and quiet (Harnum, Duffy & Ferguson, 2007), in addition to having detached dispositions and few friends (Holton, 2013), all of which can act as a negative frame through which autistic people are viewed by others. This negativity is further compounded by the media, or more specifically press coverage where autistic people are depicted in a very negative way. Several studies have shown that the media (newspapers, films and books) has a role to play in perpetuating both negative and unrealistic stereotypes of autistic people, with a range of stereotypic depictions of autistic people being presented (Anjay, Palanivel & Palanivel, 2011; Conn & Bhugra, 2012; Draaisma, 2009; Jones & Harwood, 2009; Tang & Bie, 2016).

Jones and Harwood’s (2009) study, which looked at media representations of autistic people between 1996 and 2005, identified a dual stereotype specifically relating to autistic children, where children were seen as being either: uncontrollable, aggressive and violent, or unloved, unhappy or poorly treated. Furthermore, Maras, Mulcahy and Crane (2015) have highlighted how press reports linking autism to criminality in the media can reinforce negative stereotypes of autistic people, with no evidence supporting such a link. Taking this further, Brewer, Zoanetti and Young (2017) looked at the extent to which media reporting linking autistic people with criminal behaviour led to poorer attitudes towards this group, and whether a positive educational message showing no link between autism and criminality could mediate this effect. Findings demonstrated that people were more likely to show negative attitudes towards people with autism after reading a press report where the perpetrator of a violent crime was autistic compared to a control where the perpetrator of the crime has no diagnostic label, and this was not mediated by an educational message denoting no link between autism and criminal behaviour. Findings such as Jones and Harwood (2009), Brewer et al., (2017) and Maras et al., (2015) all highlight the power of media reporting to produce and re-produce negative stereotypes of autistic people which in the case of Maras et al., (2015) are unsubstantiated and not representative of all autistic people.

In sum, newspaper reports linking autism and criminality (Brewer et al., 2017 Maras et al., 2015), or depicting autistic people as being uncontrollable, aggressive and violent on the one hand, contrasted with unloved and poorly treated the other hand (Jones & Harwood, 2009) demonstrate a dichotomy of stereotypes where autistic people are depicted as being two extremes - either aggressive or submissive, both of which can influence people’s perceptions of autistic people in a negative way. Equally as negative is the ‘super-human’ stereotype that people with autism have superior ability in certain areas, for example maths or savant skills (Jones & Harwood, 2009; Tang & Bie, 2016; White et al., 2016). Anjay et al.’s study (2011), which looked at movie portrayals of characters with ASD found that savants were given undue prominence in films about ASD, something that has been exploited in the film Rain Man (Levinson,1988). The portrayal of the autistic savant Raymond Babbitt by Dustin Hoffman, who has exceptional talents in both mathematics and memory, yet is disabled by the society in which he lives, is perhaps one of the most well-known autistic stereotypes. However, this stereotype of the autistic savant has been widely criticised as being unrealistic and un-representative of the vast majority of autistic people who do not have savant skills (Draaisma, 2009; Conn & Bhugra, 2012, Magro, 2016; Freeman- Loftis, 2015).

The accuracy of autistic stereotypes presented in the media has been questioned. Garner, Jones and Harwood (2015) conducted a study using the Childhood Autism Rating Scale (CARS, 2) (Schopler, Van Bourgondien, Wellman et al., 2010) to measure the accuracy of film portrayals of autistic people according to 15 behavioural categories (e.g., relating, listening and intellect). Findings demonstrated that 13 out of the 15 films rated characterised autistic people as having a higher total mean score on the scale, indicative of more severe symptoms according to the CARS 2, than would be found in the normal population of people with ASD. Furthermore, representations of outliers or those with severe autistic symptomology also included misrepresentations of the autistic savant. Likewise, Kelley, Cardon and Algeo-Nichols (2015) used DSM-5 (APA, 2013) diagnostic criteria to look at which Autism Spectrum Disorder (ASD) symptomology is portrayed in fictional picture books for children. A content analysis of 15 picture books portraying individuals with ASD, demonstrated that the most commonly occurring symptomology was repetitive and/or restrictive behaviours, with social communication deficits also prevalent. However, whilst accurate, some of the character depictions were considered stereotypic of autistic people. An example of this is in relation to eye gaze and eye contact, which Kelley et al., (2015, p.414) assert were presented in a stereotyped way, such as people having no eye contact, as opposed to having ‘inappropriate eye gaze’ as defined in the DSM-5 (APA, 2013). Whilst on the whole character depictions did show symptomology contained in the DSM-5 (APA, 2013), some depictions were stereotyped.

However, whilst many autistic stereotypes have been outlined thus far, including autistic people being: disruptive and distracting to others, unsocial and quiet, having detached dispositions and few friends, savant skills, or being uncontrollable, aggressive and violent or unloved, unhappy or poorly treated (Jones & Harwood, 2009; Harnum et al., 2007; Holton, 2013; White et al., 2016) there is little empirical evidence that has specifically looked at what the autistic stereotypes are, from viewpoints other than the media. Wood and Freeth’s (2016) study, specifically asked undergraduate and postgraduate students to define the autistic stereotype. In their first study a free response method was utilised where students were asked to name as many autistic stereotypes/traits as possible, from the perspective of the general public. Findings showed the ten most frequently mentioned characteristics / traits were: poor social skills, introverted, withdrawn, poor communication and difficult personalities or behaviour, poor emotional intelligence, special abilities, high intelligence, awkward, obsessive and low intelligence. In their second study, both undergraduate and postgraduate students then rated each of the ten most frequently occurring stereotypes found in Study 1 in terms of their valance. Findings showed that eight out of the ten traits identified were rated as being negative in valance.

Furthermore, negative stereotypes of autism may also be exacerbated further by the use of a puzzle piece to symbolise the disorder (Brook, 2015). Specifically, the puzzle piece has been cited to be synonymous with incompleteness and not fitting in (Edmunds, 2013; Grinker & Mandell, 2015) and the idea that autistic people are a puzzle to be solved and worked on (Goin-Kotchel, 2015; McGuire, 2012). Moreover, evidence has also shown that the general public’s perceptions of the puzzle piece as both a generic symbol and a symbol for autism are negative. Specifically, Gernsbacher, Raimond, Stevenson et al., (2018) conducted a study to test people’s perceptions of puzzle piece imagery. Participants, who were members of the general public, were presented with both generic puzzle piece images and the puzzle piece representing autism, and asked to respond to a series of negative and positive word stimuli. Findings demonstrated that both generic puzzle pieces and those symbolising autism, were negatively associated with concepts relating to incompleteness, imperfection and oddity. Given that a puzzle piece is used to symbolise autism as a disorder, these findings demonstrate the potential for the use of this type of imagery to perpetuate any negative perceptions/ stereotypes of autism that people may have.

*1.2.1 Potential effects of negative stereotypes*

Several studies have found that stereotyping can impact negatively on autistic people. Van Hees, Moyson and Roeyers (2015) found that participants at university resisted disclosing their autism diagnosis, at least partially due to the generalisations people have about autism – such as people thinking they had ‘superpowers’ or a photographic memory. Mogensen and Mason (2015) also found a similar effect of perceived stereotypes on disclosure in a sample of autistic participants. In particular participants reported that due to the stereotypes and negative attitudes people hold towards diagnosis of autism, this led to resistance to disclose diagnosis. Similarly, Bargiela, Steward and Mandy (2016) examined the experiences of late diagnosed women with autistic spectrum conditions. Their participant sample reported that due to their atypical or counter-stereotypical presentation (e.g. having good social skills), people did not believe they were autistic, impacting on the willingness of professionals to make a diagnosis. It is therefore evident that societal stereotypes can lead to non-disclosure and delayed diagnosis, both of which may prevent autistic people accessing the services they are entitled to.

Moreover, the use of stereotypes to simplify perception may have even more profound consequences for autistic people, such as bullying. The incidence of bullying of autistic people has been well documented (Hickey, Crabtree & Stott, 2017; Humphrey & Symes, 2010; Kloosterman, Kelley, Craig, Parker & Javier, 2013; Rowley, Chandler, Baird, Simonoff, Pickes, Loucas & Charman, 2012; Sofronoff, Dark & Stone 2014; Streckovic, Brunsting & Able, 2014) Whilst there is no direct evidence to suggest that negative stereotypes of autistic people lead directly onto bullying, negative stereotypes that inaccurately dehumanise autistic people may lead to prejudiced attitudes, or negative attitudes (Hogg & Vaughan, 2011) that have been found to exist towards disabled people (Deal, 2007; Rohmer & Louvet, 2016; Schimchowitsch & Rohmer, 2016).

 Furthermore, evidence suggests that stereotypes can act to justify prejudice and discrimination (Crandall, Bahns, Warner et al., 2011; Devine, 1989; Rutland & Brown, 2001), which may also add to any stigma that people may face. Self-stigmatisation involves a process where people are both aware of and agree with group stereotypes, and then apply these stereotypes to themselves (Corrigan, Bink, Schmidt et al., 2016). This can have negative consequences for people, including low self-esteem and a range of other psychological problems (Corrigan, Bink, Schmidt et al., 2016; Link, Struening, Neese-Todd, et al., 2001; see Livingston and Boyd, 2010, for a review). Further, stereotype threat, where individuals feel at risk of confirming negative stereotypes held about their group (Good, Woodzica & Wingfield, 2010) has also been found to have negative effects on people (see Lamont, Swift & Abrams, 2015 for a review; Silverman & Cohen, 2014). In summary, holding negative stereotypes towards autistic people may lead to negative consequences for autistic people which go beyond non-disclosure and delayed diagnosis to prejudiced attitudes, negative behaviour, self –stigmatisation and stereotype threat.

### Aims of thesis

1. Whilst there have been numerous studies looking at what autistic stereotypes are, particularly in relation to media representations, there is a lack of research examining the lived experiences of autistic people in relation to how they think they are perceived by others and what the autistic stereotypes are. The first empirical study aimed to identify how autistic people think they are perceived by others, including what autistic people think autism stereotypes are.

2. Having established in the literature review and in Chapter 2 that negative stereotypes may lead to a range of negative consequences for autistic people such as non-disclosure, delayed diagnosis, self-stigmatisation and prejudiced behaviour from others, the second aim of the thesis was to test an intervention aimed at reducing prejudice towards autistic people (imagined contact). Specifically to test an intervention which enhanced imagined contact by adding a counter-stereotypic element to it (a counter-stereotypic autistic person) to see if it maximised the effects of imagined contact by specifically targeting people’s beliefs (or stereotypes) and attitudes, in addition to if imagined contact on its’ own worked to improve attitudes and reduce stereotyping towards autistic people. A review of empirical evidence supporting the efficacy of both imagined contact and counter-stereotyping strategies, in improving attitudes and reducing stereotyping is provided in Chapter 3. Chapter 4 provides details relating to empirical Study 2, which tested the effects of both standalone and enhanced imagined contact on improving attitudes and reducing stereotyping towards autistic people. In Chapter 5, a replication of Study 2 was conducted with a larger sample size of participants. Chapter 6, provides a discussion of the findings from the thesis and the implications they have for prejudice reduction research.

## Rationale for using a mixed method research design

In order to address the research aims, different research paradigms were considered. The aim of this section of the literature review is to provide a rationale as to why different research paradigms were used to address the aims of this thesis. Research paradigms, which are often conceptualised as being quantitative or qualitative in nature, are informed by both ontological and epistemological theories relating to how reality can be defined and understood (Dures, Rumsey, Morris & Gleeson, 2010). Ontology is a philosophical approach focused on the nature of reality or being/existing (Chatterjee, 2011; Goertx & Mahoney, 2012; Slevitch, 2011), whereas epistemology is concerned with what counts as ‘truth and legitimate knowledge’ (Slevitch, 2011, p.74), or how knowledge is conceptualised (Hughes, 1990). Both ontology and epistemology are conceptually important as they provide the foundations upon which both qualitative and quantitative methods are built, specifically in relation to the different ways in which both reality can be studied and knowledge can be obtained. Therefore, in order to address the research aims, both quantitative and qualitative paradigms were considered.

Qualitative research paradigms are based on ontological assumptions about reality. Specifically that reality is constructed through individual experiences of social interaction with others (Dures, Rumsey, Morris & Gleeson, 2010). Moreover, qualitative research designs are focused on subjective individual meanings that participants hold (Creswell, 2009). In contrast, quantitative research designs are underpinned by ontology that defines reality to exist as a single entity that can be quantified and measured (Creswell, 2009; Dures et al., 2010). Ultimately, both approaches offer a different way of looking at research questions based on particular ideas about what constitutes reality and the best way of finding out or accessing knowledge.

Given that the first aim of the thesis was to identify how autistic people think they are perceived by others, including what the autistic stereotypes are, a qualitative research design was chosen for the first empirical study. The rationale for choosing this type of method, was informed by both the research question itself (Hanson, Plano Clarke, Petska & Creswell, 2005), in addition to the ontology underpinning qualitative approaches, which focuses on participants’ unique subjective meanings and experiences of reality. Several qualitative approaches were considered. These included but were not limited to grounded theory, ethnography, thematic analysis and phenomenology. Grounded theory, is a particular method aimed at developing and creating theories from data (Charmaz, 2006; Goulding, 2011; Oktay, 2012), which in the context of the research aims, would have been unsuitable. Ethnography, involves studying or observing people in their natural environments, often through direct participation in the daily activities that people undertake (Brewer, 2000; Shar, 2017), which again would be unsuitable for the research aims. Thematic analysis offers a method, rather than a distinctive methodology from which to base a study on (Braun & Clarke, 2006; Clarke & Braun, 2017), which whilst offering theoretical freedom (Nowell, Norris, White & Moules, 2017) has its limitations as it only provides structure for the analysis, rather than providing a full methodology. Phenomenology, on the other hand, is an approach that provides an understanding of people’s experiences (Creswell, 2009; Somekh & Lewin, 2011), something which the first study aimed to find out.

Phenomenology aims to capture the individual person’s world as they live it, placing lived experience as the main knowledge source (Clarke, 2009; Smith, Flowers & Larkin, 2009). Phenomena can comprise of anything that the participants have lived experience of (Somekh & Lewin, 2011), which in the context of study 1, was how autistic people think that they are perceived by others. One approach that is built on phenomenology, is Interpretative Phenomenological Analysis (IPA) (Smith et al., 2009). IPA places the participant, rather than the researcher as the expert (Dickson, Knussen & Flowers, 2007), and attempts to understand participants unique individual experiences from the perspective of the participant (Pietkiewich & Smith, 2014). Via its detailed examination of lived human experience, IPA (Smith et al., 2013) offers both a philosophical stance and a framework by which individuals can share their experiences in a way that can then be interpreted by the researcher. However, IPA (Smith et al., 2009) offers more than just a philosophy about lived experience and how best to interpret this, this approach offers a comprehensive framework or methodology as to how to address research questions. This includes details about how to plan, collect data, analyse and write an IPA study (Smith et al., 2009).

Fundamentally, IPA (Smith et al., 2009) offers a complete methodological approach which starts from conception of the research question, and is based on philosophical theories that place the participants lived experience at the fore, with a focus on individual’s meanings of reality. IPA (Smith et al., 2009) offers a systematic framework for data collection, via semi-structured interviews, in addition to a systematic and thorough method of data analysis. It is for this reason that IPA was chosen as a suitable methodology for the first empirical study. Moreover, there is also alarge, and growing, body of literature surrounding its application to a range of experiences to explore phenomena from the point of view of participants (Brocki & Wearden, 2006; Clarke, 2009; Larkin, Watts & Clifton, 2006; Smith, 2004, 2011), in addition to literature that has demonstrated its suitability for autistic participants (Griffith, Totsika, Nash et al., 2011; Huws & Jones, 2015; MacLeod, Lewis & Robertson, 2013; Punshon, Skirrow & Murphy, 2009). Both of these add to the strength of using this type of methodology in the first study.

For the second and third empirical studies, a different methodological approach was used. Given the second aim of the thesis was to test an intervention aimed at reducing prejudice or improving attitudes towards autistic people, a quantitative approach was used. The rationale for using a quantitative, as opposed to a qualitative approach, was again driven by the research question, in addition to the ontology and epistemology underlying the approaches. The ontology underpinning quantitative research paradigms sees reality as being objective, as opposed to subjective, or as existing independently of both the researcher and the participant (May, 2011; Slevitch, 2011). A fundamental part of quantitative designs is also focused on testing hypotheses and on generalizing findings to populations (May, 2011). Moreover, quantitative designs help to establish if cause and effect relationship between X and Y exists (Reis & Judd, 2014). Given that the second aim of the thesis was to test an intervention aimed at improving attitudes towards autistic people, an experimental design was chosen.

In conclusion, there are a number of different methodological approaches that can be used to study phenomena and test hypotheses. Given that the aims of the current thesis were two-fold: the first aim was to examine the lived experiences of autistic people in relation to how other people perceived them, including what the autistic stereotypes are, the second, was to test an intervention which was aimed at reducing prejudice and improving attitudes towards autistic people, a mixed method design was utilised. By choosing a mixed methods design within the thesis, the researcher was not only able to account for the qualitative differences in relation to the questions being asked and choose the methods that were best placed to answer these, but also provide breadth and depth of understanding of the concepts being examined (Johnson, Onwuegbuzie & Turner, 2007). Furthermore, the advantages of using a mixed methods design, in accentuating the strengths and minimising the limitations of any singular approach are well documented (Johnson & Onwuegbuzie, 2004; Kelle, 2006; Ostlund, Kidd, Wengstrom & Rowa-Dewar, 2011). Thus making a stronger case for using a mixed methods approach in the current thesis.

### Chapter Summary

In summary, this chapter started off by looking at the different perspectives as to what autism is and how it is understood from a range of different perspectives, including psychological, biological and critical disability perspectives. It is important to include this, because if perceptions of autism are to be challenged and improved, an understanding as to how autism is conceptualised is important. Consideration as to how different models of disability, specifically medical and social models, shape understanding and perceptions of autism by defining autism as being either a problem residing within the individual or as a societal problem, have also been highlighted. Furthermore, perceptions of autism, specifically in relation to autism stereotypes, have been identified as being predominantly negative (Harnum et al., 2007; Holton, 2013; White et al., 2016), with negative depictions of autistic people in the media, exacerbating and perpetuating the problem (Brewer et al., 2017; Jones & Harwood, 2009; Maras et al., 2015). The potential effects of this on autistic people, have been discussed, including that negative stereotypes may lead to delayed diagnosis, resistance to disclose (Van Hees et al., 2015; Mongenson & Mason, 2015), and if left unchallenged, the potential for stereotypes to be used to justify both prejudice and discrimination towards others (Amodio, 2014; Dovidio, Hewstone, Glick & Essess, 2010).

However, whilst autism stereotypes have been established as being predominantly negative, few studies have asked autistic people how they think that they are perceived by others, and no studies have asked autistic people what they think autism stereotypes are. This thesis addresses this empirical gap, by conducting a series of studies, the first of which aimed to find out how autistic people think they are perceived by others, and what the autistic stereotypes are, and Studies 2 and 3, which were aimed at testing an intervention to improve attitudes and reduce stereotyping towards autistic people. In order to address these aims a mixed methods approach was used.

# Autistic people’s perceptions of autism: A qualitative study

## Introduction

Having already identified in Chapter 1 that autism stereotypes are on the most part negative, and may lead to negative consequences for autistic people, the aim of this chapter was to conduct a study which asked autistic people how they felt that they are perceived by others and what the autistic stereotypes are. The rationale for conducting this study was based on a lack of studies that had specifically asked autistic people these questions. The chapter starts by providing a brief overview of the literature regarding autism stereotypes and their potential effects on autistic people. A rationale for choosing IPA (Smith et al., 2009) is provided, in addition to the research questions and findings from the study. The chapter finishes by a discussion of the wider implications these findings have for autistic people.

###  Autism stereotypes

Several autism stereotypes exist, most of which are negative. These include autistic people being stereotyped as being disruptive and distracting to others (White et al., 2016), unsocial and quiet (Harnum et al., 2007) having detached dispositions and few friends (Holton, 2013) being withdrawn, awkward, obsessive and as having either low or high levels of intelligence (Wood & Freeth, 2016). The role of the media (newspapers, films, books) in perpetuating negative autistic stereotypes, which may or may not be accurate representations of autistic people has also been highlighted (Garner et al., 2015, Kelley et al., 2015). Overall, the majority of literature relating to autistic stereotypes demonstrates that autistic people are perceived in a negative light, which if left unchallenged may give rise to negative consequences for autistic people.

Negative effects of stereotyping have been found to include autistic people’s resistance to disclose their disability, due to the stereotypes and attitudes that people may hold against them (Mogensen & Mason, 2015; Van Hees et al., 2015) and delayed diagnosis due to autistic people presenting in atypical ways, such as having good social skills (Bargiela et al., 2016). Stereotypes may act to justify prejudice and discrimination (Crandall et al., 2011; Devine, 1989; Rutland & Brown, 2001), which may have profound consequences for autistic people, if stereotypes remain unchallenged.

### Study rationale

Whilst there have been numerous studies looking at what autistic stereotypes are, particularly in relation to media representations, no studies to date have specifically asked autistic adults what they think the autistic stereotypes are. It is important to know what they feel the perceptions of autistic people are, as if autistic people feel they are perceived in a negative light then this could result in negative consequences for autistic people. Asking autistic adults how they feel they are perceived by others will also provide a valuable source of information to facilitate better understandings of the nature of autistic people’s experiences (Griffith, Totsika, Nash et al., 2011; Huws & Jones, 2015; Punshon, Skirrow & Murphy, 2009). Moreover, this information could prove useful when designing interventions to combat stereotyping and negative behaviour.

### Aim of Study 1

The present study seeks to identify how autistic people think they are perceived by others, including what they think the autistic stereotypes are.

## Method

### Methodological approach

Given the aims of the current study, a qualitative research design was used. There are several different methodological approaches within the qualitative domain that could have been used in the current study. These include, but are not limited to grounded theory (Goulding, 2011; Otkay, 2012), ethnography (Brewer, 2000) and thematic analysis (Braun & Clarke, 2006). However, these were ruled out because they did not provide a comprehensive framework through which autistic peoples’ lived experiences could be examined and analysed. Interpretative Phenomenological Analysis (IPA) (Smith et al., 2009), on the other hand did provide such a framework (see Chapter 1).

Interpretative Phenomenological Analysis (IPA) (Smith, Flowers & Larkin, 2009) was chosen as a methodology for the study because it allows the researcher insight into the lived experience of particular phenomenon and has a large, and growing, body of literature surrounding its application to a range of experiences to explore phenomena from the point of view of participants (Brocki & Wearden, 2006; Clarke, 2009; Larkin, Watts & Clifton, 2006; Smith, 2004, 2011). In the current study this relates to finding out how autistic people think they are perceived by others.

IPA is underpinned by theory which looks at both phenomenology, where a person’s subjective experience of a particular phenomenon is examined, and hermeneutics which looks at how people understand and make sense of their experiences (Smith et al., 2009). Furthermore, IPA has been shown to be an effective methodology for studies with autistic people as research participants adding to the strength of this approach for the current study (Griffith, Totsika, Nash et al., 2011; Huws & Jones, 2015; MacLeod, Lewis & Robertson, 2013; Punshon, Skirrow & Murphy, 2009). In order to conduct an IPA study (Smith et al., 2013), researchers must ‘engage in a double hermeneutic’, a process whereby the researcher ‘tries to make sense of the participant trying to make sense of what is happening to them’ (Smith, Flowers & Larkin, 2009, p.3). In the current study the first author engaged in the double hermeneutic requirement of IPA by bracketing, or metaphorically putting to one side, any preconceptions they may hold about what the participants were saying in order to prioritise participants meaning making before their own. The author did this by keeping a reflective diary both pre and post interview, and referred to this during the analysis to ensure that the author’s own preconceptions were not unduly influencing their interpretation of participants making sense of their own experiences. (See Appendix A). The method of data collection used was semi-structured interviews.

### Ethical Considerations

Ethical approval was granted for the study by the Department of Psychology Ethics Committee at the University of Sheffield.

### Participants

Participants in the current study: (1) were aged 18 and over; (2) had an Autism Spectrum Disorder, including Asperger’s Syndrome, or were actively in the process of obtaining a formal diagnosis; (3) attended a social group for autistic people; (4) were verbally fluent. See Table 2.1 below. Participants were recruited from three different social groups across South and West Yorkshire, and as such this sample of participants is only representative of autistic people attending these groups. Specifically, this sample is not representative of autistic people who attend other groups in other areas, those who do not attend groups for autistic people, or autistic people in general.

The sample consisted of 12 participants, with an age range of 20 to 63 years (*M*= 37.33, *SD*= 15.02), all of whom, with the exception of Participant 3 who self-diagnosed as having autism, had received a formal diagnosis of Asperger’s Syndrome.

In spite of Participant 3 not having a formal diagnosis of autism, they were still included in the study. The rationale for their inclusion was twofold. Firstly, the current study is underpinned by a philosophy and ontological stance that specifically focuses on capturing individual people’s lived experiences, where the participants’ experience or ‘reality’ is the main source of knowledge (Creswell 2009; Smith et al., 2009). Specifically, IPA (Smith et al., 2009) is focused on capturing the individual person’s world, or sense of reality as they experience it and enabling people to share their own experiences (Pietkiewich & Smith, 2014). With respect to Participant 3, this participants’ reality or their construction of the world and their lived experiences are as an autistic person. Given that a key focus of IPA is on unique subjective meanings and experiences (Smith et al., 2009), and that Participant 3’s unique subjective meaning and experiences of reality are as an autistic person, they were included as part of the study. Secondly, IPA as a methodology places the participant, as opposed to the researcher as the expert (Dickson et al., 2007). Given that Participant 3 is an expert in their own experiences, which includes self-identifying as being autistic, the author would argue that they are in the best position to provide an insight into their own experiences as a person who experience is informed / shaped by them identifying as being autistic. It is for both of these reasons that Participant 3 was included on the study.

Eight of the participants were male and the remainder were female. See Table 2.1 for demographic details of each participant. All participants received a £10 Voucher for their participation.

**Table 2.1** Demographic information of participants

|  |  |  |  |
| --- | --- | --- | --- |
| Participant | Age | Gender | Diagnosis |
| 1 | 24 | Female | Asperger syndrome |
| 2 | 20 | Male | Asperger syndrome |
| 3 | 25 | Female | Autism & Mental Health\* |
| 4 | 24 | Male | Asperger syndrome |
| 5 | 39 | Female | Asperger syndrome |
| 6 | 58 | Male | Asperger syndrome |
| 7 | 49 | Female | Asperger syndrome\*\* |
| 8 | 37 | Male | Asperger syndrome |
| 9 | 63 | Male | Asperger syndrome |
| 10 | 53 | Male | Asperger syndrome |
| 11 | 24 | Male | Asperger syndrome |
| 12 | 32 | Male | Asperger syndrome |

\* Participant 3 – This participant self-identified as having autism, and was awaiting formal diagnosis. She also identified as having mental health issues – not specified.

\*\*Participant 7 – This participant had a dual diagnosis of Asperger syndrome and bi-polar disorder.

### Procedure

Prior to the study a Public and Participant Involvement event (PPI) was undertaken, where autistic adults were involved in commenting on the draft interview questions, information sheet and consent forms for the study. This involved the author contacting a local organisation that runs social groups for autistic people, attending groups in person to seek feedback about the suitability of the materials. Specifically, the author went along to a group with a draft of the materials (interview questions, consent form and information sheet) and asked autistic people attending the group and staff members working at the organisation for feedback. For the interview questions, autistic people commented on: (1) if the questions were written in a way that made sense and; (2) if the questions were too long. Specific feedback given by the autistic people attending the groups, included that some of the interview questions needed re-wording and that some of the questions were too long. Feedback also indicated that fewer questions were needed. Autistic people and staff also gave feedback on the consent form and the information sheet, where feedback indicated that both needed to be simplified and written in a more streamlined manner.

Following feedback from the people involved in the event, the interview questions were re-worded and the number of interview questions was shortened. Both the consent form and the information sheet were also amended to make them more concise and easier to understand. The amended materials were then used for the main study.

The author recruited participants for the main study in person, by going along to the social groups they attended. Participants and staff at the organisations where the study took place were given information about the study by the author, both verbally and in writing via an information sheet. The information sheet contained specific details regarding who the study participants would be (people with autism), the aim and purpose of the study, what the information would be used for, how data would be protected and how participants would be compensated for their time. Participants were able to decide whether they would like to take part by either participating before/after a future social group meeting or at an alternative time of their convenience. To ensure that all participants could make an informed choice about participation in the study, and in line with other studies that recruited autistic people as participants (Bottema - Beutel, Mullins, Harvey et al., 2016; Carrington & Graham, 2001), the interview questions, information sheet and consent forms were provided in advance. The interview questions were:

1. (a) What do you think the stereotypes\* of people with autism are?

\*a stereotype is a belief about a group of people that can be true or untrue

(b) Are the stereotypes positive or negative?

2. (a) Think about a person with autism. Is this person like the stereotypes that you have mentioned in question 1?

(b) Give me an example of the ways in which they fit the stereotypes that you have mentioned in question 1?

(c) Give me an example of the ways in which they do not fit the stereotypes that you have mentioned in question 1?

3. Do you feel think that you fit the stereotypes you have mentioned in question 1?

The author conducted the interviews, following the interview schedule verbatim, at various premises in South and West Yorkshire. Following consent being given, participants were given the opportunity to have someone else present – the majority of whom, apart from one participant, declined. Participants were then interviewed, and their responses were audiotaped. In addition to the research questions, various prompts and probes were used throughout the interviews such as: ‘tell me more about that’ to help facilitate responses from participants. At all times during the interviews participants were given the opportunity to elaborate on any aspect of their experiences and were actively encouraged to do this by the researcher. This included the researcher asking participants to elaborate on certain points and giving them time and space to share their experiences. Following the interview participants were debriefed and thanked for their participation. The time length of each interview varied between participants, ranging from 10-45 minutes, (*M*=28 minutes). All participants’ interviews were transcribed verbatim prior to analysis.

## Analysis

Following transcription, the author analysed each individual transcript using IPA (Smith et al., 2009). Each transcript was read carefully several times, the tape recordings were listened to. This was to ensure full emersion in the data, and to capture all aspects of the participants’ voices, such as subtle nuances of speech, in addition to sounds, feelings, appearance or meanings in the data. The author coded the individual scripts for (1) linguistic content (participants’ use of language), (2) descriptive content (what the participants were describing) and finally (3) conceptual understanding (interpretation of possible meanings).

The author then created a list of emergent themes based on interpretation for each participant, which were then placed into super-ordinate themes for each individual participant (See Appendix B). This process was repeated for all 12 transcripts. The final part of the analysis involved looking across the 12 transcripts as a whole to check for recurrent themes and compiling a list of master themes. In order for a theme to be classed as recurrent, it needed to be present across at least half of participants, or in the current study - in six or more participants. In the present study themes 1 (The primary stereotype is that autistic people are ‘weird’) and 2 (Autistic stereotypes have negative effects and consequences) were evident in 7/12 participants, with the final theme (Autistic people are heterogeneous) being evident in 8/12 participants. Data from Participant 3, who self-diagnosed as having autism, did not contribute to the final themes, suggesting that their experiences of stereotyping may be different to those who had a formal diagnosis.

In order to ensure credibility of the analysis an ‘independent audit’ (Smith et al., 2009) was conducted on a subset of scripts by the authors’ PhD supervisors. IPA differs from other qualitative research in relation to the auditing process. The independent auditor’s role is to ensure that the account provided is a credible one, rather than the only one (Smith et al., 2009). The aim of validity checks in this type of qualitative data are therefore to check how systematic and transparent the account that the interpreter has produced is. Further validity checks such as the researcher keeping a diary of their thoughts and feelings pre, during and post - interview, were also undertaken to ensure that researchers’ thoughts and ideas were bracketed out of the analysis and didn’t unduly influence the analytic process (See Appendix A for extracts from the authors’ diary). However, whilst these validity checks were in place, participants did not check over the interpretation of the data, and as such this may be a limitation of the study.

## Results

Three main themes were identified from the analysis of the data. These were:

1. The primary stereotype is that autistic people are ‘weird’
2. Autistic stereotypes have negative effects and consequences
3. Autistic people are heterogeneous

In order to protect each participant’s identity and maintain confidentiality, pseudonyms have been used in the results section.

### The primary stereotype is that autistic people are ‘weird’.

 Most participants thought that autistic people are perceived by others as being ‘weird’. When asked what he thought the autistic stereotypes are, Bob’s understanding of how others may perceive autistic people was in relation to their general weirdness, or sense of being odd.

 They just sort of like, just generally weird I guess and sort of in their own world most of the time. (Bob)

Bob’s use of the phrase in ‘their own world’ suggests that people may perceive autistic people as inhabiting a different world to non-autistic people. In contrast, the ‘weirdness’ of autistic people, rather than the world they inhabit, is emphasized by Margaret in the following quote:

 One of the stereotypes I think is quite interesting is people behave in an obviously weird way; they’ll move in a weird way, they’ll rock, they’ll drool. (Margaret)

 Margaret demonstrates how autistic peoples’ behaviour may be perceived by others as being weird in the context of neurotypical behaviour. The use of the word ‘obviously weird’ is used to highlight this, as if the behaviour is in some way emphasizing that there is something atypical or ‘weird’ with autistic people. By presenting the stereotype as being someone who rocks and drools, this also emphasizes the ‘weirdness’ of autistic people, or how far they are from being ‘normal’ or neurotypical. The use of the words ‘behaving and moving in a weird way’ denotes behaviour that cannot otherwise be explained or is outside the accepted norm, which again emphasizes a sense of weirdness, or being odd.

### Autistic stereotypes have negative effects and consequences

Many participants highlighted that negative stereotypes can lead to negative consequences for autistic people. The negative effect of stereotypes can be seen most profoundly in both Bob and Steven’s utterances when they state that negative stereotypes may lead to both bullying and exclusion of autistic people.

 Probably more leaning to negative, I imagine, I guess, like any sort of like, you know, just like you excluding other people is pretty bad in my book I guess. So, I imagine it would be like that. (Bob)

 Well, they probably like support bullying of people that have it, no, it’s not good. (Steven)

 In their utterances both Bob and Steven highlight the power that negative stereotypes may have to both exclude and oppress autistic people. In his utterance, Bob expresses how negative stereotypes may lead to exclusion of autistic people, by neurotypical people. This is expressed by the use of the word ‘you’ which in this context means the group that the researcher represents which is neurotypical, or non-autistic. The negative impact this can have on autistic people is also evident when Bob expresses how bad this is according to his ‘book’ or his moral code. Steven also echoes this point, where he asserts how stereotypes give power to others or in his words ‘support bullying’, which is also ‘not good’. The tone of both Bob and Steven’s utterances and the words used: ‘pretty bad’ (Bob) and ‘not good’ (Steven) add emphasis to the points they are making - which is ultimately that negative stereotypes may lead to negative consequences for autistic people as a group of people in society.

 Similarly, Margaret also highlights the negative effects of stereotypes in the way that she depicts stereotypes as being restrictive, tight spaces within which autistic people have to operate.

 I think most stereotypes are negative, because the very nature of a stereotype is to create a perimeter within which you should or ought to operate, and people are just not like that, and the minute you step outside the boundary of a stereotype, so if someone says ‘oh, you’re like this, therefore you’re not allowed to do that,’ the idea that you’re creating a boundary around that person, beyond which they shouldn’t or ought not to cross, so it’s saying, well, if you can do that, that means you’re not disabled. (Margaret)

 By defining stereotypes as being restrictive or as creating perimeters around people, Margaret’s words evoke a sense of being trapped within the stereotype. Use of the word ‘perimeter’ also sets out the parameters of how autistic people should behave, or that stereotypes define how autistic people should be. By using physical space as a metaphor, Margaret is able to not only emphasize a sense of confinement, but also how stereotypes define specific ways of being or behaving for autistic people, both of which leave little or no room for autistic people to be themselves. Margaret’s assertion that autistic people are ‘just not like that’ indicates that she believes that autistic people are not like the stereotypes, they are in fact unique. Margaret’s use of the phrase - ‘crossing the boundary’ is indicative of people who do not fit the stereotype or who may not be considered autistic at all, or that failure to live up to the stereotype or live within its boundaries, may result in them being seen as non-autistic. Furthermore, stereotypes define the boundaries in which disabled people exist, and if they are seen as being in some way atypical, or not like the stereotype this is equally as damaging as it takes away their identity and disability. Stereotypes therefore have the power to define who autistic people are, how they should act and what may result if people resist or don’t live up to said stereotypes. To sum up, in addition to stereotypes leading to the exclusion/bullying of autistic people, participants felt they are also restrictive, leave no room for individuality and if people are seen as being counter-stereotypic, may lead to autistic people being seen as non-disabled, all of which have negative consequences for autistic people.

### Autistic people are heterogeneous

 The heterogeneous nature of the autistic spectrum was a key theme for many participants, with participants highlighting the diverse nature of the spectrum, including where they see themselves and other autistic people on it. This included making the distinction between the ends of the spectrum, ranging from mild to severe, as well as using the spectrum as a marker to locate themselves’ on. Many participants also used the spectrum to differentiate how people may be stereotyped according to where they exist or were placed on the spectrum, with people placed at the severe end of the spectrum attracting more negative stereotypes than those considered to be at the less severe end.

 The diverse nature of the spectrum can be seen in how participants viewed the spectrum in relation to their own traits, and the differences of people on the spectrum. An example to illustrate this point is from Steven, a gentleman with Asperger’s Syndrome, who defines his autism as being a small part of autism, or as being on the less severe end of the spectrum:

 Like my Asperger’s, that’s only like a tiny part of autism. And it affects people in a lot of different ways, but they seem to just say, ‘he’s got autism, he’s like this’ and it’s not right. (Steven)

Steven’s use of the word ‘tiny’ depicts the way he sees his Asperger’s in relation to the wider autistic spectrum, by saying that it is a tiny part of the autistic spectrum. By defining his Asperger’s as being a tiny part of the whole, Steven is able to locate it as being small or at the less severe end of the spectrum. By adding that autism affects people in different ways, Steven is also able to demonstrate that the spectrum is varied and will affect people differentially according to where they are placed on it, such as at the mild or severe end. Sue also highlights the diversity of the autistic spectrum in the comparison that she makes about herself and others on the spectrum in relation to stereotypes:

 Because I’m more mild, so I’m more not got the worst of it, like I can – like most people don’t know I’ve got it, because I can deal with situations better, but I know there are people worse who might fit it a bit more. (Sue)

 Sue clearly feels that her autism is mild or not the ‘worst kind’ of autism. By making this comparison Sue is able to place her autism on the less severe end of the spectrum in terms of how it affects her ability to function. The invisible nature of her autism is also apparent - where Sue describes her autism being invisible, or not visible in her behaviour. Sue also indicates that those people on the autistic spectrum whose autism may be more visible through their behaviour may indeed fit the stereotypes more, or that autistic stereotypes are indicative of those on the severe end of the spectrum, rather than those who have milder symptoms. The diverse range of the autistic spectrum is also emphasized by Kevin, who highlights differences in autistic people, acknowledging the heterogeneous nature of this group.

 Because as I say, this person, to me, from my point of view, she’s totally different to what I would think – obviously I don’t know her personally, I would think somebody else, because she seems quite easy talking to me and other people she always – what’s the word – nothing seems to trouble her from my point of view, the things that she does, like without, thinking I’d struggle to do, like talking or communicating. (Kevin)

 Kevin bases his observations on an autistic person who is both talkative and finds social interaction relatively easy, in this way disconfirming the autistic stereotype. Having already said that he does fit the stereotypes, which he defines to be: ‘a bit slow and as having poor social and people skills’, Kevin then makes a comparison between himself and the lady who he feels is unlike him. By making this comparison Kevin places emphasis on how diverse autistic people are.

## Discussion

 The aim of this study was to identify how autistic people think they are perceived by others, including what they think the autistic stereotypes are. Three main themes emerged from the data: (1) the primary stereotype is that autistic people are ‘weird’; (2) autistic stereotypes have negative effects and consequences; (3) autistic people are heterogeneous.

The first theme indicated that participants felt they were perceived in a negative way by others, as being ‘weird’ or ‘odd’. Notions of ‘weirdness’ or negative difference have also been found in other studies where autistic people have spoken about not feeling ‘normal’ or as being ‘alien like’ (Hickey, Crabtree & Stott, 2017; Humphrey & Lewis, 2008; Vincent, Potts, Fletcher et al., 2017). This finding is important because if autistic people were to internalise negative stereotypes or believe them to be true, this may have a negative impact on their identity and subsequent behaviour, which is something that has been shown to occur with other minority groups who are negatively stereotyped (Lamont, Swift & Abrams, 2015; Spencer, Logel & Davies, 2016; Steele, Spencer & Aronson, 2002; Wheeler, Jarvis & Petty, 2001). Furthermore, if non-autistic people hold such negative beliefs about autistic people, this could affect non-autistic people’s behaviour towards others (Fazio, 1986; Fazio & Roskos - Ewoldsen, 2005; Glassman & Albarracin, 2006; Kraus, 1995).

 The link between negative attitudes and behaviour is evident in the second theme, autistic stereotypes have negative effects and consequences. Whilst there is no current evidence to support a direct link between autistic stereotypes, bullying and exclusion, there is evidence to suggest that stereotyping and prejudice are related (Amodio, 2014; Dovidio, Hewstone, Glick et al., 2010). Furthermore, there is evidence to suggest that a high percentage of autistic people have been subjected to bullying at various time points throughout their lives (Cappadocia, Weiss & Pepler, 2010; Hanley & Cullen, 2017; Humphrey & Symes, 2010; Schroeder, Cappadocia, Bebko et al., 2014) and this may be a result of the negative way in which they are viewed by others.

 In the second theme, autistic stereotypes have negative effects and consequences, it is also evident that stereotypes have the potential to take away people’s individuality. Indeed, stereotypes by definition are: ‘generalizations about a group of people in which certain traits are assigned to virtually all members, regardless of variation’ (Aronson, Wilson & Akert, 2007, p.418), which, by necessity, allows little room for diversity or individuality. Margaret expresses this clearly when she describes how restrictive stereotypes can be and that if autistic people step outside or behave in a manner that is considered to be counter-stereotypic, then they may not be considered autistic at all. This finding is similar to Bargiela, Steward and Mandy (2016), who found that diagnosis may be delayed for some autistic females due to them presenting in atypical ways, such as having adept social skills. In short, negative perceptions may lead to negative consequences for autistic people if they go unchallenged, as they take away autistic people’s individuality and allow no room for diversity. This finding is significant since it highlights the potential consequences that negative stereotypes may have on people if they are used as a basis from which to form impressions of other people.

 The third theme, autistic people are heterogeneous, highlighted the diverse nature of autistic people. This is evident when Steven describes his Aspergers’ as being a small part of autism and the extent to which autism affects people in different ways. Sue also echoes this point, by describing her autism as being mild, or not the worst type. These varying ‘degrees of autism’, or the extent to which participants see themselves as having mild autism, or as being on the less severe end of the spectrum in terms of symptomology, has been found in others studies (Huws & Jones, 2015). The diversity of autistic people was also evident in the range of traits that autistic participants reported having, or more specifically that autistic people can have traits that are both stereotypic and counter-stereotypic. This demonstrates that some autistic people feel they fit the stereotypes, or that certain autistic stereotypes may be accurate, and that some autistic people don’t fit the stereotypes, or they have counter-stereotypic or atypical traits. The idea that autistic people can have traits that may be considered counter-stereotypic or atypical has also been found in previous research (Macintosh & Dissanayake, 2006). In addition, the heterogeneous nature of autism, has been highlighted by other authors, including clinicians who are involved in diagnosing autism (Georgiades, Szatmari & Boyle, 2013; Hassall, 2016; Lord, 2011; Verhoeff, 2012). This finding is important because whilst autistic people share the same condition, there are profound differences in the traits they have and the extent to which these traits affect their behaviour.

### Strengths and directions for future research

This study makes an important and novel contribution to understanding the experience of being autistic in several ways. Firstly, it looks at stereotypes from the perspective of autistic people, offering a unique insight into how autistic people feel that they are perceived by others. It is important to ascertain how autistic people feel they are being perceived as this helps us to understand the lived experiences of autistic people. Interestingly, the individual themes for Participant 3 (who was still seeking diagnosis) did not contribute to the final 3 themes, and thus may suggest a different perspective to participants who had a more longstanding diagnosis. While the current data/analytical approach does not allow us to compare the differences in lived experience of those with a long-standing diagnosis vs. awaiting diagnosis, this would be a worthwhile topic for future study.

Secondly, participants who took part in this study felt that negative stereotypes may have a profound effect on people’s attitudes and behaviour towards them. Suggestions for future research could include interventions aimed specifically at changing negative stereotypes held by non-autistic individuals with regards to autistic individuals. Example interventions could include counter-stereotyping strategies (Dasgupta & Asgari, 2004; Goclowska Crisp & Labuschange, 2013) mental imagery tasks (Blair, Ma & Lenton, 2001) or interventions based on ameliorating negative attitudes and behaviour, such as imagined intergroup contact (see Miles & Crisp, 2014; for a review; West, Hotchin & Wood, 2017). While the autistic community should not have to be responsible for enacting coping strategies to deal with societal stereotypes, there are some techniques that can be employed which autistic people may find helpful. These include interventions such as those that target altering the stigmatised beliefs of the individual concerned or enhance the person’s ability to cope via increased self-esteem, empowerment and help seeking behaviours (see Mittal, Sullivan, Chekuri et al., 2012 for review). These strategies may help autistic people to overcome any negative feelings that may occur as a result of internalising negative stereotypes.

Finally, findings from this study have also highlighted the diverse nature of both the autistic spectrum and autistic people themselves, and that whilst autistic people share the same diagnosis, no two autistic people are the same. It is important to acknowledge the heterogeneity of autistic people as if we see autistic people as being unique individuals then we may be less likely to stereotype them as being all the same (Fiske & Neuberg, 1990; Fiske, Lin & Neuberg, 1999; Verplanken, Jetten & Knippenberg, 1996).

### Limitations

While there are many strengths to the current study, there are also limitations. It is important to note that in the current study there is a lack of participants with intellectual disabilities and major speech delays, and that this lack of developmental diversity has been acknowledged. Specifically, by recruiting participants who were both cognitively and verbally able, only these people’s voices are reflected in the current study, and the results should be viewed with this in mind.

Furthermore, it could be argued that due to autistic adults’ difficulty in perceiving others’ thoughts and intentions (Baron-Cohen, Leslie & Frith, 1985; Baron-Cohen, Jolliffe, Mortimore et al., 1997; Baron-Cohen, 2000) asking them how they consider they are perceived would be of limited value. The author disagrees with this view and proposes that the person concerned will always be the most appropriate person to provide insight into their own experiences. Perception of one’s own experience is the most important thing to consider when trying to understand the impact of the behaviour of others.

## Conclusion

Overall, participants in this study felt they were perceived in a predominantly negative way and that this may have negative outcomes for autistic people. This finding is important as negative attitudes towards others can lead to negative behaviour, if left unchallenged. The diversity and heterogeneity of autistic people is also evident in this study, where a range of traits, both stereotypic and counter-stereotypic can be seen. With this in mind the author asks that people think about the diversity of this unique group of people before making judgements about them.

In the next Chapter (3) a review of interventions aimed at improving attitudes and reducing stereotyping towards different groups of people can be seen. In Chapters 4 and 5, an intervention aimed at improving attitudes and reducing stereotyping towards autistic people is presented.

# Strategies to improve attitudes and reduce stereotyping towards autistic people

## Introduction

Having already established in Chapters 1 and 2 that autistic stereotypes are on the most part negative and may lead to negative consequences for autistic people, the aim of this chapter is to review two interventions aimed at improving attitudes and reducing stereotyping that can be used as an intervention to improve perceptions of autistic people, namely imagined intergroup contact and counter-stereotyping. The rationale for reviewing and focusing on imagined contact and counter-stereotyping strategies is twofold. Firstly, there is strong evidence demonstrating how effective imagined contact is in improving attitudes towards a number of different groups of people in society (see Miles & Crisp, 2014, meta-analysis). Secondly, there is potential for counter-stereotyping strategies to further strengthen the effects of imagined contact by specifically targeting negative stereotype based beliefs about autistic people.

The chapter starts by providing a general introduction to intergroup contact, an intervention that has been shown to reduce prejudice and improve attitudes towards a number of different outgroups of people in society. Prejudice is defined as unfavourable or negative attitudes towards others based on their group membership (Hogg & Vaughan, 2011). Imagined contact, an extension of intergroup contact that involves imagining an interaction with an outgroup member (Husnu & Crisp, 2010b), is then discussed in detail. This part of the chapter starts by looking at the original imagined contact study (Turner, Crisp and Lambert, 2007), in addition to other studies using this type of imagined contact (standard imagined contact) to improve attitudes. This is followed by a review of studies that have enhanced or modified imagined contact, in a variety of ways to improve attitudes towards different outgroups. Because attitudes are conceptualised as having three components: (1) beliefs (including stereotypes); (2) feelings and (3) behavioural tendencies towards different groups of people in society (Himmelfarb & Eagly, 1974), studies are organised according to which specific part of attitudes or components are being targeted and measured in the interventions. This is important to clarify, as it will help the reader to understand which attitudinal components have been targeted with previous interventions and which specific components have the potential for further exploration. The rationale for providing an in-depth consideration of studies using imagined contact is to demonstrate not only the effectiveness of this intervention to improve attitudes and reduce stereotyping, but also to show while imagined contact can be, and has been, modified in a number of different ways to further improve its effectiveness, there is room for further optimization.

The final part of the chapter reviews studies using counter-stereotyping strategies, which have been found to reduce stereotyping towards different outgroups of people in society. Included in this is a review of the potential that counter-stereotyping strategies have to enhance the effects of imagined contact on stereotype reduction towards autistic people. To finish, an intervention utilizing counter-stereotyping strategies to enhance the effects of imagined contact on improving attitudes and reducing stereotyping towards autistic people is proposed, which will form basis of the studies in Chapters 4 and 5.

### Introduction to intergroup contact theory

Since its’ conception, intergroup contact theory (Allport, 1954) has been widely used in a number of studies to reduce prejudice, with a plethora of empirical research providing evidence for its effectiveness (Pettigrew & Tropp, 2006). Intergroup contact (Allport, 1954) works to reduce prejudice by changing the underlying mechanisms involved in prejudice. Similar to attitudes, prejudice is made up of 3 parts: affect, cognition and behaviour (Aronson, Wilson & Akert, 2007, p.417). Prejudice reduction strategies such as intergroup contact therefore work by targeting specific components of prejudice in order to change them (Pettigrew, 1998). Specifically, contact works by decreasing anxiety, increasing knowledge and changing behaviour towards outgroups (Pettigrew, 1998; Pettigrew, 2008; Pettigrew & Tropp, 2008). Contact has been shown to decrease intergroup anxiety by reducing intergroup threat and increasing empathy towards different outgroups (Dovidio, Eller & Hewstone, 2011; Pettigrew, 2008). By specifically targeting the affective component of prejudice, people’s feelings are changed to be more positive towards outgroup members as they feel less threatened and have increased empathy for others. In turn this then leads to more positive behavioural intentions towards outgroups, that is people are more likely to engage in future contact with members of the outgroup, knowing that they have nothing to be fearful or anxious about (Crisp & Turner, 2009).

Moreover, contact works to reduce prejudice by changing the information that people hold about members of different outgroups (Pettigrew, 1998; Pettigrew, 2008). That is, contact increases knowledge about outgroup members, which has the potential to change negative stereotypes about certain groups of people (Pettigrew, 1998; Pettigrew & Tropp, 2006). This correcting of negative views / stereotypes towards outgroups then reduces the levels of prejudice people have (Pettigrew, 1998). However, the extent to which contact can facilitate cognitive change has been questioned. Specifically, Wilder (1984) cites that in order for contact to successfully change negative views or stereotypes related to outgroup members, the target group member must be typical of the outgroup as a whole. That is, if the group member is not representative of the group as a whole member to group generalisations cannot be made (Wolsko, Park & Judd, 2003) and the negative stereotype may remain intact. Furthermore, whilst contact has been shown to reduce prejudice by facilitating change at both an affective, behavioural and cognitive level, the effect of contact on changing affect and behaviour has been found to be stronger for that related to cognitive dimensions of prejudice, such as stereotypes (Pettigrew & Tropp, 2008).

Imagined contact, a derivative of contact (Allport, 1954) is based on contact theory and as such works in a similar way as actual contact to reduce prejudice. Specifically, it works to reduce prejudice by targeting affective, cognitive and behavioural components of prejudice (Pettigrew, 1998; Pettigrew, 2008; Pettigrew & Tropp, 2008). Similar to actual contact (Allport, 1954), imagined contact works to decrease feelings of anxiety such as feeling less anxious about meeting outgroup members (Crisp et al., 2009; Crisp & Turner, 2009) reduce stereotyping (Brambilla, Ravenna & Hewstone, 2012; Crisp & Turner, 2009) and improve behavioural intentions towards outgroup members (Miles & Crisp, 2014). Imagined contact works by using mental imagery to stimulate a real life encounter, thereby utilising the same underlying mechanisms used in actual contact (Crisp, Stathi, Turner & Husnu, 2009). That is, an imagined encounter with an outgroup member elicits similar emotional and motivational responses as real experience (Crisp et al., 2009).

As previously mentioned, in order for contact to be effective at reducing prejudice, certain pre-requisites must be in place. For example Allport (1954) specifies a number of conditions that need to be met for contact to reduce prejudice including: equal group status, common goals, no competition and authority sanction for the contact. However, the central tenet upon which it is built – namely direct contact with an outgroup member, cannot always be facilitated, i.e., if there is little opportunity for contact. Examples of this include social contexts defined by segregation – such as schooling where opportunities for direct contact with children with disabilities are not available (Cameron, Rutland, Turner, Holman-Nicolas & Powell, 2011) and contexts where people would not otherwise choose to seek out members of stigmatised groups. Real world examples of this can be seen in contexts such as Jamaica and Cyprus, where high levels of anti-gay prejudice act as a barrier for direct contact with people who are gay (West, Husnu & Lipps, 2015a).

To overcome this restriction, and as a way to extend the benefits advocated by the contact model, forms of indirect contact such as extended contact and more recently imagined contact, have also been shown to be successful at improving people’s attitudes towards outgroup members. Building on the original work of Allport (1954), research evaluating these strategies has shown that while direct contact is important, it is not a necessary condition for reducing inter-group prejudice. Specifically that extended contact (Wright, Aron, Mclaughlin-Volpe & Ropp, 1997), or knowledge that a member of one’s own group is friends with an outgroup member, is enough to lead to more positive attitudes towards the outgroup. This type of vicarious contact therefore offers an alternative to the limitations where direct contact is not possible.

However, given that the aim of the second study is to look specifically at improving attitudes and reducing stereotyping towards people with autism, the likelihood of the participants knowing someone who has a close relationship with someone with autism may well be limited, and as such the strengths of extended contact to effect change may well serve as a limitation in the case of the target population to be studied in this thesis. Imagined intergroup contact however is not constrained by the prerequisites needed for vicarious contact, and as such is a much more suitable intervention for the target group in this thesis.

 Imagining intergroup contact has been shown to be an effective technique to change attitudes, or more specifically to promote more positive feelings, behavioural intentions and beliefs towards outgroups (see Miles & Crisp, 2014 for a meta-analysis). Moreover, research has found the effects of imagined contact to be equally as effective as real contact (Choma, Charlesford & Hodson, 2014; Giacobbe, Stukas & Farhall, 2013), which adds further support for its effectiveness. Studies using imagined contact will now be discussed.

### Standard imagined contact

Standard imagined contact is an intervention which involves ‘mentally simulating a social interaction between an ingroup member and an outgroup member’ (Crisp, Stathi, Turner & Husnu, 2009, p. 4) in order to improve attitudes towards others and has been found to be an effective way to improve attitudes towards a number of different outgroups in society (*d+*=0.35, Miles & Crisp, 2014). In this thesis the term ‘standard’ imagined contact refers to the original scripts that were used for imagined contact that have not been modified or enhanced in any way.

The first seminal paper using imagined contact to facilitate attitudinal change was by Turner, Crisp and Lambert (2007), who conducted a series of experiments to test if imagined contact would both improve attitudes towards the elderly, and reduce anxiety and improve attitudes towards gay men. Specifically, participants in the first study were asked to imagine meeting an elderly stranger for the first time, or in the second study a gay man. In order to provide the reader with more contextual details about the type of scenario participants were imagining, the original scripts used can be seen below.

Imagined Contact:

*“We would like you to take a minute to imagine yourself meeting an elderly stranger for the first time. Imagine their appearance, the conversation that follows, and from what you learn, all the different ways you could classify them into different groups of people”* (Turner et al., 2007, p. 431).

Outdoor scene:

*“We would like you to take a minute to imagine an outdoor scene. Try to imagine aspects of the scene about you (e.g. is it a beach, a forest, are there trees, hills, what’s on the horizon?)”.* (Turner et al., 2007, p. 431).

Results from the studies found that following imagined contact with an elderly person, participants showed a decrease in intergroup bias, evidenced through more positive behavioural intentions to work with elderly people compared those who had imagined an outdoor scene. Moreover, following imagined contact with a gay man, findings showed that participants had lower levels of intergroup anxiety, in addition to more positive feelings towards gay men in general, compared to those who imagined an outdoor scene. The findings from these initial studies not only highlighted the potential for imagined contact to improve feelings and behavioural intentions to engage in contact with the outgroup, they also demonstrated the effectiveness of imagined contact to decrease intergroup anxiety. Perhaps of equal importance, Turner et al.’s (2007) studies also built the foundation upon which imagined contact could then be empirically tested, ensuring that two essential components of imagined contact (1) “instruction to engage in simulation, and (2) positively toned imagined contact” (Crisp & Turner, 2009, p.234) were in place.

### Studies using standard imagined contact to improve feelings and behavioural intentions towards outgroups

Similar to Turner et al., (2007), West, Husnu and Lipps (2015a) conducted a study which tested the effectiveness of standard imagined contact to reduce prejudiced attitudes towards gay people in both Cyprus and Jamaica. Study 1 was conducted in Cyprus. Following either imagined contact with a gay man or an outdoor scene, participants were tested on their attitudes and intentions to seek out future contact with gay men. Results found more positive attitudes and greater intentions to seek out future contact with gay men following imagined contact compared to the control (outdoor scene). Study 2, which involved a priming task, in addition to positive imagined contact and an outdoor scene, was conducted in Jamaica. Results demonstrated more positive feelings towards gay men and increased social acceptance of gay men, following imagined contact compared to simply asking participants to think about a gay man, or an outdoor scene.

In Vezzali, Crisp, Stathi and Giovannini’s (2015) study, participants were asked to imagine contact with a student from a different country, or an outdoor scene. Findings showed that those in the imagined contact condition had more positive feelings and less anxiety towards the outgroup, and would be more likely to engage in contact with members of the outgroup, compared to those who had imagined an outdoor scene.

Taking this further, West, Turner and Levita (2015b) tested if imagined contact could reduce stress responses towards future contact with someone with schizophrenia. This study also tested a second hypothesis – namely if imagined contact resulted in a more positive interaction with an outgroup member, or in this study a confederate playing the role of someone with schizophrenia. Following both imagined contact and then contact with the confederate, results showed lower responses to anticipatory stress, more positive feelings and greater behavioural intentions to engage in contact with people with Schizophrenia, compared to those who did not imagine contact with someone with schizophrenia, and were then asked to meet the confederate.

### Studies using standard imagined contact to improve beliefs about outgroups

Other studies have used imagined contact to improve people’s beliefs towards different outgroups, including Vezzali, Capozza, Giovannini and Stathi (2012), who examined the effects of imagined contact on children’s implicit attitudes and behavioural intentions towards immigrant children. Implicit attitudes are those which are involuntary and can be unconscious in nature (Aronson, Wilson & Akert, 2007). Findings showed that children who imagined contact with an immigrant child, reported lower levels of prejudice, as shown on the Child Implicit Association Task, and more positive behavioural intentions to immigrant children after imagined contact, compared with those who didn’t imagine contact.

Further support for the effectiveness of imagined contact to improve beliefs or change stereotypes about others comes from Brambilla, Ravenna & Hewstone (2012). In their study, Brambilla et al., (2012) examined if imagined contact could change the way in which groups of people were stereotyped along two dimensions – warmth and competence. After imagining contact with either Albanians, Chinese, Peruvians or Canadians, or an outdoor scene, results showed that imagined contact led to all of the target groups (with the exception of Albanians who were rated as being only marginally higher in warmth) being rated higher in warmth and competence than they had been originally, compared to those who imagined an outdoor scene. Similar results, have also been found by Cameron, Rutland, Turner, Holman-Nicolas and Powell (2011) who showed that following imagined contact, children were more likely to see disabled children as being warmer and more competent, compared to those who did not imagine contact with a disabled child.

Stathi, Tsantila and Crisp (2012) also examined the effects of imagined contact on cognitive change when they looked at changing negative stereotypes and future intentions to engage in contact with people with schizophrenia. After imagining contact with a person with schizophrenia, results showed less endorsement of stereotypic traits, in addition to more positive intentions to engage in future contact, compared with those who imagined an outdoor scene. Studies using standard imagined contact as an intervention to change attitudes, that is improve feelings and behavioural intentions towards others (Turner et al., 2007; West et al., 2015a, 2015b; Vezzali et al., 2012, 2015) as well as facilitate cognitive change by focussing on the belief part of people’s attitudes (Brambilla et al., 2012; Cameron et al., 2011; Stathi et al., 2012), have provided evidence for the strength of this approach to be used as an intervention to effect attitudinal change.

### Enhanced imagined contact

Since conception, the scenarios used for imagined contact have been modified or ‘enhanced’ in a number of ways which differ from the original used by Turner et al., (2007). Moreover, evidence suggests that design characteristics, such as the level of detail provided about the context of the imagined encounter have been found to be a significant moderator of the effects of imagined contact, with more contextual detail resulting in larger effect sizes compared to those with no or minimal information about the context (*d*=0.46 vs. *d*=0.21) (Miles & Crisp, 2014, p.17). In short, if the imagined contact scenarios are enhanced in some way, then this has been shown to result in larger effect sizes, thus maximising the effect of imagined contact.

### Studies using enhanced imagined contact to improve feelings and behavioural intentions towards outgroups

Studies that have modified or enhanced the imagined scenario share one commonality. Specifically they have all modified the imagined contact scenario by adding extra elements to it. However, they diverge at the point of the type of modifications that have been made to the scenario. The various ways in which imagined contact scenarios have been modified or enhanced are now discussed.

Husnu & Crisp (2010a) modified the imagined contact scenario to include different contextual details of ‘when and where’ imagined contact took place. In addition to this instead of imagining contact with one member of the outgroup (a Greek Cypriot), participants were asked to imagine meeting different outgroup members at the same time and place, or different outgroup members at different times and places, or an outdoor scene. Results showed that participants who imagined contact at different times and places indicated that they would be more likely to engage in future contact compared to the control and the condition where the context was the same (or the same time and place – but a different target member).

Building on this Husnu and Crisp (2010b) tested the effectiveness of neutral imagined contact (no details of time and place) to see if this would result in more positive intentions to engage in future contact with different outgroup members (British Muslims). Results demonstrated that participants were more likely to engage in future contact following imagined contact compared to the control condition who imagined an outdoor scene. Moreover, in their second experiment which modified the imagined contact scenario to include contextual details of where and when imagined contact took place, results showed that participants who imagined elaborated contact (where and when) showed greater intentions to engage in future contact with British Muslims, more positive attitudes and reduced inter-group anxiety, compared with those who simply imagined positive contact. Similar findings have also been seen by Husnu and Crisp (2011), who found that elaboration of both contextual detail in the scenario, and asking participants to close their eyes during the task, increased participants intentions to engage in future contact with the elderly, compared to those who didn’t imagine contact.

In addition to adding contextual detail about where and when contact takes place, there is evidence to suggest that if an element of cooperation is included in the imagined contact scenario, this makes the scenario more effective. Kuchenbrandt, Eyssel and Seidel (2013) added a cooperative part to the scenario by asking participants to engage in a cooperative task as part of imagined contact. Results showed lower levels of inter-group anxiety and increased levels of both empathy and trust towards the outgroup in the positive cooperative contact condition, compared with both positive imagined contact on its own, and neutral contact.

Other studies have modified the imagined contact scenarios to test the effects of different types of contact. Pagotto, Visintin, De lorio and Voci (2013), experimentally manipulated the imagined contact scenarios to look at the effect of inter-personal versus inter-group imagined contact. They did so by asking participants in the inter-group condition to focus on inter-group issues such as group values, traditions and their importance, whereas in the other conditions participants focused on talking about interests and hobbies (Page 211). Results showed that following imagined inter-group contact participants had more positive feelings and were more likely to engage in contact with Muslims, compared with those who imagined interpersonal contact or no contact.

A range of studies have also modified the imagined contact scenario by including more information about the target member, as either part of the scenario or prior to the scenario used for imagined contact. Fleva’s (2015) study tested if imagined contact together with additional information about people with Asperger’s Syndrome (AS) given to participants prior to imagined contact, resulted in improved behavioural intentions and attitudes towards both a hypothetical peer with AS and people with AS in general. Participants, who were young adolescents, were allocated to one of four conditions: (1) imagined contact and descriptive information about a person with AS; (2) no contact and descriptive information about a person with AS; (3) imagined contact and combined information about a person with AS; (4) no contact and combined information about a person with AS (Page 4). Descriptive information presented to participants highlighted both similarities and differences between people with AS and those without, whereas combined information included both descriptive information and information explaining what AS is. Participants watched a Powerpoint presentation containing vignettes about a hypothetical peer with AS, together with either descriptive or combined information. Following this they were allocated to either imagined contact with a hypothetical peer with AS or a control, who simply imagined being in the presence of a hypothetical peer with AS with no interactive element to the task.

Results showed a higher level of behavioural intentions to engage in social and academic activities with a child with AS, but not on recreational activities taking place outside school in the imagined contact condition, compared to the control. However, there was no effect of imagined contact or type of information given on improving participants’ attitudes towards people with AS in general. One possible explanation for this unexpected finding could be due to the self-generated questionnaire used in this study (Asperger Syndrome Questionnaire) which Fleva (2015) acknowledges may not sufficiently measure attitudes. A different measure – such as the Societal Attitudes Towards Autism Scale (SATA) (Flood, Bulgrin & Morgan, 2012) may have been more suitable, as it has been shown to be a reliable and valid measure of attitudes towards people with autism.

West, Holmes and Hewstone (2011) have also enhanced the imagined contact scenario by providing more information about the target group members in order to increase the positivity of the task. Across a series of studies, West et al., (2011), modified the imagined contact scenarios to include positive information about the target group (people with schizophrenia) which was presented either prior to the scenario (study 2) or as part of the scenario (studies 3 & 4). This positive information included stereotype – disconfirming (counter-stereotypic) information about people with schizophrenia that was realistic of this group of people. Findings showed that the inclusion of positive information (counter-stereotypic information) as part of the scenario resulted in decreased anxiety levels and more positive feelings towards people with schizophrenia, compared to neutral contact, where information was presented prior to the imagined task. This study is important in two ways, firstly it highlights the potential for imagined contact to be modified and second it highlights the feasibility of including counter-stereotypic information into the imagined contact scenario itself.

Moreover, this study raises an important issue for consideration – namely the challenges of using both positive and accurate information to challenge stereotypes about groups of people. Specifically for autistic people, the target group in this thesis, a balance will need to be struck between the positive information provided about autistic people and an accurate portrayal of autistic traits. That is, information presented as part of both the standard and counter-stereotypic imagined contact scenarios must be both realistic and accurate of the disorder. The way in which this can be balanced in respect of autistic people is to ensure that any positive or counter-stereotypic information used in the enhanced imagined contact scenario is accurate and any information used in the standard imagined contact scenario – is not overtly negative (stereotypic) but is also accurate. A discussion as to how this has been operationalised in relation to autistic people can be seen in Chapter 5 (Imagined Contact Materials).

### Studies using enhanced imagined contact to improve beliefs towards outgroups

The effects of imagined contact on lowering levels of implicit bias, or stereotyping towards others has been shown by Turner and Crisp (2010) who modified the imagined contact scenario to include information about the target group. Specifically, the scenario was enhanced by asking participants to find out ‘some interesting and unexpected things’ (Page 134) about the person they were imagining contact with. Results demonstrated that following imagined contact with an elderly person, participants reported more positive feelings towards the elderly and less implicit bias, compared to those who imagined an outdoor scene. These results were also found in their second study where participants who imagined positively toned contact with a Muslim showed lower levels of bias towards them compared with participants who simply thought about Muslims.

### Limited studies using enhanced imagined contact to change beliefs towards the outgroup

In contrast to the number of studies that have used enhanced imagined contact to improve feelings and behavioural intentions towards different members of various outgroups (Choma et al., 2014; Fleva, 2015; Giacobbe et al., 2013; Husnu & Crisp, 2010a, 2010b, 2011; Kuchenbrandt et al., 2013; Pagotto et al., 2013; Stathi et al., 2011; Turner & Crisp, 2010: West et al., 2011) those using it to improve beliefs towards others are limited in nature, with the exception of Turner and Crisp (2010). Moreover, while imagined contact has been shown to have an overall effect size of (*d+*=0.35, Miles & Crisp, 2014, p.3), less is known about the specific effects of imagined contact on cognitive measures, such as stereotyping. This may be due to the small number of studies that have specifically looked at this, or the way in which the attitudinal components have been collapsed together under one umbrella heading of attitudes (*d*+=0.35, Miles & Crisp, 2014,p.3), making it difficult to tease apart the overall effect of imagined contact on cognitive change. The extent to which imagined contact can facilitate cognitive change, is therefore open to further exploration.

### Critique of imagined contact

While a large amount of studies have shown that imagined contact can work to improve attitudes towards a number of different groups of people in society, there is evidence to dispute its’ effectiveness (Dermody, Jones & Cumming, 2013; Klein, Ratcliff, Adams et al., 2015; McDonald, Donnelan, Lang et al., 2014). This includes studies that have failed to find an effect of imagined contact on improving both explicit and implicit attitudes towards gay men (Dermody et al., 2013) and those that have either failed to replicate the effects seen in previous imagined contact studies (McDonald, Donnelan, Lang et al., 2014) or have found weak support for its effects (Klein et al., 2015).

Moreover, a number of variables, such as individual differences have been shown to moderate the effect of imagined contact on people’s attitudes. Asbrock Gutenbrunner and Wagner (2013) have shown that while imagined contact can be effective for some participants, such as those with high levels of Right Wing Authoritarianism (RWO), it can be ineffective for those who have lower levels of Social Dominance Orientation (SDO), or bias towards outgroups. Other studies using direct contact, which imagined contact is a variant of, have also shown that people with lower levels of SDO, or lower levels of bias towards other groups of people are less likely to benefit from contact based strategies (Hodson, 2008). Further support for the moderating effect of individual differences on imagined contact has also been identified by West, Hotchin and Wood (2017), who found that imagined contact is less effective for people who have lower levels of prejudice, compared to those with higher levels of prejudice.

###  Does prior contact with members of the outgroup moderate imagined contact’s effects?

A small number of studies have shown that previous contact with members of the outgroup can moderate the effects of imagined contact on attitudinal change, making it ineffective. Lee and Cunningham (2014) tested if imagined contact improved participants’ negative attitudes or prejudice towards gay men in both South Korea and the United States. Results showed that while imagined contact worked to reduce prejudice and lower anxiety levels towards gay men in the South Korean sample, this effect was not observed in the American sample. The potential reasons advocated for this by Lee and Cunningham (2014) were that prior contact with gay men may have moderated the effects of imagined contact to the point that it was ineffective.

Further support for this comes from Lau, Lau and Loper (2014) who also suggest that previous contact with outgroup members can moderate the effects of imagined contact and render it ineffective. Lau et al., (2014) tested the effects of imagined contact on improving attitudes towards gay and lesbian people in Hong Kong, controlling for prior contact. Results found that imagined contact was ineffective for participants who had already had prior contact with members of the outgroup. Moreover, similar findings have also been shown by Hoffarth and Hodson (2016). In their study Hoffarth and Hodson (2016) tested whether prior contact can moderate the effectiveness of imagined contact, for people with both frequent and infrequent contact with members of the outgroup. Findings showed mixed results, specifically that while imagined contact’s effects were stronger for some groups of people who had infrequent contact with members of the outgroup (gay men), these effects were not seen for other groups (Muslims). That is, while prior contact moderated the effectiveness of imagined contact for gay men, prior contact with Muslims did not moderate the effectiveness of imagined contact.

In respect of prior contact, research has shown that factors such as outgroup friendships can moderate the effects of direct contact on attitudes (Aberson, Shoemaker & Tomilo, 2004; Barr & Bracchitta, 2008, Datchez, Ndobo & Ameline, 2015; Feddes, Noack & Rutland, 2009; Herek & Capitanio, 1996; Paolini, Hewstone, Cairm & Voci, 2004; Pettigrew, 1997). That is, interventions using contact in its various forms i.e. direct and extended contact are less effective if people have friends who are outgroup members (Christ, Hewstone, Tausch, Wagner, 2010). However, the extent to which prior contact, or having friendships with outgroup members, has an effect on imagined contact is still open to investigation. Given that there is a paucity of research which specifically tests if prior contact, or more specifically friendships with outgroup members, moderates the effects of imagined contact on attitudes, further research testing this is required. (See Chapters 4 & 5).

### Concluding comments on imagined contact

Imagined contact has been modified in a number of ways since it was first conceived, with a plethora of studies showing the effectiveness of both standalone imagined contact (Brambilla et al., 2012; Cameron et al., 2011; Stathi et al., 2012; Turner et al., 2007; Vezzalli et al., 2012, 2015; West et al., 2015a, 2015b) and enhanced imagined contact (Fleva, 2015; Husnu & Crisp, 2010a, 2010b, 2011; Kuchenbrandt et al., 2013; Pagotto et al., 2013; Stathi et al., 2011; Turner & Crisp, 2010; West et al., 2011) to improve attitudes towards a number of different outgroups of people. Moreover, what is clear from the evidence is not only can imagined contact be enhanced or modified in a number of ways, enhancing it has been shown to increase the effect size of imagined contact (*d*=0.46, Miles & Crisp, 2014, p.17).

Yet imagined contact it not without its’ limitations, with studies demonstrating that imagined contact can sometimes be ineffective (Dermody, Jones & Cumming, 2013; Klein, Ratcliff, Adams et al., 2015; McDonald, Donnelan, Lang et al., 2014). Several factors that may moderate the effectiveness of imagined contact have also been identified, including individual differences (Asbrock et al. 2013; West et al., 2017) and prior contact (Lau et al., 2014, Lee & Cunningham, 2014; Hoffarth & Hodson, 2016).

 Furthermore, a key foci of most of the research conducted on imagined contact has focused on how imagined contact changes people’s feelings and behavioural intentions towards outgroup members (Choma, et al., 2014; Fleva, 2015; Giacobbe et al., 2013; Husnu & Crisp, 2010a, 2010b, 2011; Kuchenbrandt et al., 2013; Pagotto et al., 2013; Stathi et al., 2011; Turner et al., 2007; Vezzalli et al., 2012, 2015; West et al., 2015a, 2015b), with few studies looking specifically at changing the belief part of the attitude or stereotypes (Brambilla et al., 2012; Cameron et al., 2011; Stathi et al., 2012; Turner & Crisp, 2010). This highlights the need for future research using imagined contact to not only focus on the belief part of people’s attitudes, but also examine the ways in which the effects of imagined contact can be maximised on belief based constructs such as stereotyping.

## Counter-stereotyping Literature

### Introduction

Imagined contact has been shown to be an effective way of improving attitudes towards others, with an overall small to medium effect size (*d*+=0.35, Miles & Crisp, 2014, p.3). However, while imagined contact has been effective at facilitating attitudinal change towards a number of group of people in society, there is evidence to suggest that the effect size for imagined contact can be increased further by enhancing imagined contact. Specifically, that adding extra contextual detail/elements to the imagined scenario can result in larger effect sizes (*d*= 0.46, Miles & Crisp, 2014, p.17). Given that the overall effect size for imagined contact is modest (*d*=0.35, Miles & Crisp, p.3) there is still room for further enhancing imagined contact, especially in relation to targeting belief based constructs such as stereotypes. Counter-stereotyping is a particularly attractive prospect to do this, as it focuses on stereotypes or beliefs about others. This part of the chapter looks at counter-stereotyping strategies, as these have been found to reduce stereotyping towards different outgroups of people in society by specifically targeting people’s beliefs (Blair, Ma & Lenton, 2001; Plant, Devine, Cox et al., 2009; Dasgupta & Asgari, 2004; Wittenbrink, Judd & Park, 2001; Hutter & Crisp, 2005, 2006; Hutter, Crisp, Humphreys et al., 2009). It is important to look at effective ways of maximising the effects of imagined contact on belief based concepts such as stereotyping, as this has the potential to be used as an intervention to improve attitudes and reduce stereotyping towards autistic people.

Literature on counter-stereotyping can be broadly categorized in four ways: (1) studies that have used counter-stereotypic exemplars to reduce stereotyping; (2) studies using counter-stereotypic exemplars in different contexts to reduce stereotyping; (3) studies experimentally manipulating the environment to reduce stereotyping and (4) studies using category conjunctions to reduce stereotyping.

### Studies using counter-stereotypic exemplars to reduce stereotyping

Counter-stereotyping strategies are those which specifically focus on changing people’s stereotypes or beliefs about social groups (Sherman, Stroessner, Conrey et al., 2005), often by presenting atypical or counter-stereotypic members of different groups. Blair, Ma and Lenton (2001) conducted a series of experiments using a counter-stereotypic mental imagery task to reduce stereotyping towards women. Participants were asked to imagine a counter-stereotypic ‘strong woman’ or a holiday. Findings demonstrated that participants who imagined a counter-stereotypic woman, stereotyped less compared to those who imagined a holiday. More specifically, participants were slower to respond to stereotype consistent words (i.e. showed less stereotype activation), following the experimental manipulation. Moreover, this was also the case when both cognitive load and priming effects were controlled for.

Blair and Banaji (1996) examined how implicit stereotyping could be modified or reduced via the use of atypical or counter-stereotypic exemplars. Across a series of experiments, findings showed that under specific conditions, such as low cognitive load and having an intentional strategy to prevent stereotyping from taking place, participants levels of stereotyping were reduced when presented with atypical or counter-stereotypic information, such as pairs of words depicting gender stereotypes – for example ‘Dependent – David and Hostile – Dianne’ (page 1145). However, in the absence of any intentional strategy or under high cognitive load constraints, participants were likely to endorse stereotypes more, in spite of being presented with counter-stereotypic information. This demonstrates that while counter-stereotyping strategies can be effective their effects may be limited under certain conditions, which may have implications regarding the validity of this strategy in maximising the effects of imagined contact on belief based constructs such as stereotyping.

### Studies using counter-stereotypic exemplars in different contexts to reduce stereotyping

 Plant, Devine, Cox et al., (2009) looked at the effect of exposure to positive counter-stereotypic exemplars on people’s levels of implicit bias and stereotyping during Barack Obamas’ presidential election campaign in America. Participants were asked to list both their own thoughts and what the public might think about black people, before stating their intentions to vote for Obama. Findings demonstrated that people who listed a positive exemplar when thinking about black people had lower levels of stereotyping and bias towards black people. More specifically, they were slower to respond to stereotype consistent traits related to black people, after thinking about a counter-stereotypic black person.

Dasgupta and Asgari (2004), used a counter-stereotypic exemplar in both an experimental and naturalistic context to reduce stereotyping. Following exposure to pictures and biographies of counter-stereotypic females in leadership positions, results showed that female participants were more likely to endorse words related to leadership, or counter-stereotypic traits as being descriptive of women, compared to those who were not exposed to counter-stereotypic exemplars. A reduction in gender stereotyping was also found for participants who had frequent exposure to counter-stereotypic women in leadership roles in real life contexts, compared with those who had infrequent exposure. Both this study and Plant et al., (2009), highlight the potential for counter-stereotyping strategies to reduce stereotyping towards both ingroups as well as outgroups.

### Studies experimentally manipulating the environment to reduce stereotyping

Wittenbrink et al (2001), manipulated the environmental context where group members were seen, specifically they presented black group members in both positive and negative stereotypic contexts. Positive stereotypic contexts included seeing black group members at a family barbeque or church, or conversely on a street corner or as part of a gang related incident. Results showed that participants who viewed black group members in positive stereotypic environments such as at a family barbeque or church showed lower levels of prejudice or bias towards blacks. Or more specifically the association they made between stereotypic words and black people decreased following exposure to black people in positive stereotypic environments.

### Studies using category conjunctions to reduce stereotyping

Further research in the area of category conjunctions also provides support for the validity of counter-stereotyping strategies to reduce stereotyping. Category conjunction research looks at whether people use fewer ‘constituent’ (or stereotypic) traits traditionally associated with the component categories when describing an incongruent or counter-stereotypic conjunction, such as – an Oxford educated bricklayer (Hutter & Crisp, 2005), or if participants think of new emergent traits that don’t rely on stereotypes (Hutter, Crisp, Humphreys et al., 2009).

Hutter & Crisp (2005) conducted a series of experiments where participants were asked to generate traits associated with both familiar (stereotypic) or unfamiliar (counter-stereotypic) combinations of social categories, including an Oxford educated art critic and an Oxford educated bricklayer. Findings showed a reduction in the number of constituent (stereotypic traits), and an increase in emergent (counter-stereotypic) traits, when participants were asked to generate traits associated with unfamiliar social categories. In this way, stereotyping or the use of stereotypic traits associated with the category memberships was reduced. This effect is also evident in other studies that have used counter-stereotypic category combinations to reduce the application of constituent or stereotypic traits (Hutter, Crisp, Humphreys et al., 2009; Hutter, Wood & Turner, 2013).

### Studies that have used counter-stereotyping in conjunction with other strategies to reduce stereotyping

However, counter-stereotyping strategies are not just limited to reducing stereotyping, evidence suggests that they can be used in conjunction with other types of interventions to strengthen the effects of stereotype reduction. Ramasubramanian (2007) used a combination of counter-stereotypic exemplars and media-based strategies to inhibit stereotype activation, or to strengthen the effects of stereotype reduction. Results showed that a combination of both an intentional strategy to inhibit stereotyping, in addition to a counter-stereotypic news story both resulted in lower levels of stereotype endorsement. However, this effect was limited for some groups where no change was seen, highlighting that this combination of interventions was more effective for some groups than others.

### Summary of counter-stereotyping literature

A range of evidence has demonstrated the effectiveness of counter-stereotyping strategies to reduce stereotyping. This has been seen in the numerous studies that have used counter-stereotypic exemplars to facilitate stereotype reduction (Blair et al., 2001; Dasgupta & Asgari, 2004; Hutter et al., 2005, 2009, 2013; Plant et al., 2009; Wittenbrink et al., 2001). Moreover, the flexibility of this approach to be used in conjunction with other approaches has also been demonstrated (Ramasubramanian, 2007), making counter-stereotyping strategies well placed to be effective at maximising the effects of imagined contact, by specifically targeting stereotype reduction.

However, there is also evidence to suggest that counter-stereotyping strategies can be limited in their effectiveness, and that the effects of counter-stereotype strategies can be moderated under certain conditions such as high cognitive load (Blair et al., 1999), and that combinations of this approach may be more effective at reducing stereotyping relative to some groups and not others (Ramasubramanian, 2007). However, further empirical testing of this strategy will prove more conclusive.

### Rationale for a combined approach

There is a plethora of evidence showing that imagined contact as an intervention works to improve attitudes towards outgroup members and that is open to modification. Also evident is the capacity for counter-stereotyping strategies to maximise the effectiveness of imagined contact by focusing on changing belief based constructs such as stereotypes. In order to maximise the effectiveness of imagined contact on improving attitudes and reducing stereotyping towards autistic people an intervention will be tested that includes the use of a counter-stereotypic exemplar of an autistic person in the imagined contact scenario. By combining both approaches, it is hypothesized that the effects of imagined contact on belief based constructs such as stereotypes will be maximised.

# Improving public perceptions of autism: A quantitative study

## Introduction

Having reviewed the evidence in Chapter 3, as to which interventions are effective at improving attitudes and reducing stereotyping towards different groups of people in society, the aim of this chapter was to test an intervention which uses both imagined contact and counter-stereotyping strategies to improve attitudes and reduce stereotyping towards autistic people. The rationale for using these two strategies is based on empirical evidence which shows how effective imagined contact is at improving attitudes towards a number of different groups of people in society (Choma et al., 2014; Giacobbe et al., 2013; Husnu & Crisp, 2010a; Husnu & Crisp, 2010b; Pagotto et al., 2013; Stathi et al., 2011, 2012; Turner & Crisp, 2010; Turner et al., 2007; West et al., 2011, 2015a, 2015b) and evidence that counter-stereotyping strategies are effective methods to reduce stereotyping towards others (Blair & Banaji, 1996, Blair et al., 2001; Dasgupta & Asgari, 2004; Dasgupta & Greenwald, 2001; Hutter & Crisp, 2005; Hutter et al., 2009; Plant et al., 2009; Wittenbrink et al., 2001).

However, whilst both approaches have been found to be effective at improving attitudes and reducing stereotyping there are empirical gaps in the wider literature which the current study also aims to address. More specifically, while imagined contact has been found to be effective at improving attitudes, research has mainly focused on changing behavioural intentions and feelings towards the outgroup, with only a few studies (Brambilla et al., 2012; Cameron et al., 2011; Stathi, Tsantila & Crisp, 2012; Turner & Crisp, 2010; Vezzali et al., 2012) looking at the effectiveness of imagined contact to change belief based constructs such as stereotypes. The first aim of the current study was therefore to test if imagined contact on its’ own (standalone imagined contact) can improve attitudes and reduce stereotyping towards autistic people compared to no imagined contact (control).

Moreover, only one study (West et al., 2011) has examined the potential for counter-stereotypic information about target group members to be included as part of the imagined contact scenario in order to enhance its effectiveness, and when they did West et al., (2011) did not measure the effectiveness of enhanced imagined contact on reducing stereotyping. Therefore, the second aim of the current study was to test if an intervention, which enhanced imagined contact by adding a counter-stereotypic element to it (a counter-stereotypic autistic person) maximised the effectiveness of imagined contact by specifically targeting people’s beliefs (or stereotypes) and attitudes towards autistic people, compared to no imagined contact (control).

The third aim of the current study was to conduct an exploratory investigation looking into whether prior contact with autistic people can moderate the effects of imagined contact. While there is limited empirical literature on the effects of prior contact, there is some evidence to suggest that imagined contact can be ineffective when participants have had prior contact with members of certain target groups (see Chapter 3 for a discussion). For example, Lee and Cunningham (2014) found that whilst imagined contact worked to reduce prejudice towards people who are gay or lesbian in a sample of Korean participants, the same effects were not seen for American participants, which they assert may have been a result of prior contact with members of the target group. This conclusion is also supported by Lau, Lau and Loper (2014) who found that when participants had previous contact with gay people, imagined contact failed to improve attitudes towards gay people, compared to no contact. Furthermore, Hoffarth and Hodson (2016) showed that the effects of imagined contact in improving attitudes towards gay people, were stronger when people had infrequent, rather than frequent contact with gay people.

An exploratory analysis was undertaken to test if there was an interaction between the effects of condition (control: standalone imagined contact; enhanced imagined contact) and prior contact with autistic people (yes or no) on attitudes and stereotype endorsement.

In order to measure stereotype and counter-stereotype endorsement a pilot study was undertaken prior to commencing the main empirical study reported in this chapter. The rationale for including this was to devise a list of stereotypic and counter-stereotypic trait words that were specifically relevant to autistic people, which were then used for the explicit stereotype measure in the main study.

### Experimental Hypotheses

1. There will be a decrease in explicit stereotype endorsement and improved attitudes towards autistic people following standalone imagined contact, compared to a control condition where participants will imagine an outdoor scene, or have no contact. This hypothesis is informed by previous literature where imagined contact has been shown to improve attitudes (Miles & Crisp, 2014; Pagotto et al., 2013; Stathi et al., 2011; Turner et al., 2007; West et al., 2011, 2015a, 2015b), explicit stereotype endorsement (Brambilla et al., 2012; Cameron et al., 2011) and implicit stereotype endorsement (Turner & Crisp, 2010; Vezzali et al., 2012).

2. There will be a decrease in explicit stereotype endorsement and improved attitudes towards autistic people in the enhanced imagined contact condition, compared to the control. This hypothesis is based on previous literature demonstrating the effectiveness of counter-stereotyping strategies on reducing stereotyping towards a number of different groups of people in society (Blair et al., 1996, 2001; Dasgupta & Asgari 2004; Dasgupta & Greenwald, 2001; Hutter et al., 2005, 2009; Plant et al., 2009; Wittenbrink et al., 2001).

3. There will be a decrease in explicit stereotype endorsement and improved attitudes towards autistic people in the enhanced imagined contact condition, compared to the standalone imagined contact condition. This hypothesis is based on previous literature demonstrating the effectiveness of both imagined contact to improve attitudes and explicit/implicit stereotype endorsement towards a number of different outgroups of people in society (Miles & Crisp, 2014; Pagotto et al., 2013; Stathi et al., 2011; Turner et al., 2007; West et al., 2011, 2015a, 2015b) and the effectiveness of counter-stereotyping strategies to reduce stereotyping towards different groups of people in society (Blair et al., 1996, 2001; Dasgupta & Asgari 2004; Dasgupta & Greenwald, 2001; Hutter et al., 2005, 2009; Plant et al., 2009;Wittenbrink et al., 2001).

## Method

### Participants

A total of 180 participants (*M*= 20.45, *SD*=3.53, male= 38, female = 142) were recruited from the University of Sheffield, who received either two course credits or a £5 voucher for their participation. Out of the total sample, 68 participants had prior 33contact with autistic people (indicated by having a relative or friend with autism) and 112 participants had no prior contact with autistic people (indicated by having no relatives or friends with autism). Research has indicated that prior contact or having friendships with members of the target group can moderate the effects of direct contact (Aberson, Shoemaker & Tomilo, 2004; Barr & Bracchitta, 2008, Datchez, Ndobo & Ameline, 2015; Feddes, Noack & Rutland, 2009; Herek & Capitanio, 1996; Paolini, Hewstone, Cairm & Voci, 2004; Pettigrew, 1997). Specifically that prior contact via friendships with outgroup members has been shown to moderate the effects of contact on people’s attitudes making it less effective for those with outgroup friendships, compared to those without (Aberson et al., 2004; Christ et al., 2010).

Further research has also tested frequency of prior contact, that is the extent to which both frequent and infrequent contact with outgroup members moderates the effectiveness of contact, with mixed results (Hoffarth & Hodson, 2016; Pettigrew & Tropp, 2006). Specifically Hodson and Hoffarth (2016) found that imagined contact’s effects were stronger for participants who had infrequent rather than frequent contact with members of the outgroup (gay men), however frequency of prior contact, be it frequent or infrequent, did not moderate the effects of imagined contact in relation to other outgroups (Muslims). Pettigrew and Tropp (2016) also found larger effect sizes of contact for those who had no prior contact with members of the outgroup, than for those who had either some or extensive prior contact. In short, it appears that both the nature and frequency of prior contact may influence the extent to which both contact and imagined contact can improve people’s attitudes. Participants were recruited through the University’s online recruitment system (ORPS) and volunteers list and consisted of both undergraduate and postgraduate students.

### Design

A between participants experimental design was used, where participants were randomly allocated to one of three conditions: Control - an outdoor scene (no contact); Standalone imagined contact– imagined contact with a person with autism; Enhanced imagined contact – imagined contact with a counter-stereotypic person with autism. Respective total sample sizes across each condition were: control (*n*=60), standalone imagined contact (*n*=60) and enhanced imagined contact (*n*=60).

### Materials and Measures

A pilot study was undertaken to devise a set of stereotypic and counter-stereotypic traits describing people with autism, which were then used in the stereotype endorsement measure. Forty-one Psychology Undergraduate students from the University of Sheffield were tested (Mean age = 18.61, *SD*= 2.31). A total of 195 trait words were used generated by the experimenter, each of which varied in their stereotypicality. These included sixty-five stereotypic trait words taken from those used by Wood and Freeth (2016). Specifically, Wood and Freeth (2016) used a free response method which asked undergraduate students to generate a list of trait words that they felt society would hold about people with autism. The remaining sixty–five counter-stereotypic words were then generated by the experimenter. Specifically, the experimenter generated words that were opposite to the stereotypic traits already identified. For example where a stereotypic trait identified people with autism as being unintelligent – the opposite or counter-stereotype of this – intelligent, was used. A list of generic traits was then generated by the experimenter, by searching for generic trait words that were considered to be non-autism specific. That is – neither stereotypic nor counter-stereotypic of autistic people. All trait words were then matched in terms of length and frequency (Brysbaert & New, 2009). Given that the trait words used in the pilot study were generated by non-autistic people, they were not reflective of what autistic people may think of as being stereotypic or counter-stereotypic. However, in Study 1 the main autistic stereotype ‘weird’ defined by autistic people, did appear as one of the traits that was generated in the pilot test- and was rated as being stereotypic of autistic people. It appears that this particular stereotype would be one that autistic people would also choose.

Participants were asked to rate each trait word in terms of how counter-stereotypic or stereotypic they are of a person with autism, where 1 = counter-stereotypic and 6 = stereotypic. Means and standard deviations were calculated for each of the 195 trait words. The eight traits with the highest means (*M*=5.21, *SD*= 0.98) were taken as the stereotypic words (difficult, obsessive, detached, disruptive, distant, withdrawn, curious and gifted). The eight traits with the lowest means (*M*=2.86, *SD*= 1.2) were taken as the counter-stereotypic words (communicative, outgoing, approachable, sociable, normal, connected, ordinary and flexible). To ensure the highest (stereotypic) and lowest (counter-stereotypic) traits did not differ in terms of length and frequency, an independent samples t-test was undertaken. Results revealed no significant differences in terms of length, *t*(14) = -.918, *p*=.374, and frequency, *t*(14) = -.077, *p*= .940, for both stereotypic and counter-stereotypic words.

Attitudes Questionnaire – Societal Attitudes Towards Autism Scale (SATA) (Flood, Bulgrin & Morgan, 2012)

In order to measure explicit attitudes towards people with autism, the SATA Scale (Flood et al., 2012) was used. The SATA Scale (Flood et al., 2012) was developed to test attitudes towards people with autism. The scale consists of sixteen items testing a range of beliefs about people with autism, such as:

*Item 1 –‘People with autism should not engage in romantic relationships’*

*Item 2 – ‘People with autism should have the opportunity to go to college’*

where responses to the questionnaire were measured on a Likert scale ranging from 1 - strongly disagree to 4 – strongly agree. The SATA Scale (Flood et al., 2012) has been shown to be both a valid and reliable measure of attitudes towards autistic people. That is, convergent validity indicated that the items measured by the societal attitudes scale were significantly correlated with other items measuring similar constructs, specifically attitudes towards disabled persons (0.45) and a preference for people with autism measure (0.53) (Flood et al., 2012, p.125). Moreover, reliability analysis on the scale indicated that it was also a reliable measure of attitudes towards autistic people (α=.86) (Flood et al., 2012, p.125). Other studies (Low, Lee & Ahmad, 2018) using the SATA Scale have also found questionnaire to be a reliable measure of attitudes towards autistic people (α =.84). In addition to being a reliable and valid measure of attitudes towards autistic people the SATA Scale has a generic focus looking at measuring attitudes towards autistic people in general rather than specific age groups. That is, previous research measuring attitudes towards autistic people has looked specifically at measuring attitudes towards autistic children (Iobst, Nabours, Rosenzweig et al., 2009) or been focused on changing neuro-typical children’s attitudes towards children with autism (Campbell, 2006; 2008). Given that the aim of the current study had a generic focus looking at autistic people as a whole rather than children the SATA Scale was chosen. In the current study reliability analyses were undertaken. Specifically inter-item correlations were computed to check the reliability of the measure in the current sample. Findings demonstrated the scale to be a reliable measure of attitudes towards people with autism (α=.74) and that taking any of the items out would not have resulted in a significant increase in its reliability.

 Stereotype Endorsement Questionnaire

Stereotype endorsement was measured using a questionnaire containing the 16 traits (eight stereotypic and eight counter-stereotypic) tested in the pilot study detailed above. A Likert scale ranging from one (least like a person with autism) to five (most like a person with autism) was used. All sixteen items were presented in a randomised order for each participant, with a higher mean score on the questionnaire being indicative of higher levels of stereotype endorsement and lower scores being indicative of lower levels of stereotype endorsement.

 Imagined contact scenarios

The following imagined contact scenarios were used for each of the respective conditions, all of which had been taken directly from previous research using imagined contact (Crisp & Husnu, 2011; West et al., 2011). However, the enhanced imagined contact scenario was modified to include details about a counter-stereotypic person with autism. The trait words ‘independent and sympathetic’ were included as they had been rated as being counter-stereotypic of someone with autism in the previous pilot study.

Control Condition**:** ‘*take a minute to imagine you are walking in the outdoors. Try to imagine the scene about you (e.g. is it a beach, a forest, are there trees, hills, what’s on the horizon?’ (*Crisp & Husnu, 2011, p. 278).

Standard Imagined Contact: *‘take a minute to imagine yourself meeting a person with Autism for the first time. While imagining this think specifically of when (e.g. next Thursday) and where (e.g. in the dentist’s waiting room) this conversation might occur. During the conversation imagine you find out some interesting and unexpected things about the stranger. Imagine that the interaction is relaxed, positive and comfortable*.’ (Husnu & Crisp, 2011, p.114).

Enhanced Imagined Contact: *‘take a minute to imagine yourself meeting a person with Autism for the first time. Imagine that they are independent and sympathetic. Think about why he/she is considered independent and sympathetic and what he/she is capable of doing. Also think about the activities he/she likes. While imagining this think specifically of when (e.g. next Thursday) and where (e.g.in the dentist’s waiting room) this conversation might occur. During the conversation imagine you find out some interesting and unexpected things about the stranger. Imagine that the interaction is relaxed, positive and comfortable’.* (Husnu & Crisp, 2011, p.114).

### Procedure

In order to avoid demand characteristics participants were told that they would be taking part in three separate studies – all testing different constructs, however this was not a within subjects design. Specifically participants were told that they would be taking part in three studies looking at: (1)Individual differences in the use of mental imagery in daily life; (2) How people decode words on a regular basis and; (3) Stereotyping in wider society. After consenting to take part in the study, participants were randomly allocated to one of three conditions: control, standalone imagined contact or enhanced imagined contact. To ensure that all participants had both read and understood the instructions for contact – the researcher stayed in the room and clarified that participants understood what they were being asked to do in each of the contact scenarios. The time limit given to all participants was one minute. In order to enhance the effects of the imagination task participants were then asked to write down what they had just imagined. On completion of the imagination task participants were then tested on two questionnaires – the stereotype endorsement questionnaire and the SATA scale (Flood et al., 2012). On completion of both measures, participants were asked to fill in a funnel debrief form, asking: what they thought the experiment was about, and if either themselves, a relative or friend had autism. Finally participants were debriefed and given the opportunity to ask any further questions about the study before they were thanked for their participation.

## Results

Analysis of free response data

All participants’ free response data were checked to ensure that participants had engaged in the imagined contact task. There was no evidence to suggest that participants had not engaged in the task.

Societal Attitudes Towards Autism Questionnaire (SATA, Flood, Bulgrin & Morgan, 2012)

Prior to analysis, relevant questions on the SATA scale were reverse coded (1,3,4,5,6,7,8,10,11,12,14,15,16) before a mean score for each participant was computed to ensure that a higher score on the SATA scale is indicative of better attitudes. Reliability analysis was undertaken on the SATA scale, where it was shown to be a reliable measure of attitudes α =.74. (Nunnally,1978, p.245). Data were checked to see if it met assumptions for parametric testing. Inspection of the histograms indicated that the data was normally distributed, with skewness and kurtosis values being <1.

Standalone imagined contact compared with the control

A 2 (standalone imagined contact vs. control ) X 2 (prior contact: yes; no) ANOVA was conducted on the SATA scale. Results showed a non-significant main effect of both condition *F*(1,116)=.04, *p*=.845, *ƞр²*<.01, and prior contact *F*(1,116)=1.46, *p*=.229, *ƞр²*=.01, in addition to a non-significant interaction between condition and prior contact *F*(1,116)=.43, *p*=.515, *ƞр²*<.01, demonstrating that standalone imagined contact did not improve participants attitudes towards autistic people, compared to the control. Results also indicated that prior contact with autistic people did not moderate imagined contact’s effects on attitudes.

Enhanced imagined contact compared with the control

A 2 (enhanced imagined contact vs. control ) X 2 (prior contact: yes; no) ANOVA was conducted on the SATA scale. Results showed a non-significant main effect of both condition *F*(1,116)=1.09, *p*=.299, *ƞр²*=.01, and prior contact *F*(1,116)=1.99, *p*=.162, *ƞр²*=.02, in addition to a non-significant interaction between condition and prior contact *F*(1,116)=.04, *p*=.835, *ƞр²*<.01, demonstrating that enhanced imagined contact did not improve participants attitudes towards autistic people, compared to the control. Results also indicated that prior contact with autistic people did not moderate imagined contact’s effects on attitudes.

Enhanced imagined contact compared with standalone imagined contact

A 2 (enhanced imagined contact vs. standalone imagined contact) X 2 (prior contact: yes; no) ANOVA was conducted on the SATA scale. Results demonstrated a non-significant main effect of both condition *F*(1,116)=.80, *p*=.372, *ƞр²*=.01, and prior contact *F*(1,116)=.74, *p*=.391, *ƞр²*=.01, in addition to a non-significant interaction between condition and prior contact *F*(1,116)=.14, *p*=.714, *ƞр²*<.01, demonstrating that enhanced imagined contact did not improve participants attitudes towards autistic people, compared to standalone imagined contact. Results also indicated that prior contact with autistic people did not moderate imagined contact’s effects on attitudes. Both mean scores for the Societal Attitudes Towards Autism (SATA) scale, and as a function of prior contact can be seen in Figure 4.1 below.

**Figure 4.1** Mean Scores for the Societal Attitudes Towards Autism Scale (SATA) as a function of prior contact (yes or no) (error bars indicating 1 standard error from the mean). The highest score, which is indicative of best possible attitudes on the SATA Scale, is 64.

Stereotype Endorsement Questionnaire

A total mean endorsement score was calculated for both stereotypic and counter-stereotypic words, with a higher score indicating higher levels of endorsement. Data was checked to ensure it met the assumptions for parametric testing, where skewness and kurtosis values were found to be within range for both word types (<1).

Standalone imagined contact compared with the control

A 2 (standalone imagined contact vs. control ) X 2 (word type: stereotypic; counter-stereotypic) X 2 (prior contact: yes; no) ANOVA was conducted on the explicit stereotype endorsement scores. A main effect of word type was found *F*(1,116)=52.64, *p*<.01, *ƞр²*= .31 with stereotypic words being endorsed more than counter-stereotypic words (*M*=3.29, *SD*=.43, vs. *M*=2.72, *SD*=.56), and a non-significant main effect of condition was observed *F*(1,116)=1.65, *p*=.202, *ƞр²*=.02. A non-significant word type/condition interaction *F*(1,116)=3.29, *p*=.073, *ƞр²*=.03 was also found. This non-significant interaction shows that explicit stereotype endorsement did not decrease following standalone imagined contact, compared to the control. A non-significant interaction between condition, prior contact and word type was also observed *F*(1,116)=.10, *p*=.748, *ƞр²*<.01, indicating that prior contact does not moderate the effects of imagined contact on stereotype endorsement. Non-significant interactions for both word type/ prior contact *F*(1,116)=.16, *p*=.688, *ƞр²*<.01, and condition/prior contact were also found *F* (1,116)= .81, *p*=.371, *ƞр²*=.01.

Enhanced imagined contact compared with the control

A 2 (enhanced imagined contact vs. control ) X 2 (word type: stereotypic; counter-stereotypic) X 2 (prior contact: yes; no) ANOVA was conducted on the explicit stereotype endorsement scores. Results showed a main effect of word type *F*(1,116)=85.65, *p*<.01, *ƞр²*= .43 with stereotypic words being endorsed more than counter-stereotypic words (*M*=3.34, *SD*=.41 vs. *M*=2.64, *SD*=.54), and a non-significant main effect of condition *F*(1,116)=.721, *p*=.398, *ƞр²*=.01. A non- significant word type/condition interaction *F*(1,116)=.01, *p*=.905, *ƞр²<.01,* was also observed. This non-significant interaction shows that explicit stereotype endorsement did not decrease following enhanced imagined contact, compared to the control. A non-significant interaction between condition, prior contact and word type was also observed *F*(1,116)=.43, *p*=.513, *ƞр²*<.01, indicating that prior contact does not moderate the effects of imagined contact on stereotype endorsement. Non-significant interactions between both word type/ prior contact *F*(1,116)=.55, *p*=.462, *ƞр²*=.01, and condition/prior contact *F* (1,116)=.80, p=.373, *ƞр²*=.01, were also found.

Enhanced imagined contact compared with standalone imagined contact

A 2 (enhanced imagined contact vs. standalone imagined contact ) X 2 (word type: stereotypic: counter-stereotypic) X 2 (prior contact: yes;no) ANOVA was conducted on the explicit stereotype endorsement scores. Results showed a main effect of word type *F*(1,116)=61.40, *p*<.01, *ƞр²*= .35, with stereotypic words being endorsed more than counter-stereotypic words (*M*=3.31, *SD*=.42 vs. *M*=2.75, *SD*=.53), and a non-significant main effect of condition *F*(1,116)=.28 *p*=.599, *ƞр²*<.01. A non - significant word type/condition interaction was also observed *F*(1,116)=.3.47, *p*=.065, *ƞр²*=.03. This non-significant interaction shows that explicit stereotype endorsement did not decrease following enhanced imagined contact, compared to standalone imagined contact. A non-significant interaction between condition, prior contact and word type was also observed *F*(1,116)=.117, *p*=.733, *ƞр²*<.01, indicating that prior contact did not moderate the effects of imagined contact on stereotype endorsement. A non-significant word type/ prior contact interaction *F*(1,116)=1.29, *p*=.258, *ƞр²*=.01, and a non-significant condition/prior contact interaction *F* (1,116)= .01, p=.940, *ƞр²*<.01 were also found. Mean scores for word type endorsement as a function of prior contact can be seen in Figure 4.2 below.

**Figure 4.2** Mean scores for word type endorsement, as a function of prior contact (yes or no) (error bars indicating 1 standard error from the mean)

## Discussion

The aims of the current study were to; (1) test if imagined contact as a standalone intervention could improve attitudes and reduce stereotyping towards autistic people compared to the control (no contact); (2) testif an intervention which enhanced imagined contact by adding a counter-stereotypical element to it (a counter-stereotypic autistic person), maximised the effects of imagined contact by specifically targeting people’s beliefs (or stereotypes) and attitudes towards autistic people, compared to the control; (3) investigate whether prior contact with autistic people can moderate the effects of imagined contact.

The results of the current study showed that neither imagined contact as a standalone intervention, nor the intervention (enhanced imagined contact) improved attitudes and reduced stereotyping towards autistic people. Results of the exploratory investigation also demonstrated that prior contact with autistic people did not moderate the effects of imagined contact on attitudes and stereotype endorsement. These findings dispute the hypotheses that imagined contact as a standalone intervention can improve attitudes and reduce stereotyping towards autistic people, or that enhanced imagined contact maximises the effects of imagined contact on attitudes by specifically targeting stereotypes related to autistic people.

These results are consistent with studies which have failed to find an effect of imagined contact on improving people’s attitudes towards different outgroups of people in society, such as Dermody, Jones and Cumming (2013) who found that imagined contact failed to improve both explicit and implicit attitudes towards gay men. These results also offer support for McDonald, Donnellan, Lang et al., (2014), whose study replicated that conducted by Birtel and Crisp (2012) and found that imagined contact was ineffective at reducing anxiety, with substantially lower effect sizes found than those reported in the previous study (*d*=0.10 versus *d*=0.76, McDonald et al., 2014, p.838).

These findings also add weight to studies where the replicability effect of imagined contact has been found to be weak (Klein, Ratliff, Vianello et al., 2015). Specifically Klein et al., (2015) who replicated Husnu and Crisp’s (2010b) first study. In the original study participants were asked to imagine meeting a British Muslim or a control scene, however, in the replications the target group was altered to Muslims. Results found that just 4 out of 36 samples showed an effect of imagined contact on participants behavioural intentions to engage in contact with members of the outgroup.

However, the results are different from previous studies that have found imagined contact to be effective at improving attitudes (Miles & Crisp, 2014; Pagotto et al., 2013; Stathi et al., 2011; Turner et al., 2007; West et al., 2011, 2015a, 2015b), explicit stereotype endorsement (Brambilla et al., 2012; Cameron et al., 2011) and implicit stereotype endorsement (Turner & Crisp, 2010; Vezzali et al., 2012), and studies showing the effectiveness of counter-stereotyping strategies to reduce stereotyping towards others ( Blair & Banaji, 1996; Blair et al., 2001; Dasgupta & Asgari, 2004; Hutter et al., 2005, 2009; Wittenbrink et al., 2001).

Results from the exploratory investigation demonstrated non-significant interactions between the effects of condition (control; standalone; enhanced) and prior contact (yes or no) with autistic people for both attitudes and stereotype endorsement. This finding is different from studies such as Lau et al., (2015), whose study tested the effects of imagined contact on gay men, controlling for prior contact and found that imagined contact was ineffective for those who had prior contact with members of the outgroup. These findings also dispute those found by Hoffarth & Hodson (2016) who found that prior contact moderated the effectiveness of imagined contact on groups such as gay men, making it ineffective. Although this was not the case for people who had prior contact with Muslims. Moreover, these findings show that friendships with members of the outgroup did not moderate the effects of contact, as found in other studies (Aberson et al., 2004; Barr & Bracchita, 2008; Christ et al., 2010; Datchez et al., 2015; Feddes et al., 2009). This indicates that the results seen in the current study are unlikely to be due to the participants having prior contact with autistic people. However, given that this was the first test of this with the current target group, further analysis should be undertaken to establish if this may have been due to a type II error. (See Chapter 5).

There may be several reasons as to why the current study failed to find an effect of imagined contact on participants’ attitudes and stereotype endorsement, in both the standalone and enhanced contact conditions. Potential reasons as to why the results were found will now be discussed. The predicted direction for the results on the SATA Scale (Flood et al., 2012), was that following both standalone and enhanced imagined contact, more positive attitudes towards autistic people should have been seen, compared to the control. However, non-significant results were found. This may be due to power, or lack of enough participants to find a significant effect seen in other studies (*d*+=0.35, Miles & Crisp 2014, p.3). In the current experiment a sample of 180 participants was recruited. With an effect size of *d*+=0.35 (Miles & Crisp, 2014,p.3), a post hoc G\*Power analysis indicated that with a sample size of 180, and an alpha level of .05, the analysis only achieved 54% power, making this the most likely explanation for the results seen on both the SATA Scale and the explicit stereotype endorsement questionnaire. For an adequately powered study a-priori G\*Power analyses indicated that a sample of 318 would be required to find an effect seen in previous studies (d+=0.35, (Miles & Crisp, 2014, p.3).

An alternative explanation for the results seen in the standalone imagined contact condition may be due to the participants already having positive attitudes towards autistic people. This can be seen when looking at the baseline scores for participants in the control (no contact condition). Specifically scores were already at the higher end of the scale (*M*=57.26 prior contact; *M*=55.73 no prior contact) for the control group compared to the standalone imagined contact group (*M*=56.57 prior contact; 56.11 no prior contact) which may have created a ceiling effect. Previous research has shown this to be the case, specifically Dermody, Jones and Cumming (2013) who found that imagined contact was less successful when participants had lower normative levels of prejudice, or positive attitudes to start with. Support for this explanation can also been found by West et al. (2017) whose study found that imagined contact is more effective for participants who have higher prejudice levels, than those who have lower prejudice levels. Theoretically, intergroup contact theory (Allport, 1954) works to reduce prejudice by changing the underlying mechanisms involved in prejudice. Specifically it works to change people’s beliefs and behaviour towards the outgroup by increasing outgroup knowledge, decreasing anxiety and increasing empathy (Dovidio, Eller & Hewstone, 2011; Pettigrew, 2008; Pettigrew, 1998; Pettigrew, 2008; Pettigrew & Tropp, 2008). By specifically targeting the affective component of prejudice, people’s feelings are changed to be more positive towards outgroup members as they feel less threatened and have increased empathy for others. In respect of the current findings, it may well be that participants’ feelings and beliefs about autistic people were already positive, as indicated by baseline scores on the SATA Scale (control condition), which may well have limited the effects of imagined contact on people’s attitudes as they were already positive to start with.

An alternative explanation as to why a reduction in stereotype endorsement towards autistic people was not seen, specifically in the enhanced imagined contact condition compared to the control, may be due to subtyping. The predicted direction for the results was a reduction in stereotype endorsement following enhanced imagined contact compared to the control. That is, following imagined contact with a counter-stereotypic person with autism, participants should have relied less on target based information (i.e. stereotypes related to the group) and more on information about the individual autistic person (Leicht, Randsley de Moura, & Crisp, 2014) when processing information about them (Brewer 1988; Fiske & Neuberg, 1990; Goclowska & Crisp, 2013; Leicht et al., 2014; Prati, Vasilijevic, Crisp & Rubini, 2015).

However, research suggests that when participants are presented with stereotype disconfirming information about a target member they may subtype them (Weber & Crocker, 1983). Subtyping theory posits that ‘subtyping occurs when perceivers respond to members of a target group who disconfirm their stereotypes by seeing them as exceptions to the rule and placing them in a subcategory apart from members who confirm the stereotype’ (Richards & Hewstone, 2001, p.52). Specifically, if people are seen as being too atypical of their group, then they are seen as being ‘an exception to the rule’ (Wilder, 1984) or excluded from group perceptions, meaning that stereotypes remain intact and unchanged (Kunda & Olesen 1995: Park, Wolsko & Judd, 2001). With this in mind, it may be that the lack of imagined contact effects seen in the current study could have been as a result of the person in the enhanced imagined contact condition being subtyped.

Alternative theories such as the one offered by Wilder (1984) also offer an explanation for the lack of imagined contact’s effects on reducing explicit stereotype endorsement. Wilder (1984) cites that a key part of reducing stereotyping and facilitating stereotype change involves member to group generalisations being made. That is, for stereotype change to occur the individual outgroup member must disconfirm the stereotype, but also be seen as being typical of the outgroup itself (Wolsko, Park & Judd, 2003). In respect of the current study’s findings this means that the person in the enhanced imagined contact condition who disconfirmed the stereotypes, may not have been seen as being representative of autistic people as a whole, and therefore subtyped.

However, a subtyping explanation cannot account for the lack of imagined contact effect seen in the standalone imagined contact condition, where the traits were unlikely to have been subtyped as they were representative of autistic people as a whole. To reduce the chances of subtyping happening in the enhanced contact condition, new information about the target member which disconfirms the stereotypes, but can still be generalizable to the group as a whole, should be devised (see Chapter 5). One study that has enhanced contact by including stereotype disconfirming information about the target member and found this to be successful at improving feelings towards the outgroup is West et al., (2011). Across a series of studies West et al., (2011) manipulated the imagined contact scenarios to include both positive and neutral information about people with schizophrenia. Findings demonstrated that positive stereotype disconfirming information, presented to participants as part of the imagined contact task maximized the effect size on attitudes (*d*=0.65) and anxiety (*d*=0.77) (Miles & Crisp, 2014, p. 12). Moreover, by providing realistic information about the target group that was not too atypical of group members, West et al., (2011) were able to prevent subtyping. New vignettes containing information that is not too atypical of the group, and is included as part of the imagined contact scenario should therefore be used in future research. (See Chapter 5).

### Limitations

A limitation of the current study extends to the type of measures used. The current study only used explicit questionnaires to measure attitudes (SATA Scale and Stereotype Endorsement Questionnaire). This is problematic because self–report measures, such as the ones used in the current study only measure explicit attitudes which are in conscious awareness (Dovidio, Kawakami & Gaertner, 2002), leaving the potential for the intervention to work to change attitudes and stereotype endorsement on an explicit level only. Wider attitudinal research has found a divergence between implicit and explicit attitudes (Dovidio & Fazio, 1992; Dovidio, Kawakami & Gaertner, 2002; Payne, Burkley & Stokes, 2008) such that implicit and explicit attitudes may or may not match. Specifically, that on the one hand participants may report having positive attitudes, but their implicit biases remain intact (Dovidio, Kawakami & Gaertner, 2002). In order to ensure that both explicit and implicit stereotype change is facilitated, future research should include an implicit stereotype measure. In order to address this limitation, a further study with an implicit measure is presented in the next chapter.

### Conclusion

In summary this study aimed to: (1) test if imagined contact on its’ own can improve attitudes and reduce stereotyping towards autistic people, compared to the control; (2) testif an intervention which enhanced imagined contact by adding a counter-stereotypical element to it (a counter-stereotypic autistic person), maximised the effects of imagined contact by specifically targeting people’s beliefs (or stereotypes) and attitudes towards autistic people, compared to the control; (3) explore if prior contact moderated the effects of imagined contact on attitudes and stereotyping. Results demonstrated a non-significant effect of imagined contact on attitudes and stereotype endorsement following both standalone and enhanced imagined contact, compared to the control. These results support studies that have failed to find an effect of imagined contact (Dermody et al., 2013; Klein, et al., 2015; McDonald et al., 2014), but are different to the majority of studies that have found an effect of imagined contact on improving attitudes towards others (Brambilla et al., 2012; Cameron et al., 2011; Miles & Crisp, 2014; Pagotto et al., 2013; Stathi et al., 2011; Turner & Crisp, 2010; Turner et al., 2007; Vezzali et al., 2012; West et al., 2011, 2015a, 2015b) and those using counter-stereotyping strategies to reduce stereotyping (Blair & Banaji, 1996; Blair et al., 2001; Dasgupta & Asgari, 2004; Hutter et al., 2005, 2009; Wittenbrink et al., 2001).

Two main explanations for why both standalone and enhanced imagined contact failed to improve attitudes and reduce stereotyping towards autistic people have been suggested. The first and most likely explanation for the results was to do with power, or a lack of statistical power to detect an effect observed in previous studies (*d+=*0.35, Miles & Crisp, 2014, p.3). The second explanation for the results may have been due to the person in the enhanced contact condition, being subtyped or considered too atypical for their group so that they were fenced off from the group and the group stereotypes remained intact. In order to rule out a subtyping explanation, future research should ensure that information about target group members (autistic people) is not too counter-stereotypic that group members are subtyped. This should be modelled on previous research using stereotype disconfirming information about target group members as part of the imagined contact scenario (West et al., 2011), as this has been shown to both prevent subtyping and increase the effect size of imagined contact. A limitation was also found in the measures used in the current study, specifically that an implicit measure was not included to measure implicit stereotyping.

In order to address this limitation and, rule out that the results seen in the current study were not due to the experiment being underpowered or due to subtyping, a replication of the current study, which included an implicit stereotype measure, was undertaken. This can be seen in the next chapter (Chapter 5).

# Improving public perceptions of autism: A replication

## Introduction

Both imagined contact (See Miles & Crisp, 2014, meta-analysis) and counter-stereotyping strategies (Blair et al., 2001; Dasgupta & Asgari, 2004; Dasgupta & Greenwald, 2001) have been shown to be effective at improving attitudes and reducing stereotyping of different groups of people in society. As in Study 2 the aims of this study were to: test an intervention which enhanced imagined contact by adding a counter-stereotypic element to it (a counter-stereotypic autistic person) to see if it maximised the effects of imagined contact by specifically targeting people’s beliefs (or stereotypes) and attitudes, in addition to if standalone imagined contact works to improve attitudes and reduce stereotyping towards autistic people. The current study is a replication of Study 2. The rationale for replicating Study 2 was to rule out potential explanations for the results. Specifically that both subtyping and a lack of power may have accounted for the results seen in Study 2. Both of these explanations will now be discussed.

A subtyping explanation could account for the results seen in Study 2 but only in the enhanced imagined contact condition. Subtyping occurs when atypical members of the outgroup are seen as being an exception or as unique, rather than being representative of their group (Kunda & Oleson, 1995; Park et al., 2001), thus stereotypes remain unchanged. Given that the person in the enhanced imagined contact condition had counter-stereotypic traits (independent and sympathetic) it may be that participants saw these as being too atypical and not representative of autistic people as a whole, leaving the stereotypes intact. In order to control for this and ensure that the counter-stereotypic person in the scenario was not too atypical that they were subtyped, a pilot study was undertaken prior to the current study to devise new vignettes containing information about autistic people which were then used in the imagined contact scenarios. Details regarding the pilot study can be seen in the Methods Section. The scripts used for imagined contact were also changed and were based on those used by West et al. (2011), who found that including stereotype – disconfirming information about the target group member that was not too atypical prevented subtyping in the study they conducted. Moreover, West et al., (2011) also found that by adding positive, disconfirming information into the imagined contact scenario resulted in a larger effect size on attitudes (*d*=0.65) (Miles & Crisp, 2014,p.12).

A lack of statistical power to detect an effect of imagined contact was also suggested as a potential explanation for the null results found in Study 2. To address this, a–priori power analyses were undertaken for the current study (See Methods Section). In addition to the explanations given for the lack of effect of imagined contact on attitudes and stereotyping, a limitation of Study 2 was also highlighted. Specifically, in Study 2, only explicit measures were used to measure attitudes and stereotypes (SATA Scale and a stereotype endorsement questionnaire). However, whilst self-report measures focus on explicit attitudes that exist in conscious awareness (Dovidio, Kawakami & Gaertner, 2002; Gawronski & DeHouwer, 2000), they do not measure implicit attitudes, such as stereotypes existing outside of conscious awareness (Bargh, Chaiken, Govender & Pratto, 1992; Bargh & Chartrant, 1999).

In order to address this limitation a lexical decision task was used in the current study to measure implicit stereotyping. Empirical evidence suggests that lexical decision tasks are an effective way at measuring implicit responses to target stimuli, following priming (Dovidio, Evans & Tyler, 1986; Macrae, Bodenhausen, Milne & Jetten, 1994; Macrae, Bodenhausen, Milne et al., 1997; Wittenbrink, Judd & Park, 1997). That is, lexical decision tasks measure stereotype activation, such that response latencies to the target stimuli indicate the degree of activation of those traits, with faster response latencies indicating greater activation (Blair, 2002).

In addition to addressing the limitation outlined above, the current study will continue the exploratory investigation seen in the previous study (Study 2) as to whether or not prior contact moderates the effects of imagined contact on both attitudes and stereotyping (Lau, Lau & Loper, 2014; Lee & Cunningham, 2014; Hoffarth & Hodson, 2016). The rationale for continuing this exploratory analysis was to ensure that the results seen in Study 2 could be replicated using a different sample of participants, and were not due to a lack of statistical power to find an effect of prior contact on imagined contact, if there was one.

### Experimental Hypotheses

1. There will be a decrease in explicit stereotype endorsement and improved attitudes towards autistic people following standalone imagined contact, compared to a control condition where participants will imagine an outdoor scene, or have no contact. There will also be a difference in stereotype activation in the standard imagined contact condition compared to the control. This hypothesis is informed by previous literature where imagined contact has been shown to improve attitudes (Miles & Crisp, 2014; Pagotto et al., 2013; Stathi et al., 2011; Turner et al., 2007; West et al., 2011, 2015a, 2015b), explicit stereotype endorsement (Brambilla et al., 2012; Cameron et al., 2011) and implicit stereotype endorsement (Turner & Crisp, 2010; Vezzali et al., 2012). This hypothesis is also informed by wider literature looking at implicit activation of stereotypes (Dovidio, Evans & Tyler, 1986; Macrae, Bodenhausen, Milne & Jetten, 1994; Macrae, Bodenhausen, Milne et al., 1997; Wittenbrink, Judd & Park, 1997).

2. There will be a decrease in explicit stereotype endorsement and improved attitudes overall towards autistic people in the enhanced imagined contact condition compared to the control. There will also be a difference in stereotype activation in the enhanced imagined contact condition compared to the control. This hypothesis is based on previous literature demonstrating the effectiveness of counter-stereotyping strategies on reducing stereotyping towards a number of different groups of people in society (Blair et al., 1996, 2001; Dasgupta & Asgari 2004; Dasgupta & Greenwald, 2001; Hutter & Crisp, 2005; Hutter et al., 2009, 2013; Plant et al., 2009; Wittenbrink et al., 2001), in addition to wider literature on implicit activation of stereotypes (Dovidio, Evans & Tyler, 1986; Macrae, Bodenhausen, Milne & Jetten, 1994; Macrae, Bodenhausen, Milne et al., 1997; Wittenbrink, Judd & Park, 1997).

3. There will be a decrease in explicit stereotype endorsement and improved attitudes towards autistic people in the enhanced imagined contact condition compared to the standalone imagined contact condition. There will also be a difference in stereotype activation in the enhanced imagined contact condition compared to standalone imagined contact. This hypothesis is based on previous literature demonstrating the effectiveness of imagined contact to improve attitudes (Brambilla et al., 2012; Cameron et al., 2011; Miles & Crisp, 2014; Stathi et al., 2012) and the effectiveness of counter-stereotyping strategies to reduce stereotyping towards different groups of people in society (Blair et al., 1996, 2001; Dasgupta & Asgari 2004; Dasgupta & Greenwald, 2001; Hutter & Crisp, 2005; Hutter et al., 2009, 2013; Plant et al., 2009; Wittenbrink et al., 2001), in addition to literature on implicit stereotype activation (Dovidio, Evans & Tyler, 1986; Macrae, Bodenhausen, Milne & Jetten, 1994; Macrae, Bodenhausen, Milne et al., 1997; Wittenbrink, Judd & Park, 1997).

## Method

### Participants

A-priori G\*Power analyses were undertaken prior to the study which indicated that in order to find a small to medium effect size of imagined contact (*d+*=0.35) (Miles & Crisp, 2014,p.3), a sample of 318 participants was required. A total of 318 participants (*Mage*=20.04, *SD*=2.85, Male= 93, Female=225) whose first language was English, were recruited from the University of Sheffield, who received either two course credits or a £5 voucher for their participation. Out of the total sample, 141 participants had prior contact with autistic people (indicated by having a relative or friend with autism) and 177 participants had no prior contact with autistic people (indicated by having no friends or relatives with autism). Participants were recruited through the University’s online recruitment system (ORPS) and volunteers list and consisted of undergraduate students.

### Design

A between participants experimental design was used, where participants were randomly allocated to one of three conditions: Control: a scene at train station (no contact); Standalone imagined contact: imagined contact with a person with autism; Enhanced imagined contact: imagined contact with a counter-stereotypic person with autism. Respective total sample sizes across each condition were: control (*n*=104), standalone imagined contact (*n*=107) and enhanced imagined contact (*n*= 107).

### Materials and Measures

Attitudes Questionnaire – Societal Attitudes Towards Autism Scale (SATA) (Flood, Bulgrin & Morgan, 2012)

In order to measure explicit attitudes towards people with autism, the SATA Scale (Flood et al., 2012) was used. This is the same measure used in the previous study (Study 2). The SATA Scale was developed to test attitudes towards people with autism. As described in Chapter 4, the scale consists of sixteen items testing a range of beliefs about people with autism (e.g., People with autism should not engage in romantic relationships’; ‘People with autism should have the opportunity to go to college’) where responses to the questionnaire were measured on a Likert scale ranging from 1 - strongly disagree to 4 – strongly agree.

Stereotype Endorsement Questionnaire

As described in Chapter 4, stereotype endorsement was measured using a questionnaire containing the 16 trait-words (eight stereotypic and eight counter-stereotypic) tested in pilot study 1, (Chapter 4). A Likert scale ranging from one (least like a person with autism) to five (most like a person with autism) was used. All sixteen items were presented in a randomised order for each participant, with a higher mean score on the questionnaire being indicative of higher levels of trait-word endorsement and lower scores being indicative of lower levels of trait-word endorsement.

Implicit stereotype measure: Lexical Decision Task

Implicit stereotyping was measured using a Lexical Decision Task (LDT), modified from the one used by Wittenbrink, Judd, & Park (1997). Wittenbrink et al., (1997) presented participants with priming words (Black or White), followed by target stimuli consisting of trait words relating to African Americans and whites, which varied in terms of both stereotypicality and valence. Following presentation of the prime words and target stimuli, participants were asked to make a word, non-word decision and response latencies were measured. However, the task used in the current study was different to Wittenbrink et al., (1997) in that no primes were used as part of the task. Instead of using priming words, the current task used the information (vignettes) contained as part of the imagined contact task to prime participants.

Word stimuli used for the lexical decision task

Word stimuli used in the task included twenty - four stereotypic traits and twenty-four counter-stereotypic traits that had previously been identified as being the most and least stereotypic (counter-stereotypic) of people with autism (Pilot Study 1, Study 2 ) (See Table 5.1 below). Both the stereotypic and counter-stereotypic words were matched in terms of frequency within the English language using the British National Corpus ([www.natcorp.ox.ac.uk](http://www.natcorp.ox.ac.uk)) where no significant differences were found *U*= 258,500, *p*=.543. Further checks in relation to word length (stereotypic words; counter-stereotypic words) were also undertaken, where no significant differences were found *t*(46) = .783, *p*= .423.

In addition to the stereotypic and counter-stereotypic trait words used, twenty- four filler words were included (www.randomlists.com), all of which had no obvious associations with autism. Examples of the filler words included: oval, linen, and varnish. Forty – eight non-words were also included (www.wordgenerator.net/fake-word-generator.php), for example laptax, rodrup and yeinydd.

**Table 5.1** Lexical decision task word stimuli

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Stereotypic Word Stimuli Counter-stereotypic Word Stimuli \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Troubled Caring

Difficult Warm

Obsessive Attractive

Awkward Graceful

Anti-social Tactful

Detached Conventional

Disruptive Sympathetic

Distant Obedient

Odd Affectionate

Withdrawn Charming

Curious Independent

Fixated Flexible

Gifted Ordinary

Smart Stupid

Intelligent Outgoing

Uncommunicative Connected

Compulsive Calm

Inflexible Unintelligent

Unpredictable Extrovert

Weird Normal

Orderly Sociable

Quiet Approachable

Unaffectionate Easygoing

Introvert Communicative \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The lexical decision task was programmed on Version 2 of E Prime (Schneider, Eschman & Zucclotto, 2002) and consisted of 120 experimental trials and 10 practice trials. In line with Wittenbrink et al., (1997), each trial consisted of a fixation cross presented in the center of the screen for a period of 1000ms. Following this the stereotypic and counter-stereotypic words, non-words or filler stimuli were presented for 250ms, where the computer paused until the participant had responded. All stimuli were presented on a white background, in a size 18 black font (Wittenbrink et al., 1997).

Imagined Contact Materials

A pilot study was undertaken to devise information about the autistic people with whom participants imagined contact with in both the standalone and enhanced imagined contact conditions. The rationale for undertaking a pilot study was to control for subtyping effects that may have accounted for the null results seen in Study 2. That is, to ensure that the counter-stereotypic person in the enhanced imagined contact condition was not considered too atypical for autistic people, as this would prevent any generalisations being made about the group as a whole leaving the stereotypes intact.

For the standalone imagined contact scenario, the vignette needed to capture someone who did not have a large number of stereotypic traits, as this may have increased stereotyping further. However, at the same time, if the person in the scenario did not have any stereotypic traits associated with autism, then they may not have been considered autistic or generalisable to the group as a whole. Therefore, a balance was struck between the number of stereotypic traits the person had, whilst still maintaining a realistic representaion of an autistic person. For the enhanced imagined contact scenario, the vignette needed to capture someone who was ‘slightly’ counter-stereotypic of someone with autism (i.e. had one or two traits that were considered atypical of someone with autism), but at the same time was generalisable to the group as a whole. Specifically, they needed to disconfirm the stereotypes, but still be considered autistic.

A total of 42 Psychology undergraduates were recruited from the University of Sheffield’s Online Research Participation Scheme (ORPS), all of whom received course credit for taking part. Data from 4 participants was removed as they had answered the study more than once (*n*=4). Given that the effects of prior contact on people’s attitudes were still being explored (See Chapter 4), people who had prior contact with autistic people were removed from the analysis (*n*=5). The total sample size was 33 participants.

A questionnaire design was used, which consisted of twenty vignettes, each one containing different numbers of both stereotypic and counter-sterotypic traits that been shown to be representative of autistic people (See pilot study 1, Chapter 4). Vignettes ranged in stereotypicality from being very stereotypic of autistic people (vignettes contained 4 stereotypic traits) to very counter-stereotypic (vignettes contained 4 counter-stereotypic traits) with differing levels of traits inbetween (see Appendix C). Each participant was asked to rate the stereotypicality of each vignette on a 9-point Likert Scale (1 being very stereotypic of autistic people and 9 being very counter-stereotypic of autistic people). Mean scores and standard deviations for all vignettes can be seen in Appendix D.

The vignette chosen for standalone imagined contact (Sue) had a neutral mean (*M*= 5.79) and a small standard deviation (*SD*=1.45) and for enhanced contact (Charlene) had a higher mean (*M*= 6.82) and a small standard deviation (*SD*=1.53). In order to check each vignette differed in terms of stereotypicality (not overtly stereotypic; ‘slightly’ counter-stereotypic), a paired samples t-test was completed. Results indicated that there was a significant difference in terms of stereotypicality between Sue (not overtly stereotypic) and Charlene (‘slightly’ counter-stereotypic), *t* (32) =3.43, p=.002. Both vignettes were then used as part of the imagined contact task in the main study (See below).

Vignette for standalone imagined contact

*Sue is autistic. Both Sue and her auntie like to go for walks in the countryside, where her favourite place to walk is in the Peak District. Sue has walked on many of the trails throughout the Peak District.*

Vignette for enhanced imagined contact

*Charlene is autistic. She likes to spend her spare time going out with other people, especially for a meal. She has recently moved out of the family home but still has support from her parents.*

Scenarios used for imagined contact

The following imagined contact and control scenarios were used, which were modelled on the ones used by West et al., 2011 (experiment 4) who used imagined contact as a way of improving attitudes towards people with schizophrenia. The same instruction set and imagined contact scenarios were used in the current experiment as in West et al., (2011). However the information (vignettes) were changed in the current experiment to represent autistic people, rather than people with schizophrenia, as in West et al., (2011). The vignettes used in the current study were those tested in the pilot study (see above).

Control Condition

We would like you to take 5 minutes to imagine the following scenario:

*Imagine that you are waiting at a crowded train station for a train to Oxford, where you find a seat. Try to imagine the scene around you (e.g. how busy is the train station?). Is your train on time or delayed?*

We would like you to spend the time thinking, but please write down, from time to time, the things that you imagine. Feel free to write whatever springs to mind.

Standalone Imagined Contact

We would like you to take a minute to imagine the following scenario:

Imagine that you are waiting at a crowded train station for a train to Oxford. Shortly after you find a seat, you see another person enter the train station - Sue.

Sue is autistic. Both Sue and her auntie like to go for walks in the countryside, where her favourite place to walk is in the Peak District. Sue has walked on many of the trails throughout the Peak District.

*Imagined contact Instructions*

We would like you to take 5 minutes to imagine the following scenario:

*Shortly after arriving at the train station Sue takes the seat beside you. Imagine yourself having a conversation with Sue at the train station. Imagine that the interaction is positive, relaxed and comfortable.*

We would like you to spend the time thinking, but please write down, from time to time, the things that you imagine. Feel free to write whatever springs to mind.

Enhanced Imagined Contact

We would like you to take a minute to imagine the following scenario:

Imagine that you are waiting at a crowded train station for a train to Oxford. Shortly after you find a seat, you see another person enter the train station – Charlene.

Charlene is autistic. She likes to spend her spare time going out with other people, especially for a meal. She has recently moved out of the family home but still has support from her parents.

*Imagined contact Instructions*

We would like you to take 5 minutes to imagine the following scenario:

*Shortly after arriving at the train station Charlene takes the seat beside you. Imagine yourself having a conversation with Charlene at the train station. Imagine that the interaction is positive, relaxed and comfortable.*

We would like you to spend the time thinking, but please write down, from time to time, the things that you imagine. Feel free to write whatever springs to mind.

### Procedure

The procedure for the current study was identical to that in Chapter 4, with the following exception. Following completion of the imagination task, participants were asked to do the lexical decision task, followed by the SATA scale questionnaire and the stereotype endorsement questionnaire, which were counter-balanced across each participant. For the lexical decision task a computer with E Prime (Version 2.0) and a Viglen monitor were used to present the word stimuli and record the response times. All participants were seated at a distance of 50cm away from the computer screen (Wittenbrink et al., 1997). Participants were then advised that they were taking part in a word recognition task, which would start with the presentation of a ‘+’ in the centre of the screen, followed by either a word, or non-word, which they had to make a decision about. Participants were shown the response keys on the keyboard and asked to make a decision as soon as possible about the stimuli presented on the screen by pressing either the ‘m’ key indicating a word, or the ‘z’ key indicating a non-word. After completion of ten practice trials, participants then completed 120 experimental trials.

## Results

Analysis of free response data

All of the participants free response data was checked to ensure that participants had engaged in the task. There was no evidence to suggest that any participants had not done so.

Attitudes Questionnaire – Societal Attitudes Towards Autism Scale (SATA) (Flood, Bulgrin & Morgan, 2012)

As with Study 2 (see Chapter 4), relevant questions on the SATA Scale (Flood et al., 2012) were reverse coded (Questions 1,3,4,5,6,7,8,10,11,12,14,15,16) before a mean score for each participant was computed. A higher score of the SATA scale is indicative of more positive attitudes towards autistic people. A reliability analysis was undertaken on the SATA Scale, where it was found to be a reliable measure α =.72. (Nunnally, 1978, p.245). Data were checked to see if it met assumptions for parametric testing. However, data for two out of three conditions was significantly skewed >1.00. In order to correct for skewness, a Log 10 transformation was conducted, which did not transform the data into a normal distribution. A square root transformation was then conducted, but also failed to transform the data into a normal distribution. However, given that there were roughly equal samples sizes in each of the conditions (control: *n*=104, standalone imagined contact: *n*=107, enhanced imagined contact *n*=107) and that Levene’s Test of equality of error variances were not significantly different across all the between group comparisons (*p*=.386*, p*=.546*, p*=.507), parametric tests were undertaken.

Standalone imagined contact compared with the control

As with Study 2 (see Chapter 4) a 2 (standalone imagined contact vs. control ) X 2 (prior contact: yes; no) ANOVA was conducted on the SATA scale. Results showed a non-significant main effect of both condition *F*(1,207)=.265, *p*=.608, *ƞр²*<.01 and prior contact *F*(1,207)=1.31, *p*=.254., *ƞр²*=.01, in addition to a non-significant interaction between condition and prior contact *F*(1,207)=.032, *p*=.859, *ƞр²*<.01, demonstrating that standalone imagined contact did not improve participants attitudes towards autistic people, compared to the control. Results also indicated that prior contact with autistic people did not moderate imagined contact effects on attitudes.

Enhanced imagined contact compared with the control

As with Study 2 (see Chapter 4) a 2 (enhanced imagined contact vs. control ) X 2 (prior contact: yes; no) ANOVA was conducted on the SATA scale. Results showed a non-significant main effect of both condition *F*(1,207)=1.29, *p*=.257, *ƞр²*=. 01, and prior contact *F*(1,207)=1.50, *p*=.222, *ƞр²*=. 01, in addition to a non-significant interaction between condition and prior contact *F*(1,207)=.08, *p*=.782, *ƞр²*<.01, demonstrating that enhanced imagined contact did not improve participants attitudes towards autistic people, compared to the control. Results also indicated that prior contact with autistic people did not moderate imagined contact effects on attitudes.

Enhanced imagined contact compared with standalone imagined contact

As with Study 2 (see Chapter 4) a 2 (enhanced imagined contact vs. standalone imagined contact) X 2 (prior contact: yes; no) ANOVA was conducted on the SATA scale. Results demonstrated a non-significant main effect of both condition *F*(1,210)=.55, *p*=.461, *ƞр²*<.01, and prior contact *F*(1,210)=2.68, *p*=.103, *ƞр²*=.01, in addition to a non-significant interaction between condition and prior contact *F*(1,210)=.01, *p*=.904, *ƞр²*<.01, demonstrating that enhanced imagined contact did not improve participants attitudes towards autistic people, compared to standalone imagined contact. Results also indicated that prior contact with autistic people did not moderate imagined contact effects on attitudes. Both mean scores for the Societal Attitudes Towards Autism (SATA) scale, and as a function of prior contact can be seen in Figure 5.1 below.

**Figure 5.1** Mean scores for the Societal Attitudes Towards Autism Scale (SATA) as a function of prior contact (yes or no) (error bars indicating 1 standard error from the mean). The highest score, which is indicative of best possible attitudes on the SATA Scale, is 64.

Explicit Stereotype Measure – Stereotype endorsement questionnaire

As in Study 2 (see Chapter 4) a total mean endorsement score for both stereotypic and counter-stereotypic trait words was calculated for each participant, with a higher mean score being indicative of higher levels of stereotype/counter-stereotype endorsement. Histograms indicated that data were normally distributed, with skewness values across all conditions and for both word types <1.

Standalone imagined contact compared to the control

As in Study 2 (see Chapter 4) a 2 (standalone imagined contact vs. control ) X 2 (word type: stereotypic: counter-stereotypic) X 2 (prior contact: yes; no) ANOVA was conducted on the explicit stereotype endorsement scores. A main effect of word type was found *F*(1,207)=71.38, *p*<.01, *ƞр²*= .26, where stereotypic words were endorsed more than counter-stereotypic words (*M*=3.28, *SD*=.46 vs. *M*=2.80, *SD*=.43) . This finding was as expected as condition was not included in this effect. However, both a non-significant main effect of condition was observed *F*(1,207)=.40, *p=* .528, *ƞр²*<.01, and a non-significant word type/condition interaction was also found *F*(1,207)=.80, *p*=.373., *ƞр²* <.01. This non-significant interaction showed that explicit stereotype endorsement did not decrease following standalone imagined contact, compared to the control.

A non-significant interaction between condition, prior contact and word type was also observed *F*(1,207)=.04, *p*=.833, *ƞр²*<.01, indicating that prior contact with autistic people did not moderate the effects of imagined contact on stereotype endorsement. Both a non-significant word type/ prior contact interaction *F*(1,207)=.88, *p*=.350, *ƞр²*<.01, and non-significant condition/prior contact interaction *F*(1,207)= 1.74, *p*=.189, *ƞр²=.*01 were also found.

Enhanced imagined contact compared to the control

As in Study 2 (see Chapter 4) a 2 (enhanced imagined contact vs. control ) X 2 (word type: stereotypic: counter-stereotypic) X 2 (prior contact: yes; no) ANOVA was conducted on the explicit stereotype endorsement scores. Results showed a main effect of word type *F*(1,207)=56.70, *p*<.01, *ƞр²*=.22, with stereotypic words being endorsed more than counter-stereotypic words (*M*=3.27, *SD*=.45 vs. *M*=2.83, *SD=*.47). This finding was as expected as condition was not included in this effect. However, both a non-significant main effect of condition *F*(1,207)=.96, *p=.328*, *ƞр²*=.01, and a non-significant word type/condition interaction *F*(1,207)=2.18, *p*=.141, *ƞр²* =.01 were found. This non-significant interaction indicated that explicit stereotype endorsement did not decrease following enhanced imagined contact, compared to the control.

A non-significant interaction between condition, prior contact and word type was also observed *F*(1,207)=1.45, *p*=.229, *ƞр²*=.01, indicating that prior contact did not moderate the effects of imagined contact on explicit stereotype endorsement. Both a non-significant word type/ prior contact interaction *F*(1,207)=.01, *p*=.920, *ƞр²<.*01, and a non-significant condition/prior contact interaction *F*(1,207)= 1.11, *p*=.294, *ƞр²=.*01, were also found.

Enhanced imagined contact compared with standalone imagined contact

As in Study 2 (see Chapter 4) a 2 (enhanced imagined contact vs. standalone imagined contact) X 2 (word type: stereotypic: counter-stereotypic) X 2 (prior contact: yes;no) ANOVA was conducted on the explicit stereotype endorsement scores. Results showed a main effect of word type *F*(1,210)=49.53, *p*<.01, *ƞр²*=.19, with stereotypic words being endorsed more than counter-stereotypic words (*M*=3.26, *SD*=.42 vs. *M*=2.86, *SD*=.43). However, both a non – significant main effect of condition *F*(1,210)=.17, *p*=.681, *ƞр²*<.01, and a non-significant word type/ condition interaction *F*(1,210)=.42, *p*=.516, *ƞр²*<.01, were found. This non-significant interaction indicated that explicit stereotype endorsement did not decrease following enhanced imagined contact, compared to standalone imagined contact.

A non-significant interaction between condition, prior contact and word type was also observed *F*(1,210)=1.12, *p*=.291, *ƞр²*=.01, indicating that prior contact did not moderate the effects of imagined contact on explicit stereotype endorsement. Both a non-significant word type/ prior contact interaction *F*(1,210)=.10, *p*=.749, *ƞр²*<.01 and a non-significant condition/prior contact interaction *F*(1,210)=.08, *p*=.778, *ƞр²*<.01 were also found. Mean scores for word type endorsement as a function of prior contact can be seen in Figure 5.2 below.

**Figure 5.2** Mean scores for word type endorsement, as a function of prior contact (yes or no) (error bars indicating 1 standard error from the mean).

Implicit Stereotype Measure – Lexical decision task.

The lexical decision task was aimed at measuring participants’ reaction times towards stereotypic and counter-stereotypic trait words. Reaction time data was filtered to remove responses of <150ms and >1500ms (Wittenbrink, Judd & Park, 1997), as well as incorrect responses. A mean reaction time was then calculated for stereotypic and counter-stereotypic words for all participants. Data was checked for normality, where all conditions were found to be significantly skewed >1.00. Following a Log 10 transformation, data then met assumptions for parametric testing.

Standalone imagined contact compared with the control

A 2 (standalone imagined contact vs. control ) X 2 (word type: stereotypic; counter-stereotypic) X 2 (prior contact: yes;no) ANOVA was conducted on the implicit stereotype activation scores. A main effect of word type was found *F*(1,202)=32.50, *p*<.01, *ƞр²*=.14, where participants were faster to respond to counter-stereotypic words more than stereotypic words (*M*=535.80, *SD*=6.50 vs. *M*=552.51, SD=6.75). Both a non-significant main effect of condition *F*(1,202)=.13, *p*=.723, *ƞр²*<.01, and a non–significant word type/condition interaction *F*(1,202)=.01, *p*=.905, *ƞр²*<.01, were also found. This non-significant interaction showed that implicit stereotyping did not decrease following standalone imagined contact, compared to the control.

A non-significant interaction between condition, prior contact and word type was also observed *F*(1,202)=.08, *p*=.783, *ƞр²<.*01, indicating that prior contact did not moderate the effects of imagined contact on implicit stereotyping. Both a non-significant word type/ prior contact interaction *F*(1,202)=.43, *p*=.513, *ƞр²*<.01, and a non-significant condition/prior contact interaction *F*(1,202)=1.25, *p*=.266, *ƞр²*=.01, were also found.

Enhanced imagined contact compared with the control

A 2 (enhanced imagined contact vs. control ) X 2 (word type: stereotypic; counter-stereotypic) X 2 (prior contact: yes;no) ANOVA was conducted on the implicit stereotype activation scores. Results showed a main effect of word type *F*(1,205)=27.56, *p*<.01, *ƞр²*=.12, where participants were faster to respond to counter-stereotypic words more than stereotypic words (*M*=541.96, *SD*=7.66 vs. *M*=557.37, *SD*=7.74). Both a non-significant main effect of condition *F*(1,205)=.04, *p*=.851, *ƞр²<.*01, and a non-significant word type/condition interaction *F*(1,205)=.08, *p*=.784, *ƞр²<.*01, were also observed. This non-significant interaction shows that implicit stereotyping did not decrease following enhanced imagined contact, compared to the control.

A non-significant interaction between condition, prior contact and word type was also observed *F*(1,205)=.04, *p*=.838, *ƞр²*<.01, indicating that prior contact does not moderate the effects of imagined contact on implicit stereotyping. Both a non-significant word type/ prior contact interaction *F*(1,205)=.03, *p*=.864, *ƞр²*<.01, and a non-significant condition/prior contact interaction *F*(1,205)=1.09, *p*=.299, *ƞр²*=.01, were also found.

Enhanced imagined contact compared with standalone imagined contact

A 2 (enhanced imagined contact vs. standalone imagined contact) X 2 (word type: stereotypic; counter-stereotypic) X 2 (prior contact: yes;no) ANOVA was conducted on the implicit stereotype activation scores. Results showed a main effect of word type *F*(1,203)=34.63, *p*<.01, *ƞр²*=.15, where participants were faster to respond to counter-stereotypic words more than stereotypic words (*M*=537.59 *SD*=6.66 vs. *M*=554.22, *SD*=7.16). Both a non-significant main effect of condition *F*(1,203)=.30, *p*=.582, *ƞр²*<.01 and a non-significant word type/condition interaction *F*(1,203)=.19, *p*=.667, *ƞр²*<.01,were also observed. This non-significant interaction shows that implicit stereotyping did not decrease following enhanced imagined contact, compared to standalone imagined contact.

A non-significant interaction between condition, prior contact and word type was also observed *F*(1,203)=.27, *p*=.601, *ƞр²*<.01, indicating that prior contact does not moderate the effects of imagined contact on implicit stereotyping. Both a non-significant word type/ prior contact interaction *F*(1,203)=.24, *p*=.626, *ƞр²*<.01,and a non-significant condition/prior contact interaction *F*(1,203)<.01, *p*=.963, *ƞр²*<.01 were also found. Mean scores for both word type activation as a function of prior contact can be seen in Figure 5.3 below. For ease of interpretation the untransformed means have been used in Figure 5.3 below.

**Figure 5.3** Mean scores for word type activation of stereotypic and counter-stereotypic words in the lexical decision task, as a function of prior contact (yes or no) (error bars indicating 1 standard error from the mean).

## Discussion

As with Study 2 (see Chapter 4) the aims of the current study were to; (1) test if imagined contact on its’ own could improve attitudes and reduce stereotyping towards autistic people compared to the control (no contact); (2) testif an intervention which enhanced imagined contact by adding a counter-stereotypical element to it (a counter-stereotypic autistic person), maximised the effects of imagined contact by specifically targeting people’s beliefs (or stereotypes) and attitudes towards autistic people, compared to the control; (3) investigate whether prior contact with autistic people can moderate the effects of imagined contact. As with Study 2, results demonstrated that neither standalone imagined contact, nor enhanced imagined contact, had a significant effect on either attitudes, or implicit and explicit stereotyping of autistic people, which disputes the hypotheses. Furthermore, the results of the exploratory analysis demonstrated that prior contact with autistic people did not moderate imagined contact effects.

As in Study 2, these findings are consistent with previous research which has failed to find an effect of imagined contact on improving people’s attitudes towards different groups of people in society. These findings add support for Dermody et al., (2013), who also failed to find an effect of imagined contact on both implicit and explicit attitudes towards gay men, and those who have failed to replicate the effects seen in other studies using imagined contact (McDonald et al., 2014; Klein et al., 2015). Specifically, McDonald et al., (2014) who failed to replicate the effects of imagined contact seen in the study conducted by Birtel and Crisp ( 2012), and Klein et al., (2014) whose many labs project found that only 4 out of 36 samples were able to replicate the effect size seen in Husnu and Crisp’s (2010) study.

However, these findings are different from the vast amount of studies, where imagined contact has been shown to be an effective intervention at improving attitudes and reducing stereotyping (Brambilla et al., 2012; Cameron et al., 2011; Crisp & Turner, 2009, Miles & Crisp, 2014: West, Holmes & Hewstone, 2011) and from counter-stereotyping strategies that have been used to successfully reduce stereotyping (Blair et al., 1996, 2001; Bodenhausen, Schwarz, Bless & Wanke,1995; Dasgupta & Greenwald, 2001; Wittenbrink et al., 2001). Moreover, these findings are different from West et al., (2011), whose study used positive stereotype disconfirming information about the target member and found this to increase the effect size on attitudes (*d*=0.65) (Miles & Crisp, 2014,p.12).

There are a number of potential explanations as to why both standalone and enhanced imagined contact failed to improve attitudes and reduce stereotype endorsement towards autistic people in the current study. These will now be discussed.

Prior contact

Previous studies have shown that imagined contact is less effective (Hoffarth & Hodson, 2016) or in some cases ineffective (Lau et al, 2014; Lee & Cunningham, 2014) when participants have had prior contact with members of the outgroup. Furthermore, studies using direct contact have found that contact is less effective for people who are friends with outgroup members (Aberson et al., 2004; Barr & Bracchitta, 2008; Feddes et al., 2009; Herek & Capitanio, 1996). However, the results of this study demonstrate that prior contact (or friendships) with outgroup members, does not have an effect on imagined contact. Specifically, the results seen in the current study have not been dampened or moderated by having prior contact or friendships with autistic people. It is unlikely therefore that the results seen in the current study were as a result of participants having prior contact with autistic people. However, the degree of prior contact was not considered in this study, specifically the extent to which participants had frequent or infrequent contact with autistic people.

Subtyping

As in Study 2, it may be that the results seen in the current study could have been as a result of subtyping in the enhanced contact condition. Subtyping occurs when group members that disconfirm the stereotype are fenced off or excluded from the group stereotype and this remains intact (Kunda & Olesen, 1995; Park et al., 2001; Richards & Hewstone, 2001). Other theories (Wolsko, Park & Judd, 2003) have also suggested that in order for stereotypes to be changed, group members who disconfirm the stereotype must also be seen as being typical of the outgroup, so that member to group generalizations can be made. However, given that the information (vignettes) used in the current study for both of the conditions were piloted and the information about the counter-stereotypic person with autism was found to have traits that were not too atypical but still representative of the group so that member to group generalization could be made (see pilot study), it is unlikely that subtyping has had an effect on the results in the current study.

Power

As in Study 2, the results in the current study may have been as a result of insufficient statistical power to detect an effect seen in previous studies (*d*+=0.35, Miles & Crisp, 2014,p.3). However, a-priori G\*Power tests were undertaken, which indicated that a sample size of 318 participants was enough to find an effect seen in previous studies (*d*+=0.35, Miles & Crisp, 2014, p.3). It is unlikely therefore that the results seen in the current study were due to the experiment being underpowered.

Attitudes

In respect of attitudes, the predicted direction for the results in the current study was there would be an improvement in scores on the SATA Scale (Flood et al., 2012) following both standalone and enhanced imagined contact compared to the control, who did not imagine contact. Specifically, participants were expected to have higher scores on the SATA Scale (Flood et al., 2012), which is indicative of more positive attitudes towards autistic people, following standalone and enhanced imagined contact, compared to the control. However, a significant difference in attitude scores was not observed for both standalone and enhanced imagined contact, compared to the control. A potential explanation for this may be due to participants already having positive attitudes, or low prejudice levels towards autistic people. This is evident in the control condition where participants mean scores on the SATA Scale (Flood et al., 2012) were high to start with (Prior contact, *M*=57.16, *SD*=5.21), (No prior contact, *M*=56.56, *SD*= 4.88). The highest score on the SATA Scale is 64. Given that participants already started off with high scores on the SATA Scale (Flood et al, 2012) as seen in the control condition, this may have created a ceiling effect of imagined contact. Specifically, the extent to which the intervention could improve scores on the SATA scale (Flood et al., 2012), was reduced by participants having more positive attitudes to start with.

This explanation is supported by Dermody, Jones and Cumming (2013) who also found that imagined contact was ineffective, which they cite could be due to participants having such low normative level of prejudice (indicated by positive attitudes) towards the target group that a further reduction in prejudice (or an increase in attitude positivity) was unlikely as a result of the intervention. Further support for this explanation comes from West, Hotchin and Wood (2017), whose study found that the effects of imagined contact can be moderated by prejudice levels, specifically that imagined contact is less effective for participants who already have lower levels of prejudice, or more positive attitudes towards outgroup members. Moreover, other studies have also found a moderating effect of levels of bias (or prejudice) on the effectiveness of imagined contact. Asbrock et al., (2013) found that imagined contact was less effective for participants who had lower levels of Social Dominance Orientation (SDO). SDO in this study is indicated by low levels of intergroup bias, or less prejudice towards other groups of people.

Moreover, studies that have used direct contact have also demonstrated that contact based strategies are less effective for people who have low levels of bias or prejudice. Evidence in support of this, comes from Hodson (2008), who found that direct contact is less effective for participants who have lower levels of SDO, or lower levels of intergroup bias, and Graham, Frame and Kenworthy (2014) who also found that prior attitudes can moderate the effectiveness of contact. Specifically, they showed that contact was not as effective for people who already had positive attitudes towards the outgroup.

Coupled with this is evidence that other variables, such as gender, can have an impact on prejudice levels. That is, studies examining gender differences in prejudice levels have suggested that females are less prejudiced than males (Akrami, Ekehammar & Araya, 2000; Ginzalez-Castro, Ubillos & Ibanez, 2009; Mata, Ghavami & Wittig, 2010; Ratcliffe, Lassiter, Markman & Synder, 2006). Furthermore, autism research has also shown that females have more positive attitudes and lower levels of stigma towards autistic people (Campbell, 2007; Gillespie-Lynch et al., 2015). Given that the sample in the current study was predominantly female (71%), and females have been shown to have lower levels of prejudice, suggests that the majority of participants in the current study may well have had more positive attitudes towards autistic people which may account for the high scores found in the control condition and the ceiling effect of contact which may have prevented the intervention from working. With this in mind, future research should aim to test if prejudice levels moderate the effectiveness of imagined contact, as this has been found in other studies (Asbrock et al., 2013; West et al., 2017).

Moreover, the samples used for both the current study and Study 2, could offer an explanation for the results, that is the samples recruited for both experiments were all young, highly educated students of Psychology. Previous research has shown a positive correlation between people’s education levels and their attitudes. Specifically that people who are educated to degree level, have more positive attitudes towards others (Brennen, Chanfreau, Finnegan et al., 2015). The effects of higher education on tolerance have been highlighted by Lee and Mutz (2018) whose study found that higher levels of education led to increased levels of support for gay marriage, as did Grapes (2006) who also found that there was a relationship between education level and attitudes towards gay rights. Specifically that people who had a graduate degree demonstrated more positive attitudes towards gay rights. The positive correlation between increased tolerance and higher education levels has also been demonstrated by Twenge, Carter and Campbell (2015) who found that education was the strongest predictor of tolerance. Further research has also found that high levels of educational attainment leads to decreased levels of prejudice (Carvachio, Zick, Haye et al., 2013; Croucher, Homsey, Brusch et al., 2013). Given that the samples used in the current study and Study 2 were highly educated Psychology students, the impact of this may have led to the experimental findings. That is the experiments may not have worked due to the samples that were recruited.

A further explanation for the results seen in the current study is that contact based interventions, such as imagined contact are not as effective at reducing stereotyping, than they are for improving feelings and behavioral intentions towards the outgroup. That is, effect sizes for imagined contact have been found to be smaller for attitudes (explicit attitudes *d*=0.36; implicit attitudes *d*=0.31) than they are for feelings (*d*=0.41) and behavioural intentions towards the outgroup (*d*= 0.46) (Miles & Crisp, 2014, p.14). However, it is unclear from the meta-analysis how effective imagined contact is at reducing stereotyping towards other groups, because cognitive measures (stereotyping) and affective measures have been collapsed under the same heading of attitudes. With this in mind it could be that the effect size of this intervention for stereotype reduction may well be much lower than originally anticipated.

This explanation is consistent with direct contact research where effect sizes for direct contact have been shown to vary across the different affective and cognitive components of attitudes. Specifically, Tropp and Pettigrew (2005) showed that there was a difference in magnitude of effect sizes related to direct contact on feelings (*r*=-.28) and stereotypes (*r*=-.17), indicating that interventions based on contact are less effective at facilitating cognitive change, than they are affective change towards others. Moreover, this view is supported by Pettigrew and Tropp (2008) who assert that the effects of contact on affective indices, such as feelings, are stronger than for cognitive indices, such as stereotyping.

Furthermore, there is evidence to suggest that imagined contact is more effective at improving children’s attitudes, with larger effect sizes being found for children compared to adults (*d*=0.81 vs. *d*=0.32) (Miles & Crisp, 2014, p.16). Evidence related to this can be seen in studies that have used imagined contact to change children’s attitudes towards a number of different outgroups, examples of which include - Cameron, et al., (2011), *d*=0.39 (attitudes), *d*= 0.41(intentions) (Miles & Crisp, 2014, p.10) and Vezzali, et al., (2012), *d*=0.31 (attitudes), *d*= 1.68 (emotions), *d*=1.28 (intentions) (Miles & Crisp, 2014, p.11). Of particular interest here are the effect sizes for the Vezali et al., (2012) study. This is because on closer inspection the difference in magnitude of the effect for emotions and intentions is substantial compared to the effect that imagined contact has on attitudes. This provides further support for the explanation that imagined contact is more effective at improving feelings and behavioural intentions towards the outgroup, rather than attitudes (stereotypes). It may also explain why imagined contact has been unsuccessful in the current study, as the participants were all adults (Mean age=20.04, *SD*=2.85). However, given that the vast majority of imagined contact studies have found that imagined contact works with adults (see Miles & Crisp, 2014), it is unlikely that the current study has not worked due to the age of the participants. A more likely explanation for the findings is that imagined contact is not as effective at reducing stereotyping, compared to feelings and behavioural intentions towards the outgroup (Miles & Crisp, 2014; Pettigrew & Tropp, 2008; Tropp & Pettigrew, 2005), which in the current study may have rendered it ineffective. With this in mind, future interventions should look at testing interventions that are specifically tailored to improving cognitive dimensions of attitudes, or stereotyping.

Stereotypes

An alternative explanation for the findings in the current study may be because stereotypes are difficult to change. Stereotypes are types of schema (Kirchner, Schmitz, & Dziobek, 2012; Richards & Hewstone, 2001), that are characterised as being rigid and persisting over time (Garcia-Marques, Santos, & Mackie, 2006; Kirchner, et al. 2012). Moreover, part of the resistant nature of stereotypes to change may be influenced by the age at which they are acquired, i.e. in early childhood. According to cognitive developmental theory stereotypes are acquired as part of cognitive development (Bigler & Libon, 1993) and/or as part of social learning (Kunkel, Hummert, & Dennis, 2006). Research has shown that children as young as 2.5 years are able to recognise racial stereotypes. Bar Tal (1996) examined racial stereotypes about Arabs, in a sample of Israeli children aged 2.5-3.5 years, and 5.5-6.5 years old. Findings showed that children aged as young as 2.5 years were able to recognise stereotypic features related to an Arab. Furthermore, other studies have also shown that pre-school children are able to generate stereotypes related to both gender Giles & Heyman, (2005) and body size (Musher-Eizenman, Holub, Barnhart et al., 2004). Giles and Heyman’s (2005) study which looked at gender stereotypes in a sample of pre-school children (*M*age=4.6 years), found evidence of gender stereotyping in relation to males, that is children were more likely to associate males with physical aggression, than females. Moreover, Musher-Eizenman, et al., (2004) demonstrated that pre-school children (*M*age =5.2 years) were able to generate negative stereotypic traits related to body size, in response to pictures depicting obese figures. Given that stereotypes have been shown to develop and be used as means forming impressions of others from a very young age, it is hardly surprising that these structures are resistant to change (Allport, 1954; Johnston, 1996; Weber & Crocker, 1983).

Moreover, there is evidence to suggest that stereotypes can be difficult to alter (Allport, 1954; Johnston, 1996; Weber & Crocker, 1983). Johnston (1996) found that even when presented with disconfirming information, or counter-stereotypic information, that participants still maintained the stereotype, due to a bias in the information they sought about the outgroup. Specifically, participants still looked for information to maintain the stereotype. This explanation is supported by cognitive dissonance theory (Festinger, 1957) which proposes that once people have made a decision, they seek out confirming information, as opposed to disconfirming information related to this, in order to avoid feeling discomfort. In respect of stereotype reduction this would mean, even when presented with counter-stereotypic information (as in the enhanced contact condition), participants may seek information to confirm the stereotype to avoid feeling conflicted, thus the stereotype remains intact.

Moreover, this explanation may account for the lack of any effect seen by the addition of a counter-stereotyping strategy in the enhanced imagined contact condition. Specifically, that if people have bias in the information they process then this may result in the counter-stereotypic information being ignored, to avoid feeling discomfort (Festinger, 1957; Johnston, 1996). However, this explanation does not account for the large amount of studies that have shown that while stereotypes may be difficult to change, they can be reduced using both mental imagery tasks (Blair et al, 2001) and counter-stereotyping strategies (Blair & Banaji, 1996, Blair et al., 2001; Dasgupta & Asgari 2004; Dasgupta & Greenwald, 2001; Hutter & Crisp, 2005; Hutter et al., 2009; Plant et al., 2009; Wittenbrink et al., 2001). It is unlikely therefore that the results seen in the current experiment were because stereotypes are difficult to change.

Stereotype measures

In the current study, significant differences were predicted in both explicit and implicit stereotype endorsement following both standalone and enhanced imagined contact compared to the control. Specifically following both standalone and enhanced imagined contact a reduction in explicit and implicit stereotype endorsement was predicted compared to the control. On the explicit measure (Explicit Stereotype Questionnaire) participants were expected to endorse stereotypic trait words less – or say they were unlike someone with autism, following both standalone and enhanced imagined contact compared to the control. And on the implicit measure (the lexical decision task), participants response latencies to counter-stereotypic words were predicted to be quicker than stereotypic words, following both standard and enhanced imagined contact compared to the control. However, no condition/word type interactions were found, following standalone imagined contact compared to the control, or enhanced imagined contact compared to the control.

A possible explanation for these results, may be due to the measures used, more specifically the trait words used in the explicit stereotype questionnaire and the lexical decision task. Both the explicit stereotype endorsement questionnaire and the words used in the lexical decision task contained both stereotypic and counter-stereotypic traits specific to autistic people (see Chapter 4, and pilot study). However, it could be that some of the stereotypic traits used in the explicit stereotype questionnaire and the lexical decision task are characteristic of the disorder. Autism Spectrum Disorder (ASD) is characterised by a range of symptoms including: ‘persistent deficits in social communication and social interaction across multiple contexts, including deficits in social reciprocity, non-verbal communicative behaviours used for social interaction, and skills in maintaining and understanding relationships. In addition to: the presence of restricted, repetitive patterns of behaviour, interests or activities’ (DSM-5, APA, 2013, 299.00 (F84.0).

Given that autism is characterised by deficits in social interaction (DSM-5, APA, 2013) it could be that the trait word ‘distant’ may be considered indicative of lack of social interaction with others. And the trait ‘obsessive’ may be considered part of the criteria for repetitive behaviours, as defined in the DSM-5 (APA, 2013). With this in mind, a significant reduction in stereotyping may not have been observed in the study because while being stereotypic, some of the trait words are representative of autistic people (DSM, 5, 2013, ICD-10, WHO, 2010). However, this explanation does not account for the lack of effect of imagined contact on attitudes (see above).

Imagined contact doesn’t work

An alternative explanation for the findings is that imagined contact just does not work to improve attitudes and reduce stereotyping towards autistic people. This explanation is supported by studies that have used imagined contact and found it to be ineffective. McDonald et al., (2014), replicated a previous study completed by Birtel and Crisp (2012), where imagined contact was found to have a large effect (*d*=0.76, McDonald et al., 2014, p.838) on people’s feelings or anxiety levels towards people with schizophrenia. However, results from the replication failed to find the effect seen by Birtel and Crisp (2012), where no effect was seen (*d*= 0.10, McDonald et al., 2014, p.838).

Moreover, other studies have also failed to replicate the effects seen in previous studies using imagined contact. Klein et al., (2014) conducted multiple replications of a study originally completed by Husnu and Crisp (2010). The study was replicated the study across 36 different samples of participants and was identical to the original study apart from a slight change in wording related to the target group (British Muslims was changed to Muslims). Results showed that only 4 out of 36 samples were able to replicate the effects seen in the study by Husnu and Crisp (2010). Taken together these studies (Klein et al., 2014; McDonald et al., 2014) provide support for the explanation that imagined contact – is just not effective.

### Limitations

In the current study a direct measure of prejudice levels was not used before the intervention. However, given that the SATA Scale has been shown to be a reliable measure of attitudes, more generally (Flood et al., 2012), as well as in the current sample (α =.72), the scores on the SATA scale would offer a good indication of participants levels of prejudice. Specifically, higher scores on the scale would be indicative of more positive attitudes and lower levels of prejudice. However, future research should be undertaken to ascertain if prejudice levels moderate the effects of imagined contact as seen in other studies (West et al, 2017).

### Conclusion

In summary, as in Study 2 (Chapter 4) the current study tested; (1) if imagined contact on its’ own can improve attitudes and reduce stereotyping towards autistic people, compared to the control; (2) if an intervention which enhanced imagined contact by adding a counter-stereotypical element to it (a counter-stereotypic autistic person), maximised the effects of imagined contact by specifically targeting people’s beliefs (or stereotypes) and attitudes towards autistic people, compared to the control; (3) explored if prior contact moderated the effects of imagined contact on attitudes and stereotyping. Findings showed that neither standalone imagined contact, nor enhanced imagined contact were successful at improving attitudes and reducing stereotyping towards autistic people, compared to the control. No moderating effects of prior contact with autistic people were also found, suggesting that prior contact does not moderate the effectiveness of imagined contact on attitudes and stereotyping towards autistic people.

Several explanations have been advocated for the results. These included; (1) a ceiling effect of imagined contact was observed, due to participants already having positive attitudes towards autistic people. Specifically, because participants already had positive attitudes (lower levels of prejudice) to start with, the extent to which the intervention could improve people’s attitudes was reduced; (2) contact based interventions such as imagined contact are less effective at reducing stereotyping and more effective at improving affect based components of attitudes (feelings and behavioural intentions). That is, effect sizes for imagined contact on both feelings and behavioural intentions are much larger than for attitudes; (3) imagined contact is ineffective.

Given that the results may have been found due to participants levels of prejudice, future research should continue to test for potential moderators of imagined contact, specifically if prejudice levels moderate the effectiveness of imagined contact, as there is a paucity of research in this area (Asbrock et al., 2013; West, et al., 2017). Moreover, given that imagined contact has been found to be more successful at improving the affective components of attitudes, future research should aim at using different interventions such as those which specifically target cognitive components of attitudes, or stereotypes. These include perspective taking interventions (Galinsky & Moskowitz, 2000; Madera, 2018; Sparkman & Blancher, 2017) which are specifically aimed at reducing stereotyping. These ideas will be expanded upon more in the general discussion (See Chapter 6).

# Discussion

## Introduction

This chapter starts by providing an overview of the overall aims of this thesis, and a summary of the results found in each of the three studies. The implications of these findings in relation to both prejudice reduction and autism research will then be discussed. To finish suggestions for future research are provided.

## Summary of findings (including an explanation for the results)

There were two main aims of this thesis, which will now be discussed in turn. The first aim was to examine the lived experiences of autistic people, in relation to how they think that they are perceived by others, including what they think the autistic stereotypes are. The rationale for this was because whilst numerous studies have looked at what the autistic stereotypes are (Anjay et al., 2011; Jones & Harwood, 2009; Tang & Bie, 2016) few had asked autistic people how they thought others perceive them and no studies to date had specifically asked autistic people what autism stereotypes are. The first study in this thesis aimed to address this empirical gap and by doing so was the first study to look at stereotypes from autistic people’s perspectives.

Study 1 (Chapter 2) addressed this aim by using a qualitative research approach - Interpretative Phenomenological Analysis (IPA, Smith et al., 2009). IPA is an approach that is based on both phenomenological theory and hermeneutics. Phenomenology involves the careful examination of human experience (Husserl, 1982) and hermeneutics examines how people understand and make sense of their own experiences (Smith, Flowers & Larkin, 2009). Semi-structured interviews with 12 autistic adults from different social groups across South and West Yorkshire were conducted. Three interview questions were used, which consisted of questions relating to autistic stereotypes (for example: Question 1 - what do you think the stereotypes of people with autism are?). Following the interviews the data was transcribed verbatim, and each individual transcript was analysed using IPA (Smith et al., 2009). This involved coding each individual script for language use, descriptive content and interpretation of possible meanings. Following this a list of emergent themes was created for each participant based on interpretation of the data. The final part of the process involved looking across all of the transcripts and identifying recurrent themes, or a list of master themes. In order for a theme to be classed as recurrent, it had to be present in at least half of the participants’ data, or in Study 1, at least six participants.

Three main themes emerged from the data. These were: (1) the main autistic stereotype is that autistic people are ‘weird’; (2) that autistic stereotypes have negative effects and consequences for autistic people, and; (3) that autistic people are heterogeneous. These findings demonstrated that autistic people felt that they are perceived in a negative way by others and this may have negative consequences for autistic people, such as bullying and taking away a person’s individuality. The findings also indicated that autistic people are a diverse and unique group of people. These findings were important as they identified the potential for negative stereotypes to impact on autistic people, such as if autistic people believed them to be true they may internalise them, and that holding negative attitudes towards others may lead to negative behaviour, if this goes unchallenged (Amodio, 2014; Crandall et al., 2011; Hogg & Vaughan, 2011).

While there were many strengths to Study 1, including its important and novel contribution to wider literature on autistic stereotypes from the perspective of autistic people, there were also limitations. Specifically, it could be argued that asking autistic people how they think that are perceived by others may be of limited value, as theory suggests that autistic people have difficulty in taking other people’s perspectives (Frith, 1989). However, the author would argue that autistic people are always the best people to provide insight into their own experiences. Moreover, Milton’s double empathy problem (2012) suggests that misunderstanding occurs not only on the part of autistic people, but also neurotypical people. Specifically that problems related to understanding and empathy are bidirectional, rather than one way – that is both autistic people may have difficulty understanding neurotypical minds, and neurotypical people may have difficulty understanding autistic minds. The problem is therefore common to both populations, rather than being specifically related to autistic people only (Chown, 2014; Milton, 2012; Heasman & Gillespie, 2018). A lack of participant diversity was also acknowledged as being a limitation of Study 1, specifically there was a lack of autistic participants with intellectual difficulties, or speech delays in the sample.

Having established in Study 1 that autistic people think that autistic stereotypes are negative and this may lead to adverse consequences for autistic people, including that if left unchallenged, negative stereotypes or attitudes may lead to negative behaviour towards others (Amodio, 2014; Crandall et al., 2011; Hogg & Vaughan, 2011), the second aim of the thesis was to test an intervention aimed at reducing prejudice by improving attitudes towards autistic people, with a specific focus on stereotype reduction.

Specifically, the second study (Chapter 4) tested if an intervention which enhanced imagined contact by adding a counter-stereotypical element to it (a counter-stereotypic autistic person), maximised the effects of imagined contact by specifically targeting people’s beliefs (or stereotypes) and attitudes towards autistic people, compared an outdoor scene (no contact), in addition to if imagined contact on its own could improve attitudes and reduce stereotyping towards autistic people compared to an outdoor scene (no contact). Imagined contact theory (Crisp & Turner, 2009; Crisp, Stathi, Turner & Husnu, 2009), posits that imagined contact with an outgroup member can improve attitudes and reduce stereotyping towards others, with a plethora of studies showing its effectiveness (Miles & Crisp, 2014). Counter-stereotyping strategies, such as interventions using counter-stereotypic information about outgroup members, have also been shown to reduce prejudice via reducing stereotype endorsement (Blair & Banaji, 1996; Blair et al., 2001; Dasgupta & Asgari, 2004; Hutter et al., 2005, 2009, 2013; Plant, et al., 2009).

The rationale for testing imagined contact as a standalone intervention was based on evidence showing that imagined contact is effective at reducing stereotyping towards different groups of people in society (Brambilla et al., 2012; Cameron et al., 2011; Vezzali et al., 2012), but these studies are limited. In order to add to address this empirical gap and add to knowledge in this area, further testing was undertaken. The rationale for combining the two approaches was based on evidence showing that the addition of counter-stereotypic information into the imagined contact scenario can improve its effectiveness, specifically it can result in larger effect sizes for imagined contact (West et al. 2011, *d*=0.65), in addition to empirical evidence showing that counter-stereotyping strategies, specifically those that expose participants to counter-stereotypic information or people, have been shown to successfully reduce stereotyping towards others (Blair & Banaji, 1996; Blair et al., 2001; Dasgupta & Asgari, 2004; Hutter et al., 2005,2009, 2013; Plant, et al., 2009).

By combining the two approaches, not only could this add to the very limited number of studies that have previously used a combination of these approaches (West et al. 2011), but also advance knowledge as to if these two approaches used together can strengthen the effectiveness of imagined contact, specifically on stereotyping, which is something that had not been tested prior to Study 2. Moreover a combination of these two approaches was particularly suited to the context that is, improving attitudes and reducing stereotyping towards autistic people. Furthermore, an exploration as to whether prior contact with autistic people moderated the effects of imagined contact was also undertaken as part of the analyses. The rationale for including this was based on empirical evidence suggesting that prior contact can moderate the effects of imagined contact making it less effective (Hoffarth & Hodson, 2016) or in some cases ineffective (Lau et al., 2014; Lee & Cunningham, 2014).

For the second study, a total of 180 participants were recruited. A between participant design was utilised, where participants were allocated to one of 3 conditions (control: no contact, standalone imagined contact; enhanced imagined contact), and then completed dependent measures looking specifically at attitudes and stereotype endorsement. The hypothesised direction of results on the attitude measure (SATA Scale, Flood et al., 2012) was that following standalone and enhanced imagined contact, an increase in attitude positivity (indicated by a higher score on the scale) was predicted compared to the control. This hypothesis was informed by previous research showing that imagined contact can significantly improve attitudes towards others (see Miles & Crisp, 2014, meta-analysis). The predicted direction of the results for the explicit measure were that following both standalone and enhanced imagined contact, a reduction in stereotype endorsement, specifically the extent to which stereotypic words were considered as being representative of autistic people, would be reduced compared to the control. That is, in the enhanced imagined contact condition participants were predicted to endorse stereotypic words less and counter-stereotypic words more, following exposure to the counter-stereotypic exemplar. This hypothesis was based on theory showing that when presented with counter-stereotypic information about a target member, participants rely less on target based information (i.e. stereotypes related to the group) and more on information about the individual to form an impression (Leicht et al., 2014).

Findings showed that neither standalone, nor enhanced imagined contact significantly improved attitudes or reduced stereotyping towards autistic people. Further, findings from the exploratory investigation into whether prior contact moderated the effectiveness of imagined contact, showed that prior contact with autistic people did not moderate imagined contact effects. These findings were consistent with a number of studies that had failed to find an effect of imagined contact on attitudes and stereotyping (Asbrock et al., 2013; Dermody et al., 2013; West et al., 2017) including a large scale replication project (Klein et al., 2015), but were inconsistent with over 70 studies that have used imagined contact to successfully improve attitudes towards a number of different outgroups (Miles & Crisp, 2014). As discussed in Chapter 4, two explanations were provided for the results. These were that the autistic person in the enhanced imagined contact condition may have been subtyped preventing member to group generalisations being made, leaving the stereotype intact. A further explanation for the results was a lack of statistical power large enough to find an effect of imagined contact found in previous studies (*d*+=0.35, Miles & Crisp, 2014).

Moreover, a limitation of Study 2 was highlighted. Specifically that an implicit measure of attitudes was not included in the experiment. Given that self-report measures such as the explicit questionnaires used in Study 2, only measured attitudes in conscious awareness (Dovidio et al., 2002) and a divergence in both explicit and implicit attitudes has been found in wider literature, such that one may not match the other, (Dovidio & Fazio, 1992; Dovidio & Gaertner, 2002) implicit measures are important as they test congruence between explicit and implicit attitudes. In order to address the limitations identified in Study 2, a further replication was undertaken in Study 3 (See Chapter 5).

As such Study 3, was a direct replication of the previous study, with the following exceptions. A larger sample size was recruited based on a G\*Power analysis (*n*=318) and a new set of imagined contact scripts were used which contained new information about the target group members. Specifically a pilot test was undertaken to devise information about the autistic people used as part of the imagined contact scenarios. The rationale for devising and testing new information related to the target members was to ensure that subtyping was avoided. A lexical decision task was also devised and used in Study 3, to measure implicit stereotyping. It was important to include this to ensure that the intervention was able to facilitate attitudinal change at both an explicit and implicit level. As in Study 2, the hypothesised direction of results were that following standalone and enhanced imagined contact an improvement in attitudes was predicted, compared to the control, as was a reduction in stereotype endorsement , compared to the control. On the implicit stereotype measure (the lexical decision task) it was predicted that response latencies to counter-stereotypic words would be quicker than stereotypic words, as the counter-stereotypic exemplar used in the scenario should have increased the accessibility of counter-stereotypes in memory (see Blair et al., 2001).

Findings showed that neither standalone imagined contact, nor enhanced imagined contact significantly improved attitudes and reduced both explicit and implicit stereotyping. As in Study 2, these findings were consistent with research that has failed to find an effect on attitudes (Asbrock et al., 2013; Dermody et al., 2013; West et al., 2017), but at odds with findings where imagined contact had been found to be an effective way at improving attitudes and reducing stereotyping towards a number of different groups of people in society (see Miles & Crisp, 2014, meta-analysis).

As discussed previously in Chapter 5, explanations as to why both standalone and enhanced imagined contact have not worked to improve attitudes and reduce stereotyping towards autistic people may have been due to; (1) a ceiling effect of imagined contact. Specifically, because participants already had positive attitudes (lower levels of prejudice) to start with, the extent to which the intervention could improve people’s attitudes was reduced; (2) contact based interventions such as imagined contact are less effective at reducing stereotyping and more effective at improving affect based components of attitudes (feelings and behavioural intentions). That is, effect sizes for imagined contact on both feelings and behavioural intentions are much larger than for attitudes and; (3) imagined contact in some cases is ineffective.

However, a limitation related to the final study was highlighted. Specifically there was no direct measure of prejudice levels prior to the intervention. However, the scores on the SATA Scale (Flood et al.,2012) in the Control condition (no contact) were shown to be a reliable measure of attitudes, such that higher scores on the SATA Scale (Flood et al., 2012) would be indicative of more positive attitudes and lower levels of prejudice towards autistic people.

## Implications of findings

### Implications of findings for prejudice reduction research

The findings from both Studies 2 and 3 have shown that both standalone and enhanced imagined contact do not work to improve attitudes and reduce stereotyping towards autistic people. Given that this type of intervention hasn’t worked it is imperative that other interventions are found to improve attitudes and reduce stereotyping towards autistic people. This is important because stereotypes may be used as justifications for prejudice and discrimination towards others, if they are used when forming impressions about people (Amodio & Devine, 2006; Aronson et al., 2007; Crandall et al., 2011; Hogg & Vaughan, 2011; Rutland & Brown, 2001). Evidence in support of this, can be seen in studies that have identified a link between both racial stereotyping and prejudice (Devine, 1989; Nasir, et al., 2017), age stereotyping and prejudice (Hummert, et al., 1995; Nelson, 2016) and disability stereotyping and prejudice (Bruyere, 2000; Hunt & Hunt, 2004; Nelissen et al., 2016).

 Moreover, there is evidence showing that stereotypes can legitimise inaccurate myths related to different groups of people in society (Cox, Devine, Bischmann & Hyde, 2016). Specifically, media reporting of links between autism and criminality (Brewer et al., 2017; Maras et al., 2015) may serve to legitimise the inaccurate stereotype that autistic people are all involved in crime. However, there is very little evidence to support a link between autism and criminality (Maras et al., 2015). The damaging effects of stereotypes are also evident in research on employment opportunities for disabled people. Specifically, Bruyere (2000) who showed that negative attitudes and stereotypes held towards disabled people acted as a barrier to employment. Also supportive of this position is Nelissen et al., (2016) who found that negative perceptions or stereotypes of disabled people can influence how people treat them in the workplace, which is something that has also been found in other studies (see Hunt & Hunt, 2004).

 While a direct link between stereotypes and bullying has not been established there is evidence to suggest that a large number of autistic people are subjected to bullying at some point in their lives (Hickey et al., 2017; Humphrey & Symes, 2010; Kloosterman et al., 2013; Rowley et al., 2012; Sofronoff et al., 2014; Streckovic et al., 2014). If negative stereotypes are used to make judgements of others, then the potential for this to result in negative behaviour towards others may be increased (Aronson et al., 2007; Crandall et al., 2011; Devine, 1989; Hogg & Vaughan, 2011; Rutland & Brown, 2001). The importance of finding and testing interventions to prevent this from occurring is therefore of paramount importance.

### Implications of findings for autistic people

The findings from Study 1 demonstrated that autistic people felt that they are perceived in a negative way by others, and that this could lead to negative consequences. This finding has important implications for both autistic people and clinicians working with autistic people. In respect of autistic people, if autistic people feel that they are perceived in a negative way by others, this could lead to negative consequences such as self-stigmatisation. Self-stigmatisation occurs when individuals are both aware of and agree with group stereotypes, and internalise them as reflecting their personhood (Corrigan, Larson & Rusch, 2009). Moreover, evidence suggests that self-stigmatisation can result in other problems such as low levels of self-esteem and self–efficacy (Corrigan et al., 2009; Evans, Pelletier & Szola, 2018; Mittal et al., 2012). Given the link between psychiatric comorbidity of autism and mental health problems (Ghaziuddin & Zafar, 2008; Lever & Guerts, 2016; Stewart, Barnard, Pearson et al., 2006) the extent to which self-stigmatisation may further impact on this has implications for both autistic people and clinicians.

 Moreover, there is evidence to show that people may feel that they are being judged because of negative stereotypes, and this may threaten their performance in certain areas (Spencer, Logel & Davies), which can lead to negative outcomes for people in society. Specifically, there is research demonstrating that stereotype threat, or being judged according to group stereotypes can result in underperformance and dampen aspirations for a number of groups of people in society including women (Caderet, Hartung, Subich & Weingold, 2017; Good, Aronson & Harder, 2008; Martens, Johns, Greenberg & Schimel, 2006), and for people with disabilities (Desombre, Angemar & Delelis, 2018; Silerman & Cohen, 2014).

Furthermore, these findings also have implications for clinicians working with autistic people, especially in relation to ensuring that interventions are in place to combat any self-stigma associated with negative stereotypes. Interventions that have been successful at reducing self-stigma, include those using psychoeducation to change beliefs, and those which aim to increase self-efficacy and empowerment via enhanced coping skills (Corrigan et al., 2009; Mittal et al., 2014). Given that these interventions have been shown to work with other stigmatised groups of people in society, including those with mental illnesses, the potential of these types of interventions to work with autistic people is evident.

## Future Directions

Findings from Studies 2 and 3 have shown that both standalone and enhanced imagined contact have failed to improve attitudes and reduce stereotyping towards autistic people. Potential reasons for this have been suggested, including that prejudice levels may have moderated the effects of imagined contact by creating a ceiling effect and prevented it from working. Future research should therefore test if individual differences in prejudice levels moderate the effectiveness of imagined contact on people’s attitudes towards autistic people, as this has been shown to moderate the effects of imagined contact in others studies (Asbrock et al., 2013;West et al., 2017).

A further explanation for the findings in Studies 2 and 3, was that imagined contact interventions have been shown to be more effective at improving affective components of attitudes, such as feelings and behavioural intentions towards outgroups, which may have rendered it ineffective. With this in mind, future research should focus on finding interventions that specifically target stereotype reduction, such as perspective taking interventions (Galinsky & Moskowitz, 2000; Madera, 2018; Todd, Galinsky & Bodenhausen, 2012; Vescio, Sechrist, & Paolucci, 2003). Perspective taking approaches work by increasing empathy for outgroup members and by targeting the stereotypes and subsequent evaluations that are made about target group members (Galinsky & Moskowitch, 2000). Specifically, these type of approaches are targeted at undermining stereotypes held about the target group via the use of empathy or placing oneself in the position of others (Vescio et al., 2003).

## General Conclusion

In summary the findings in this thesis have advanced understanding about attitudes and stereotypes related to autism in several ways. Firstly, findings have identified that autistic people think that they are being perceived in a negative way by others, and that autism stereotypes are negative. These findings have also demonstrated that autistic people think that, while autistic people share the same diagnosis, there are profound differences in how this manifests within the individual, that is autistic people are diverse and unique individuals.

Secondly, findings have highlighted that interventions are necessary to challenge negative perceptions of autistic people so that negative consequences, which includes the potential for prejudice and discrimination, do not result. Thirdly, and of equal importance, findings have shown that both standalone and enhanced imagined contact, do not work to improve attitudes and reduce stereotyping towards autistic people. The importance of research to continue to look for appropriate interventions to facilitate attitudinal change towards autistic people, is therefore required. Finally, in the words of Margaret (Study 1) if ‘the very nature of stereotypes is to create a perimeter within which you should or ought to operate’ then the fundamental importance of ensuring that research continues to look for ways to break down the many barriers that autism stereotypes create, is paramount.

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# Appendix

## **Appendix A**

**Reflective Journal**

**Extract 1:Pre- interview phase (phase 1)**

Things to consider:

* Why is it important to keep a journal?
* What needs to go in it?
* How can this help me with my study?

Ahern (1999) recommends starting a reflexive journal prior to even formulating the research question which looks at: any issues that may enhance my ability to be reflexive and increase my ability to ‘bracket’, or ‘an iterative, reflexive journey that entails preparation, action, evaluation, and systematic feedback about the effectiveness of the process’ ( Ahern, 1999, p.408). Yet how on earth am I supposed to do this and to what end?

Given that I am part of the research process and as such cannot be objective – I feel that my own subjective experiences will indeed influence the process and – **if I am not aware of them** – **may influence the results**. However – I am a human being who cannot be separated from my own subjectivity – it is an inherent part of who I am – so am I somehow being asked to separate this from myself and resume a Tabula rasa type stance?????, Indeed not. This is about acknowledging when my own subjectivity/values may stand in the way of me seeing what is there or interpreting what is there.

Why is it important to have a journal?

It will help me to identity possible areas where my own thoughts, feelings, background, status **may influence** **the research process** (from start to finish) and be explicit about this. Rather than trying to fight against it – embrace it in all its’ entirety, BUT also ensure that it doesn’t unduly influence what I am trying to find out. The journal will play a key role in helping me with this – as it will enable me to reflect on the process and identify any areas that may affect how I interpret the data ( from how I ask the research questions – to what I take notice of and how I analyse what is being said).

What needs to go in?

**Contextual details** – where and when the interviews took place. Context can have an impact on the research process – such as where the interviews took place – especially for participants who have autism. Each interview will have its own unique context and the participants experiences will be shaped by the context within which they are interviewed. I am trying to capture what the participant says at a particular place and time – so it is important to note this down. Also context may have an effect on me – in that I may be interviewing in environments that are unfamiliar to me.

**My own thoughts and feelings before and during the interview** – For example: what mood was I in? How did the participants respond to me? How did I react if I heard something distressing/ emotionally charged?

Why is this important? – It is important because it may affect the way in which the participants responded to me / I responded to the participants – and how I interpret the data. I need to be aware of how to recognise feelings that may indicate a lack of neutrality (Ahern, 199, p.408) This means being able to identify areas where I am being subjective and letting my own personal values colour what’s being said/ interpreted ( Ahern, 1999)

 **Anything else? –** I need to acknowledge and be explicit about how my **own position** can impact on the research process. This will help me to understand my role as researcher – and how if I let it, this can influence the research process. Variables such as my: role as researcher (power), my age, gender and status can all impact on the process and I need to acknowledge this/ be aware of how this may impact on the process and work towards reducing the impact of this on the process/outcome.

**Extract 2 - Interviews 1** **& 2** (**Phase 2)**

POWER DYNAMICS – I felt very aware of the differences in terms of me as a researcher and the participant who has Asperger’s Syndrome. Participant 1 was a young female (aged 24) with whom I had already established a rapport before hand – (this was the 4th time I had met her). Demand characteristics – was the participant answering in a way that she felt I may want to hear? If so is she being true and honest in her responses? Participant 2 was a young male – again who I have met previously and built up a rapport – but how much of what he was saying was what I wanted to hear?

AGE, GENDER, DISABILITY, STATUS. My age – I am quite a lot older than the participants, and I don’t have a disability. I am doing a PhD (I am the researcher- which holds with it inherent power).

Q: Why are power dynamics important? A: They create a relationship between the ‘researcher and the researched’, which can create an uneven power imbalance between the two. As a researcher I am the person who sets the research agenda from start to finish, and as such have a high level of control over: which questions are asked, how they are asked and how they are interpreted (the analysis). I need to be aware of this power differential throughout the process – so as to not influence the results.

**Extract 3-Analysing the data (phase 3)**

After seemingly having no problems with analysing the data from the first five transcripts – I found myself stuck on Transcription number six. On reflection – whilst I didn’t pick up on this during the interview –perhaps due to concentrating so much on **what** was being said, as opposed to the **tone in which it was being said**, I realise that the reason that I may be stuck is possibly due to the implicit tone/ underlying feeling that this participant was being very condescending. Yet when I think back to the interview and relive it – my impression of this participant and throughout was that he was very nice, and indeed respectful. It is only when I have looked more deeply into the words and the tone of what was being said in places, that I feel this is the case. And there could be different reasons for this. Firstly – the participant has autism, and I don’t have autism, which can set up an uncomfortable dynamic, especially for the participant – especially as they may see me as the expert and themselves as the subject. However – I don’t think that is the case here. I think it is more likely that the participant felt the ‘power’ and felt empowered in a way that served to dis-empower me as a researcher. It almost felt like a role reversal!! Maybe they saw this as an opportunity to ‘have a go’ at me (in a very subtle, non-aggressive way) because they saw me as being a neuro-typical (i.e. – I don’t have autism), researcher (who is in a position of power both within the interview and in society) and that I was female. Maybe it was just a very subtle but well-engineered rage against power or maybe it was none of this at all!!! Having thought about this at a wider level this new vision or awakening – helped me to view the transcript in a new light, where I acknowledged what I was feeling and was able to see as much as is possible what this participant was saying and interpret this in a meaningful way- without my own feelings getting in the way. **After all if my voice becomes stronger or louder than the participants – then I need to reconsider and re-focus on the participants’ voice, which I DID.**

## Appendix B

|  |  |  |
| --- | --- | --- |
|  **Emergent Themes**  |  **Original Transcript** |  **Exploratory comments**  |
| Stereotypes of autism are: daft, slow, particular social skills, people skills (7-13)Stereotypes are negative (lines 14-16)Autism and other associated problems (14-19)The effects of loneliness (14-19)Not every autistic person fits the stereotype (daft, slow, poor social skills) (41-47)Heterogeneity of autism (41-47) Autistic traits are variable (41-47)I fit the stereotypes: different and loner (lines 58-68)Being different is another autistic stereotype (58-68)Being different can be beneficial (58-68)Feeling alone (58-68)The participant knows themselves very well (58-68)The diagnosis wasn’t a revelation (58-58)Negative difference (58-68) Diagnosis confirmed difference (70-4)Diagnosis wasn’t a shock (70-4) | P Um, from my point, um, probably, daft, slow, um, there’s just – from my point of view? R Yes, yes. P Well, referring to me, supposed to, um, what’s the word, retain information, a bit slow, um, (??) social, particular social skills, people skills, those are things I generally associate with me, more than anything else (Lines 7-13)R Ok, do you think that the things that you’ve already mentioned, are those positive or are those negative? P Well, around social, I think they’re negative, because I’ve always been a loner, really, underlying things, but that’s main the main reason for my suicide attempts, are loneliness and inability to mix. I think, from my point, that’s a negative, yes. (Lines 14-19).P Because as I say, this person, to me, from my point of view, she’s totally different to what I would think – obviously I don’t know her personally, I would think somebody else, because she seems quite easy talking to me and other people she always – what’s the word – nothing seems to trouble her from my point of view, the things that she does, like without, thinking I’d struggle to do, like talking or communicating……….(Lines 41-47)P I think I do, yes, because – R In what ways? P Like being different, because like I say, it was – in some respects it was good to get a diagnosis but my mum knew all my life, because I’ve got three brothers, they would be outside playing, I’d be inside and at school I could never mix, I was a loner ……… having it in black and white that I’ve now got Asperger’s in some respect it was not like a shock or anything like that – I knew it was something different, it was just finally, at long last, because, oh, maybe 2000, at T, she -one the workers there, she dealt with Asperger’s, she knew I’d got something, (Lines 58-68)P was only since the nursing staff assessed me while I was in (??) and they knew it was difficult and then they found, got my diagnosis in 2003 I think, so in some respects it were having it confirmed, it weren’t something that I didn’t know and the family didn’t know, if that makes sense, I don’t know. ( Lines 70-74) | When asked what the autistic stereotype is the participant spoke about themselves as opposed to other people with autism.They based the stereotypes on their own personal traits. The participant infers that they have particularly poor social skills. Poor social skills lead to loneliness – as a result of not being able to relate to people. Keeping themselves to themselves – being insular. Use of word ‘underlying’suggests that this participant may have other problems – in addition to their autism?Being lonely has resulted in the participant wanting to take their own life. The profound nature of loneliness and not being able to get along with people –can lead to someone wanting to take their own life. But is this down to being autistic or an additional problem – such as poor mental health? It’s hard to deconstruct or tease apart whether this is down to having autism, or other problems.There is difference – not all autistic people are like the participant. There is an acknowledgment that people with autism are a heterogeneous group. The participant makes their observations about a person with autism who is talkative and finds social interaction relatively easy, in this way disconfirming the autistic stereotype. The participant (who does fit the stereotype) compares themselves with someone who is the opposite (who doesn’t fit the stereotype), to add emphasis on how different this person is to them. Re: if the person fits the stereotypes they have mentioned: different & loner Another autistic stereotype is being different. Being ‘different’, has its advantages – as it led to a diagnosis in this participants’ experience. Comparison of self with siblings to highlight differences. This person would be doing the opposite to their siblings. Element of being alone – even though there were people around. Having the diagnosis confirmed that the participant and their family thought – i.e. that they were different due to having Asperger’s. The participant acknowledges they are different and weren’t surprised when they received their diagnosis. Use of the phrase ‘got something’, implies something negative about the person.Diagnosis confirmed what this person has (i.e.) Asperger’s.Diagnosis wasn’t a big shock, the person knew that things weren’t right with them? |

**Emergent Themes – Participant 10**

Stereotypes of autism are: daft, slow, particular social skills, people skills (7-13)

Stereotypes are negative (lines 14-16)

Autism and other associated problems (14-19)

The effects of loneliness (14-19)

Not every autistic person fits the stereotype (daft, slow, poor social skills) (41-47)

Heterogeneity of autism (41-47)

Autistic traits are variable (41-47)

I fit the stereotypes: different and loner (lines 58-68)

Being different is another autistic stereotype (58-68)

Being different can be beneficial (58-68)

Feeling alone (58-68)

The participant knows themselves very well (58-68)

The diagnosis wasn’t a revelation (58-58)

Negative difference (58-68)

Diagnosis confirmed difference (70-4)

Diagnosis wasn’t a shock (70-4)

**Super-ordinate Themes**

**Theme 1 –Stereotypes of people with autism are negative**

Stereotypes of autism are: daft, slow, particular social skills, people skills (7-13)

Being different is another autistic stereotype (58-68)

Stereotypes are negative (lines 14-16)

Negative difference (58-68)

**Theme 2** – **People with autism are a heterogeneous group**

Not every autistic person fits the stereotype (daft, slow, poor social skills) (41-47)

Heterogeneity of autism (41-47)

Autistic traits are variable (41-47)

**Theme 3**- **Diagnosis confirmed this person’s difference**

The participant knows themselves very well (58-68)

The diagnosis wasn’t a revelation (58-58)

Diagnosis confirmed difference (70-4)

Diagnosis wasn’t a shock (70-4)

**Miscellaneous emergent themes\*** (i.e. those that don’t fit into any super-ordinate themes)

Being different can be beneficial (58-68)

Autism and other associated problems (14-19)

The effects of loneliness (14-19)

Feeling alone (58-68)

I fit the stereotypes: different and loner (lines 58-68)

## Appendix C

**Stereotypic vignettes (Pilot Study 2)**

 (**4** traits – anti-social, dependent, introverted, gifted)

|  |
| --- |
| Joe is autistic. He struggles with social interaction and forming relationships and still lives with his parents as an adult. He is also quiet and prefers to spend time alone. However, he is good at maths. |

 (**4** traits – difficult, disruptive, anti-social, withdrawn)

|  |
| --- |
| James is autistic. He is often described as being unruly at school by his teachers, and they find it hard to deal with his behaviour in class. James likes his own company and tends to separate himself from others. |

 (**4** traits: dependent, anti-social, disruptive, aggressive)

|  |
| --- |
| Sarah is autistic. She is very dependent on others for her care and well-being. Sarah doesn’t like the company of other people and her behaviour can often be troublesome and aggressive towards other people.  |

 (**3** traits: withdrawn, gifted, routines,)

|  |
| --- |
| Adam is autistic. He spends most of his time alone and enjoys working out complex maths problems. Adam likes to stick to a strict routine each day and becomes upset when this is interrupted. |

 (**3** traits: obsessed, logical, fixated)

|  |
| --- |
| Samantha is autistic. She really likes One Direction and has all their albums, which she stores in alphabetic order. She likes one particular song which she plays over and over again.  |

**Neutral Vignettes**

 (**2** traits that may be considered ST – gifted and having a small group of friends, not many friends)

|  |
| --- |
| Mark is autistic. He is currently studying for an undergraduate degree at university, as in the future he would like to work with animals. Markhas a small group of close friends around him.  |

 (**2** traits that may be considered ST – quiet and reserved)

|  |
| --- |
| Holly is autistic. She is reserved and has a quiet nature. She has two pet cats named Bubbles and Oscar, both of which are grey and white. Holly also enjoys swimming at her local swimming baths. |

(**2** traits that may be considered ST uncommunicative, restricted interests).

|  |
| --- |
| Paul is autistic. He has difficulty interpreting other people’s facial expressions which can sometimes be problematic for communication. He enjoys watching television, especially soap operas.  |

(**1** trait that may be considered ST: fixated with routine)

|  |
| --- |
| Gemma is autistic. She has one pet dog called Minnie, who she likes to take on walks in the local park. Gemma takes Minnie for a walk at the same time every day and really enjoys this. |

(**1** trait that may be considered ST: dependent)

|  |
| --- |
| Sue is autistic. Both Sue and her auntie like to go for walks in the countryside, where her favourite place to walk is in the Peak District. Sue has walked on many of the trails throughout the Peak District.  |

**Slightly Counter- stereotypic Vignettes**

 (**2** CST traits: independent: sociable)

|  |
| --- |
| Charlene is autistic. She likes to spend her spare time going out with other people, especially for a meal. She has recently moved out of the family home but still has support from her parents.  |

(**2** CST traits - Approachable: (friendly) and easy going (relaxed)).

|  |
| --- |
| Marcus is autistic. He works in a shoe shop where he is considered both friendly and relaxed by his colleagues and customers. Marcus also likes going to the library, where he reads thriller novels. |

 (**2** CST traits: communicative, independent)

|  |
| --- |
| Claire is autistic. She likes to raise awareness of the condition by talking to people about disability issues. She recently came to the university to talk about her experiences with other people. |

 (**1** CST trait: compassionate)

|  |
| --- |
| Larry is autistic. He is a compassionate person, who likes to spend his weekends going to the cinema to watch films. Larry likes to buy a hot dog and a large drink to take in with him to the cinema. |

(**1** CST trait: caring, loving)

|  |
| --- |
| Donna is autistic. She is a loving person and has a pet cat called Poppy. Donna likes to walk in the Lake District in her spare time, especially in the summer time when the weather is good.  |

**Counter-stereotypic**

(**4** CST traits: outgoing (friendly), flamboyant, independent, capable)

|  |
| --- |
| Lily is autistic. She is a very friendly person and a flamboyant character. She is able to live on her own without the need for support, and is very capable when it comes to looking after herself.  |

(**4** CST traits – communicative (talkative), sociable, easy going (laid back), and gentle)

|  |
| --- |
| Carla is autistic. She is a very talkative person, who is able to get on well with other people. She is extremely laid back and gentle. Carla is married with 2 children – Sarah and James. |

(**4** CST traits: communicative (public speaker), capable (public speaker), sympathetic (understanding), compassionate).

|  |
| --- |
| Julie is autistic. She is a public speaker and author on disability issues. She is both understanding and compassionate towards other people, as well as being a very capable person.  |

(**3** CST traits: sociable (good at networking), communicative (good interpersonal skills), connected (has a wide circle of friends and work colleagues).

|  |
| --- |
| Jake is autistic. He runs his own business in marketing. Jake is very good at networking and has excellent interpersonal skills. Over the years he has built up a wide circle of friends and work colleagues. |

(**3** CST traits: extrovert (life and soul of the party), outgoing (spending time with friends) capable (can do stand-up comedy)

|  |
| --- |
| Peter is autistic. He is the life and soul of the party and really enjoys spending time with his friends. At the weekend, he enjoys performing stand up at a comedy club in his local town. |

## Appendix D

**Mean Stereotypicality Ratings of Vignettes**

Vignette Mean Standard Median Range

 Deviation

Joe (ST-4) 2.24 1.90 1 1-8 (7)

James (ST-4) 2.30 1.21 2 1-5 (4)

Sarah (ST-4) 2.30 1.81 2 1-8 (7)

Adam (ST-3) 2.18 1.82 1 1-7 (6)

Samantha (ST-3) 3.52 1.82 3 1-9 (8)

Mark (NEUT-2ST) 5.70 1.63 5 3-9 (6)

Holly (NEUT-2ST) 4.21 1.61 5 1-8 (7)

Paul (NEUT-2ST) 2.67 1.31 3 1-5 (4)

Gemma (NEUT-1ST) 3.94 1.80 4 1-9 (8)

Sue (NEUT-1ST) 5.79 1.45 5 4-9 (5)

Larry (SLIGHT CST-1) 5.45 1.43 5 3-9 (6)

Donna (SLIGHT CST -1) 5.55 1.39 5 2-9 (7)

Charlene (SLIGHT CST-2) 6.82 1.53 7 4-9 (5)

Marcus (SLIGHT CST-2) 6.30 1.55 6 2-9 (7)

Claire (SLIGHT CST-2) 5.73 1.89 5 1-9 (8)

Jake (CST-3) 7.45 1.76 8 3-9 (6)

Peter (CST-3) 7.61 1.41 8 4-9 (5)

Julie (4-CST) 6.94 1.67 7 4-9 (5)

Carla (4-CST) 7.64 1.24 8 5-9 (4)

Lilly (4 CST) 7.36 1.53 8 3-9 (6)

\* Parentheses represent number of Stereotypic and Counter-stereotypic traits used in each vignette. ‘Neutral’ denotes those deemed to be neither too stereotypic nor too counter-stereotypic. ‘Slight’ - denotes someone who would be rated as having some counter-stereotypictraits, but not too many so as to not be representative of autistic people.