

## **Human Capital Neurodiversity: An examination of Stereotype Threat Anticipation**

**Ms Tamsin Priscott**

STSP Commercial Executive and Neuro Inclusivity Network Co-Chair  
Ministry of Defence

[Tamsin.Priscott673@mod.gov.uk](mailto:Tamsin.Priscott673@mod.gov.uk)

**Robert A Allen**

Centre for Defence Management and leadership  
Cranfield University

[Robby.allen@cranfeld.ac.uk](mailto:Robby.allen@cranfeld.ac.uk)

### **Abstract**

The purpose of the study was to test the assumption of similarities between neurodivergents and other minority groups regarding their reaction to stereotype threat. In addition, it aimed to identify the source of stereotype threat and the neurodivergent's response to it. Two studies were conducted. Study 1 employed three exercises consisting of brochures, learning sets and posters to test organisational cues, notions of intelligence and situational cues. It collected data from 53 participants to establish whether stereotype threat observed in visible difference such as race, gender and intelligence is equally relevant to neurodiversity. Study 2 consisted of interviews with 44 participants to establish stereotype threat source, reaction and effect on declaration of invisible difference.

Neurodivergents, defined by their invisible difference, react similarly to those with a visible difference with respect to organisational cues and stereotype threat. They will cognisantly define their behaviours depending upon those cues and stereotype threat. In doing so they draw upon previous personal and work experiences. After the event they will make a comparison to their assessment. If it is similar to their assessment it reinforces it, however, if it is dissimilar the neurodivergent will make an adjustment to the assessment. In both cases the experience will form part of a future threat assessment.

The research is limited by its interpretivist nature and sample comprising personnel within a UK Government organisation.

The research has practical implications for employers, providing managers with a model to understand the impact a neurodivergents' previous experiences can have on their ability to interact within the workplace. Such understanding can provide insight into how best to utilise human capital.

This study makes a contribution to theory by expanding our knowledge of neurodiversity in the workplace and by identifying the neurodivergents' reaction to the anticipation of a stereotype threat. In addition, it offers the Stereotype Threat Anticipation conceptual model as a representation of the cognitive decisions made by neurodivergents to conceal or reveal their invisible difference.

## INTRODUCTION

Human capital diversity leads to team creativity and greatly increases organisational competitiveness (Han, *et al.*, 2014; Cadrain, 2008). Laursen *et al.*, (2005, p. 5) suggest that ‘a greater breadth of perspectives, skills, and attitudes due to diversity of human capital is beneficial in terms of providing flexibility of strategic adaptation.’ Diversity in terms of race, gender and visible disability is relatively well represented in the literature; however, there is a paucity of studies that relate to human capital neurodiversity.

Neurodiversity is a cognitive process that covers a variety of conditions that, until the term was introduced, were referred to as learning disabilities (Dalton, 2013). Although the original use of the term is rooted in research related to Asperger’s syndrome (Ortega, 2009), it has since been expanded to include dyslexia, dyspraxia, dyscalculia, Autism Spectrum Disorder (ASD), Tourette syndrome and Attention Deficit Hyperactivity Disorder (ADHD) (Dalton, 2013). The word ‘neurotypical’ was introduced by Singer (1999) to distinguish between those who were historically referred to as normal and those who were not. Its purpose was to focus on the neurodiverent’s different ways of thinking, rather than the disability (Ortega, 2009). Neurodiversity, like Sexual Orientation, has the exceptionality of being an invisible difference and therefore individuals can choose whether to share their difference. Although there is research into visible diversities, and there is evidence that stereotypes are applied similarly to those with the concealable disabilities such as cerebral palsy (Mik-Meyer, 2015); the question remains whether neurodivergents will have the same experiences as those with visible differences. Previous studies have shown that neurodivergents will choose to hide their differences because of their fear of being stereotyped (Austin and Pisano, 2017).

A stereotype is a socially constructed shortcut that relates to: ‘characteristics, attributes and behaviours of members of certain groups’ but they can also ‘go beyond beliefs about groups and include theories about how and why certain attributes go together’ (Hilton and Von Hippel, 1996, p.240). Although the categorizing of individuals into groups or assumptions of behaviour is useful for the human brain processing many pieces of information, it is misleading to automatically apply a stereotype (Kawakami, 2000). Stereotypes are often maladaptive forms of social categorisation (Bargh and Chartrand, 1999) and the majority are activated by detectable features such as: skin tone, gender, physical disability (Stone and Colella, 1996; Bargh and Chartrand, 1999; and von Hippel *et al.*, 2011). The impact of stereotypes in a work context has been identified as leading to poorer promotion, lower pay, and less complex roles (Shakespeare, 1994; Fiske *et al.*, 2002; Equality and Human Rights Commission, 2011; Mik-Meyer, 2015).

Drawing upon the human capital and diversity literature, a critical appraisal of the potential correlations with the employed neurodiverse is made to inform a two-stage study. The first recreates stereotype research in gender, race and intelligence but in a neurodiversity context and the second examines stereotype threat sources to determine the likely decisions to conceal or reveal invisible difference.

The findings show sources of threat and their effect is a complex and emotional issue for the neurodiverse and is used to develop a model of stereotype threat anticipation that is an important theoretical contribution and furthers our understanding of this complex and emerging subject.

Whereas other models have concentrated on assessment of threat, the model here provides potential sources of threat and an indication of how the neurodiverse react in *anticipation* of that threat. This study has practical implications in enabling organisations to better understand human capital neurodiversity and improve the work social environment.

## LITERATURE REVIEW

### Human capital and neurodiversity

Schultz (1961, p. 1) is regarded as the first to highlight that a set of knowledge, skills and abilities are a form of capital that are used by an individual in their work that is ‘in substantial part a product of deliberate investment.’ Later innovation, experience and creativity were added to this list of human capital components by Edvinsson and Malone (1998). Schultz (1961) had suggested that in western societies human capital was growing at a rate greater than non-human capital. This has been borne out over the decades that followed with those such as Subramaniam and Youndt (2005), declaring that human capital’s importance is largely due to the positive influence it has on the innovation capability of an organisation.

Organisations need to be more dynamic and efficient in utilizing the sources that they have available to them in order to thrive in the 21<sup>st</sup> century. This is especially important in the strategic application of assets of which human capital is intellectual capital’s predominant element (Vidotto *et al.*, 2017). Its development provides competitive advantage for the organisation (Hatch, 2004; Lee and Lee, 2018). Indeed, Crook *et al.*’s., (2011) meta-analysis of 66 previous studies confirmed that human capital relates strongly to performance and that this is especially true when that capital is not readily tradable. They conclude that it is beneficial to organisations to invest in programmes that expand and preserve human capital; suggesting there is ‘little doubt that to achieve high performance, firms need to acquire and nurture the best and brightest human capital available and keep these investments in the firm,’ (Crook *et al.*, 2011, p. 453). Human capital depletion is noted by those such as Price (1977) and Amankwah-Amoah (2018) as leading to a reverse of superior performance, causing sub-optimal performance or sometimes organisational collapse.

Organisations are overlooking the benefits neurodivergents bring to organisations (Austin and Pisano, 2017). The unique specialist skills that those who diverge from the ‘norm’ can bring to an organisation are essential for creating wealth and innovation, especially in technologically advanced companies (Loiacono and Huimin, 2018). In organisations that have accepted difference and embraced the principle that everyone has particular strengths and weaknesses, neurodivergents can flourish (CIPD, 2018). Neurodivergents are often rejected in the recruitment process and at interviews because they are designed for those that are neurotypical and this causes a reactive behaviour. The neurodiverse will conceal their difference to meet what they perceive to be that organisation’s norms (Noelle-Neumann, 1991; Bowen and Blackmon, 2003). This suppression of difference means that organisations are missing out on neurodivergents’ talents because their human resource management systems are designed for neurotypicals. It means too that they will not be able to see where investment in learning can be applied. This issue is noted by Garavan *et al.*, (2001) who, having mapped human capital, suggests that change is needed to put greater emphasis on developing human capital through organisational learning as opposed to individual learning. Ortega (2009) asserts a direct correlation between learning, inclusion and openness that

enables neurodivergents to succeed. Previous studies have also found that minority groups fair better and are more inclusive where organisations encourage incremental learning (Emerson and Murphy, 2014). Snow *et al.*, (2018) describe those that are neurodiverse as a ‘remarkable resource’ and have emphasized the need to recruit them into science in particular. However, the struggle to be accepted is a continuing one and noted by Robison (2007) in his memoir that describes a journey from being seen as weird to one of realization that he could embrace his difference declaring: ‘neurodiversity is our way to take charge of the conversation, to say that neurodiversity is about the mix of exceptionality and disability that we live with,’ (IAAC, 2019).

### Impact of stereotyping

The activation of a stereotype can form the basis for making a judgment or guiding action and although people may later secure information that is inconsistent and contrary to the stereotype, it may still remain (Smith *et al.*, 2015). Jost *et al.*, (2004, p. 883) suggest that the ‘process by which existing social arrangements are legitimized, even at the expense of personal and group interest’ can be strong and used by people to justify stereotyping. Stereotypes occur quickly and are an inevitable consequence of the human tendency to categorise and group social stimuli; resulting in a restriction on the range of characteristics attributed to individuals (Rosenfield *et al.*, 1995). The mere consideration of the stereotype increases the chance of it occurring (Wegner *et al.*, 1987 Bargh and Chartrand, 1999).

### Stereotyping disability

Stereotyping disability is rooted in focusing upon the impairment’s deficit compared to society’s view of what constitutes normal (Redley, 2009). The treatment of learning disabilities through the deficit model promotes ableism as a norm to be measured against (Pfeiffer, 2002) and until very recently the term ‘mental retardation’ was used. At best, deficient people were despised and ostracised and at worst, subjected to inhumane treatments in a sanatorium (Schalock *et al.*, 2007). The move to the social model of disability, introduced in 1969, was a significant transformation that attempted to redefine societal contribution and value by removing barriers to enable success for all (White and Wolfensberger, 1969; Abberley, 1987). Despite promotion of the social model of disability by medical practitioners, academics, charities and the neurodiverse; the influence of the deficit model remains within the general population. This is borne out by Fiske *et al.*, (2002) suggestion that physically disabled people are considered to have low competence and low to medium warmth and that those with a learning disability are seen as having low competence and high warmth. Fiske *et al.*, (2002) also noted that people communicate differently to those with a learning disability by talking slower, louder and with an assumption that they will lack understanding or competence.

### Stereotype threat and invisible difference declaration

Threat arises through the anticipation of negative consequences, it is a cognitive appraisal and fear is a common emotional response to that cognitive appraisal (Stephan and Renfro, 2002). Regardless of whether the threat is to be realized, an individual will react in a manner that suggests that it will (Campbell, 1965; Rempel and Fisher, 1997). Brown and Day (2006) confirmed the principle of perceived threat through two tests with participants from a minority race. Individuals

were told the first test assessed intelligence and that the second was merely an assessment. Participants performed demonstrably in the second test. Similarly, studies with disabled people have found that individuals will avoid disclosing their invisible difference rather than be labeled as disabled in fear of the adverse effects of such labeling (Stuart, 2004). Stereotype threat can be more debilitating than the stereotype itself (Steele and Aronson, 1995). It not only affects an individual's performance but also whether they want to join a team. Minority races will avoid organisations with predominantly white male pictures and wording (Plaut *et al.*, 2011) and women will avoid organisations that give cues of overt masculinity, such as the use of male language and promotional pictures of white males in leadership roles. When those cues are removed, interest from women increases significantly (Foster and Wass, 2013).

How others view minorities is important because they help set the standards by which minorities are judged and accepted by their peers. Individuals from minority groups can feel that they have to work harder in order to be accepted (Foster and Wass, 2013). For those with an invisible difference, energy is also expended on deciding whether to disclose a difference such as mental illness and sexual orientation (Quinn and Chaudoir, 2009; Chaudoir and Fisher, 2010). Studies of Lesbians, Gay and Bisexuals (LGB) have found a direct correlation with stereotype threat and their decision whether to declare their difference (Ragins *et al.*, 2007). Individuals suffering with schizophrenia and / or mental illness follow a similar internal process when deciding whether to declare their difference (Corrigan *et al.*, 2012).

Ragins *et al.* (2007) study of LGB employees highlighted the importance of the social environment to staff when deciding to conceal their difference. The less supportive the environment, the fewer people disclose their difference. Additionally, those employees that historically experienced discrimination were more fearful than those that had not. Although it offers useful insight, the study is limited by focusing exclusively on antecedents and consequences of declaring, to the exclusion of historical discrimination that may have affected the individual. Ragins (2008) later proposed three factors (internal psychological factors, stigma characteristics, and environmental factors) that feed into an individual's perception of the consequences of declaring, impacting their decision. Ragins' (2008) model provides a helpful schematic of self-perception and a commentary on the anticipated perception of others when deciding whether to disclose a difference, although it bypasses an examination of how colleagues' behaviours impact upon the environment. Neither does the model show assumptions made as a result of previously experienced stereotypes. For example, Von Hippel *et al.*, (2011) suggest that women comparing themselves to men are more adversely affected by stereotype threat than drawing comparisons with other women. This has yet to be explored with the neurodiverse; the closest to doing so is Murphy and Dweck's (2010) work on people seeking organisational acceptance comparing themselves to the organisational cues. They concluded that those organisations demonstrating a developmental view of intelligence were more attractive. The work of Ragins *et al.*, (2007) and Von Hippel *et al.*, (2011) assumes a constant state, excluding the impact of change or uncertainty that can exacerbate or reduce stereotype threat despite assertions having been made that neurodiverse need consistency (Austin and Pisano, 2017), neither does it consider the strain of repeatedly deciding whether to conceal or reveal their difference (Clair *et al.*, 2005).

Following an examination of the relevant literature the following Research Questions (RQ1-4) were generated and are expressed as a conceptual framework (Figure 1).

- RQ1: Is the stereotype threat observed in visible race, gender and intelligence equally relevant to neurodiversity.
- RQ2: Do stereotypes have to be invoked for the neurodivergent to react to a threat.
- RQ3: What is the source of neurodivergent stereotype threat.
- RQ4: Given a choice, will individuals with neurodiversity declare their invisible difference?

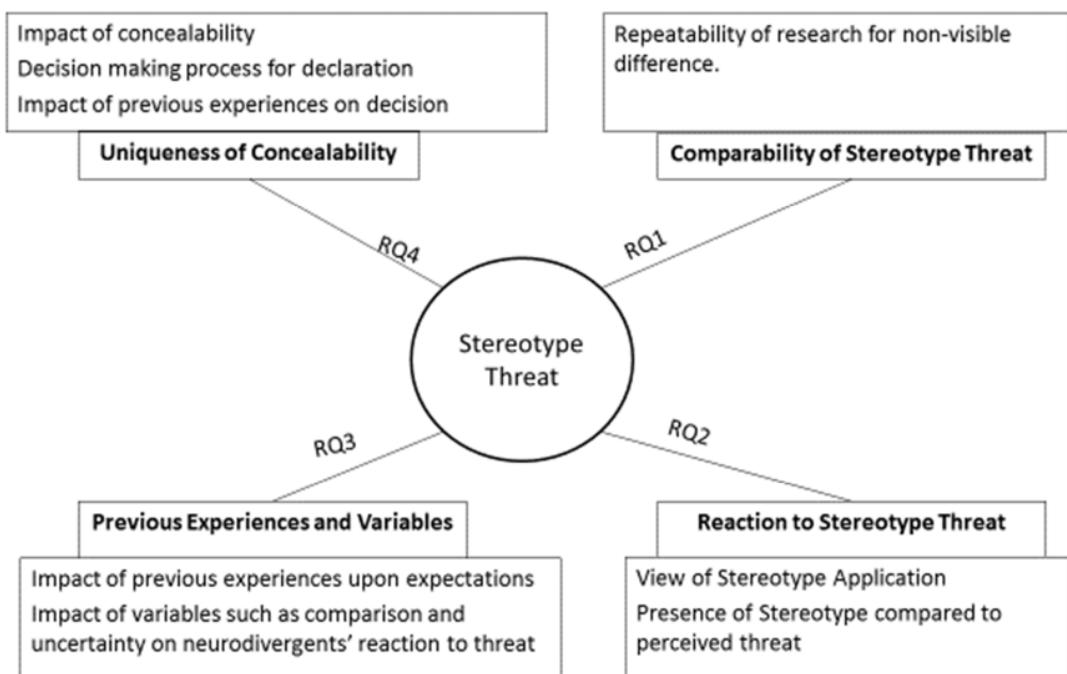


Figure 1: Research Question Conceptual Framework

### Organisation Context and Approach

This study was undertaken at Organisation X - a large Government Department in the UK. Two studies were derived from the conceptual framework. A total of 97 participants volunteered to take part in both studies, described below.

#### Study 1: RQ1

Method and participants

Study 1 addressed RQ1 and utilised three exercises to test whether findings in studies on minorities replicate with the neurodiverse. It comprised 53 Participants (36 Female and 17 male) from middle and senior management. Ages ranged from 25-55.

Exercise 1 consisted of brochures using different language, or cues, linked to three different types of organisations, and designed to recreate Plaut et al.'s (2011) research on race. They aimed to test, through language use, whether organisational cues would affect the neurodiverse in the same way that it has for other minorities.

Exercise 2 introduced learning sets derived from Murphy and Dweck's (2010) work and concentrated on whether the notion of intelligence being fixed or adaptable impacted the neurodivergent's decision to join a team. Whereas Murphy and Dweck (2010) used club minutes this study used organisation minutes. The Alpha Learning Set included comments about intelligence being fixed and the Omega Learning Set included comments about how intelligence grows and people adapt.

Exercise 3 used posters based on the work of Murphy *et al.*, (2007) and Plaut *et al.*, (2011) and tested whether situational cues discouraged the neurodiverse from joining an organisation. The masculine language used in Murphy *et al.*'s (2007) research to test whether it discouraged women was substituted with competitive images (Armstrong, 2010) relating to winning for Organisation 1 and inclusive images (Shore *et al.*, 2009) for Organisation 2.

The data were analysed to establish whether there was a preference for each of the represented environments, the impact of language or learning approaches and whether there was a variance between male and female, neurodiversity, length of service and level (or grade). Race was not measured.

## **Study 2: RQ's 2-4**

### Method and participants

Study 2 addressed RQ2-RQ4 with a further 44 participants (25 Female and 19 male) from middle management. Semi-structured interviews (approximately 40 minutes each) were used for their ability to stimulate conversation (Easterby-Smith *et al.*, 2015), generate deep insight and capture rich situational information (Denscombe, 2010). The interviews were recorded and transcribed verbatim in order to minimize misinterpretation (Opennakker, 2006). Ages ranged between 25-55 and consisted of those who are neurodiverse and those that manage the neurodiverse. The sample was derived from an appeal to employees at an Organisation X annual conference and neurodiversity community network.

The interview questions were initially operationalized from the literature and reviewed and refined after each interview to probe for interesting or emerging themes and ensure that theoretical saturation was achieved (Guest *et al.*, 2006; Glaser and Strauss, 1967). The data was processed using Braun and Clarke's (2006) six stage method: (1) data familiarization via interview transcription (2) independent initial interpretation and coding of data, (3) independent

identification of themes using thematic analysis in addition to calculation of inter-rater reliability, (4) collective review and agreement of themes between researchers, (5) collective identification of the dominant themes, and (6) construction of the narrative of the analysis. Participants are referred to herein using a coding convention [P\*] (Van den Hoonaard, 2003). Interpretation of the data was confirmed through a three-participant validation of the analytical narrative (Sandelowski, 1993).

To confirm the robustness of the research approach Cohen's Kappa was calculated (Hassan *et al.*, 2019; Schwartz *et al.*, 2019). Values of Kappa range between 0 (complete disagreement) to 1 (complete agreement): values of >0.6 may be classified as 'substantial' (Landis and Koch, 1977), or 0.41-0.75 as 'good' and >0.75 'very good' (Fleiss *et al.*, 2003). In step 3 of the research process Kappa = 0.7804 thus indicating a 'very good' level of agreement of the primary themes that each researcher identified in the data sets.

## **ANALYSIS**

### **RQ1: Comparability of Stereotype Threat**

Data from Exercise 1 suggests that neurodivergents avoid organisations that use competitive language and in which difference is ignored. This was encapsulated in comments from participant 49 who said: "*I would avoid that organisation at all costs*" and participant 51 who said: "*Those words make me feel sick*". P51 added the belief that the posters used in Group B would cause them to fail in that environment because of the competitive nature and expectations of the organisation.

The data from the exercises indicated that the majority prefer a multi-diverse organisation and that neurodivergents are attracted to groups where intelligence is considered to be flexible rather than pre-defined. This aligns with Murphy and Dweck's (2010) suggestion that a decision to declare is based upon organisational cues. Further to this, neurodivergents considered the attributes for success to be teamwork, inclusiveness, active listening, communication and fairness. It was interesting to note that many of the neurodivergents in this study were members of a formalised internal neurodiversity community and that they were less vocal in making comparison.

### **RQ2: Reaction to stereotype threat**

Participants are fearful of other's perceptions and reactions to their ability. This was most apparent through a lack of trust in their managers and was exacerbated by a belief that they had no one to talk with about their challenges. This resulted in a feeling of isolation and exclusion from the cultural norms.

*"People latch onto those stereotypes that are not helpful, it might not be fully conscious, it might be their lack of understanding of a disability." (P55)*

*"Once someone associates your behaviour with a label they actually can become less tolerant...they think you are being 'special' as opposed to realizing you have difficulty with work." (P58)*

*“A lot of them [neurotypicals] are very invested in the idea of normality and anything else is a deficit.”* (P62)

A fear of being labelled as difficult, challenging or stupid, manifests in concerns that managers would negatively use the disabled stereotype ‘against them’, be patronising or act in some way to limit their potential. They therefore modified their behaviour and became more stringent and resolute in their denial of a disability. A typical view was P63: *“I avoid saying I am disabled, there can be a disadvantage in declaring yourself disabled because of how other people perceive you.”* The label of being ‘disabled’ carried with it the concurrent label of incompetence or perceived intellectual weakness:

*“There is stigma attached and I don’t want to be limited.”* (P64)

*“I don’t want to be defined by my dyslexia.”* (P91)

Although only a third of participants had directly experienced negative stereotyping at work, the fear expressed by many of the participants verifies that the stereotype does not have to be invoked for the fear to be present. Indeed, some participants described a process whereby they reflect upon a threat they had anticipated:

*“Events and discrimination we as a group tend to predict are due to specific or multiple instances of being stereotyped negatively.”* (P58)

Another said:

*“I’ve had a boss who I never trusted because at some early stage in our relationship something happened that reminded me of a previous experience and after that I was always fearful.”* (P92)

Participant 97 described having to take the lead at a presentation attended by those that could influence their staff report and future work. They were distressed before it because of “*a real disaster*” in the past that had reinforced their thoughts on how they felt they were stereotyped. However, they worked to be “*confident about my subject,*” and noted that it was a success and it would be “*easier to deal with next time.*”

### **RQ3: Previous experiences and Variables**

Experiences from school and previous work dominated discussion on sources of stereotype fear. Both impacted how the neurodiverse function in their work and were typified by the following:

*“Since I disclosed, I’m encountering more barriers, because it’s a label. Ah you’re one of those!”* (P55)

*“when there was English spelling test, I was always kept behind.”* (P56)

*“As an adult with autism you rarely get any resources, or there are very few. They are all focused on how to handle kids, or for carers of autistic kids. They forget about you once you are out of the school system.”* (P63)

*“People think you are lazy or thick and react inappropriately.”* (P85)

*“A previous boss was very negative. I got off lightly he told another colleague she was stupid!”* (P86)

Twelve of the neurodivergent participants said that they felt ‘lucky’ to have their current line manager, characterised by P61: *“This is the best department I have worked in, in comparison to the outside world.”* The participant added that even if they have mundane tasks to do this is still better within Organisation X than anything they had experienced in the private sector.

A number of participants referred to being ‘trained neurodivergents’. They explained that they had educated themselves on how to adapt and present themselves in order to fit into an organisational work culture. They felt this need for learned behaviour is something they do more than ‘normal’ people and commented that it is reinforced rather than created by Organisation X. For many neurodivergents the presence of routine and familiarity was noted as being of great comfort in a working environment. However, there was also a sense that this was conforming to a stereotype. The organisation operates an open plan, hot desk structure and this created a fear of uncertainty often manifested in a dilemma – if they asked for a fixed desk or other arrangement, they were being the stereotype – but if they did not, they were increasing or prolonging their discomfort. For example, half of the participants had asked for a fixed desk and two had asked for a designated parking space. P63 explained how they: *“found it difficult to cope with the uncertainty of the location of the desk, starting in a new environment each day. The increased stress caused fatigue and discomfort, and I was physically ill.”*

Uncertainty also led to some behaviours that are further detrimental to the individual’s health and career prospects as expressed by P66: *“I don’t want to take leave or go on a course because I’m worried about where I’m sat.”*

#### **RQ4. Uniqueness of Concealability**

Some individuals were determined to become invisible. Participant 67 described themselves as a grey character, hiding in full view because they *“don’t want to advertise”* their neurodiversity. Sometimes this was because they feared the recurrence of non-malicious comments or ‘banter, *“...which is borderline bullying.”* Others described this in terms of a conscious decision typified by P72: *“neurodiverse traits are discriminated against because we [society] perceive those people as being less desirable.”*

That said, there was a sense of relief in some neurodivergents who had chosen to be open and publicly express their difference. Participant 83 said: *“I can be myself with other neurodivergents”*.

A common theme was a belief that they had some non-typical insights and innovation of thought, but fearing the reaction of people to this ‘rain man’ ability they actively needed to suppress their abilities:

*“I make connections that no-one gets,”* (P57)

It was felt that this was detrimental to the organisation “*we don’t tap it. That’s lost potential,*” (P60). For others, this difference was something to be celebrated, they enjoyed the stereotype and embraced it: “*That is my normal.*” (P89)

Another expressed the desire to normalise the ‘non-normal’: “*when someone comes across the label autism you’ve got the same stereotypes. So, the reason I am ‘out’ is to make it better for other neurodivergents*” (P73). It was interesting to note the use of the word ‘out’. Others also used it often in general conversation in the same manner the LGBT community or some suffering mental health issues do.

Arguably neurodivergents choose whether to declare their disability. However, for some it was difficult to conceal it and the choice was actually made by their physical appearance: “*I fidget and stuff and I notice people tend to react very differently depending on if they know I’m autistic,*” (P58). The participant added that when people know about their autism, they often make reference to it.

Although neurodivergents and managers alike considered neurodiversity to be concealable, these examples reveal that neurotypicals will recognise some traits, even if they are unaware of their significance.

## DISCUSSION

### Correlation with visible disability

Until now there has only been an assumption of correlation between visible disability and the invisible neurodiversity. As long as it remained an assumption it acts as a limitation on the consideration and management of human capital neurodiversity. This study explicitly finds that neurodivergents are impacted in a similar way to other minority groups. The conversation revolves around ‘coming out’ or hiding, being acculturated in an attempt to be perceived as ‘normal’. Whilst there is an element of automaticity in this attempt at normality, this study finds a strong indication that the neurodiverse will make a calculated and conscious decision to fit in. This is dissimilar to stereotype threat research with those who have a visible difference that suggests that a response to a stereotype is automatic (Lakin *et al.*, 2008). The impact of the ability to conceal was suggested by Stone and Colella (1996) but the decision-making process for determining whether to conceal or reveal a difference has only recently been tested in other areas such as sexual orientation and in mental illness (Ragins *et al.*, 2007; Corrigan *et al.*, 2012).

### The need for certainty

Certainty is critical to the neurodivergent's ability to deliver their work. Many of the participants linked physical illness driven by uncertainty to their fear of stereotype; this mostly manifests in stomach and bowel issues that can take them out of the workforce. The time that they need to take off work may have the added effect of reinforcing a negative view in the minds of their colleagues and in turn add to their fear of stereotype. Some participants said they attended work despite feeling ill. This has a real impact not just on the health of the individual but to the efficiency and ultimate outputs of the Organisation. Austin and Pisano (2017) noted that consistency is essential for neurodivergents and this study adds to that assertion by emphasizing the need for stability in their working life and understanding by those that manage them. It also acts as a check for those who are neurodivergent to recognize a potential cause of symptoms. It is notable that Ragin's (2008) model assumes a steady state and this study takes issue with that assumption.

#### Reveal or conceal

Neurodiverse individuals are aware of their decision to either conceal or reveal their invisible difference. The evidence suggests that considerable energy is invested in their conscious decision-making process, with individuals weighing up the perceived impact on themselves and the impression they will create on others. There is a clear difference between those neurodivergents that chose to reveal and those that did not. It was observed that the former reported lower anxiety and related physical illnesses. However, the data is insufficient to develop further and would need to be explored in a future study. When added to the assertions made by Clair *et al.*, (2005) that individuals will be negatively impacted by continuously deciding whether to conceal or reveal their difference, and Von Hippel *et al.*'s, (2011) findings that comparison to others impacts feelings of self-worth, it becomes an even more powerful argument to provide an environment that encourages revelation and support after the event.

#### Belongingness and fit

The degree of comfort and belongingness felt by neurodivergents is determined by the degree of comfort and welcome that they perceive within the organisation. This speaks to a need for a two-way fit. Organisation X has internal documents that refer to neurodiversity indirectly or obliquely, but the researchers noted that these were known too only a few. The nature of many neurodiverse suggests that commitments to neurodiversity cannot be subtle, inferred or even framed within general terms such as inclusivity but instead must be explicit and overtly stated and reflected in the shared values.

#### Modelling Neurodiverse Stereotype Threat Anticipation

The principal source of stereotype threat is from previous experiences. This study has confirmed the hitherto assumed antecedent that school experiences (Armstrong, 2010) are carried by the neurodivergent into their working life and that work life experience presents as an additional factor that is carried from job-to-job throughout their professional life. In addition, family reaction (usually parental) to a diagnosis is found to have a long-lasting effect that influences threat anticipation. It is important to note that the stereotype threat generally occurs before the event. This is significant because although participants anticipated stereotyping it was not always actually experienced. After the event has happened the neurodivergent will make a comparison to their

assessment. If it is similar to their assessment it reinforces it, however, if it is dissimilar the neurodivergent will make an adjustment to the assessment. In both cases the experience will form part of a future threat assessment.

In addition to the process of assessing an anticipated threat against previous experiences, there is a comparison to others. It is not unusual in human nature for a comparison to be made against another who is perceived as more successful (Von Hippel *et al.*, 2011); however, this study finds that neurodivergents comparing themselves to neurotypicals are more negative about their self-worth and achievements. Comparison to those regarded as neurotypical was an underlying factor in stereotype threat for all participants. The language used to describe self-comparison to neurotypicals was divisive, with words such as ‘them’ and the tone sometimes hostile. Typically, when comparing themselves to each other neurodivergents showed collegiality, using language such as ‘we’ and ‘us’. Unlike previous experiences, these variables can be influenced externally. Previous experiences are internal and stay with the neurodivergent, they are specific and unique, whereas comparison to others and uncertainty can be influenced by an organisational approach to inclusivity and consistency. This suggests that exposure to other neurodivergents is a means of reducing the threat, perhaps by normalizing their circumstance.

Figure 2 proffers a participant validated conceptual framework of factors that influence Stereotype Threat Anticipation in the neurodiverse. It is derived from the data explored within RQs1-4 and presents a cognitive sequence in which the neurodiverse will draw upon the past in anticipation of the future.

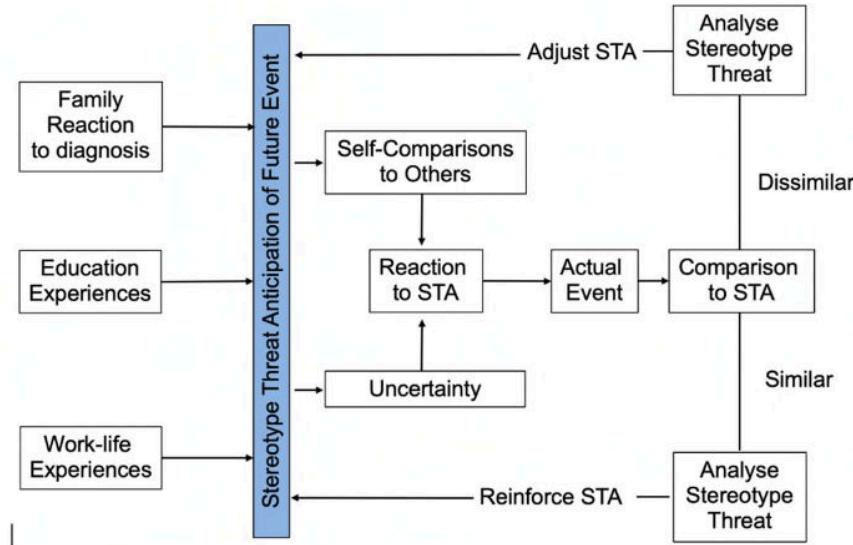


Figure 2: Stereotype Threat Anticipation Model

## CONCLUSION

The neurodiverse largely view themselves as being subordinate, lacking power or influence and dependent on the lottery of an understanding management. Internationally the neurodiverse

represent, in the large part, an untapped source of human capital with unique skills that when identified can be of great advantage to organisations. However, this research reveals a potential paradox where an organisation cannot identify those that would bring greater benefit to the workforce if the neurodiverse within that workforce is reluctant to reveal themselves because of the stigma of stereotype threat. This study details that neurodivergents will react to organisational cues and that the general creation of an inclusive and specifically comfortable working environment will receive positive response from them. Neurodivergents will avoid organisations or groups that consider intelligence to be fixed, that use overly competitive language internally such as 'winning' or which rewards individuals rather than teams.

Whilst previous studies on stereotype threat have been explored in relation to visible differences and the deleterious effects of it are documented, the source and impact of stereotype threat on invisible differences has not been. This study closes that gap and contributes to our knowledge by demonstrating that organisational cues are applicable to neurodiversity. Furthermore, this study makes a contribution to theory by identifying how neurodivergents react to the anticipation of a threat, regardless of whether it is actually later presented, and introduces the Stereotype Threat Anticipation conceptual model. This characterizes the cognitive decision by neurodivergents to conceal or reveal and they operate it throughout their working life, and this represents a new lens through which this phenomenon can be viewed.

The findings of this research also have several practical implications for scholars and practitioners, demonstrating that competitive language, rewarding individuals, and a fixed mindset will repel neurodivergents. Organisations that have high levels of uncertainty are likely to be more stressful or deter neurodivergents. The constant analysis of the environment and comparison neurodivergents make to previous experiences means organisations need to prepare for complexity and the highly individualised nature of Stereotype Threat Anticipation if they are to maximize their human capital. The study further contributes to our understanding by documenting that stereotype threat comes before actual occurrence of a stereotype and that the discovery process starts before individuals join an organisation. Previous studies have presumed that good resource management is the foundation on which organisations can develop human capital, this study suggests they should investigate development levels and potential threats first and apply mitigation. It is suggested that organisations need to rethink their assumptions about the foundations upon which they can build their human diversity capital in order maximize the benefit that they can derive from it.

By design this study was bounded by the context of the organisation under study and this should be considered when applying the results elsewhere. Participants largely came from an employee-created network and results may be different in organisations without a similar collective. However, the basis for the studies here derives from research conducted across many other organisations and, with adjustment, the conclusions may be generalised to include conditions and factors experienced in other organisations.

The validity of any study of interpretive design may also be criticised, and to that end member validation was used to confirm the interpretation of the data and in particular the STA conceptual model. Future research should seek to explore the impact of STA in other institutions in the public

and private sectors and the consequence of neurodivergents' choices to conceal their invisible differences.

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# Human capital neurodiversity: an examination of stereotype threat anticipation

Priscott, Tamsin

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