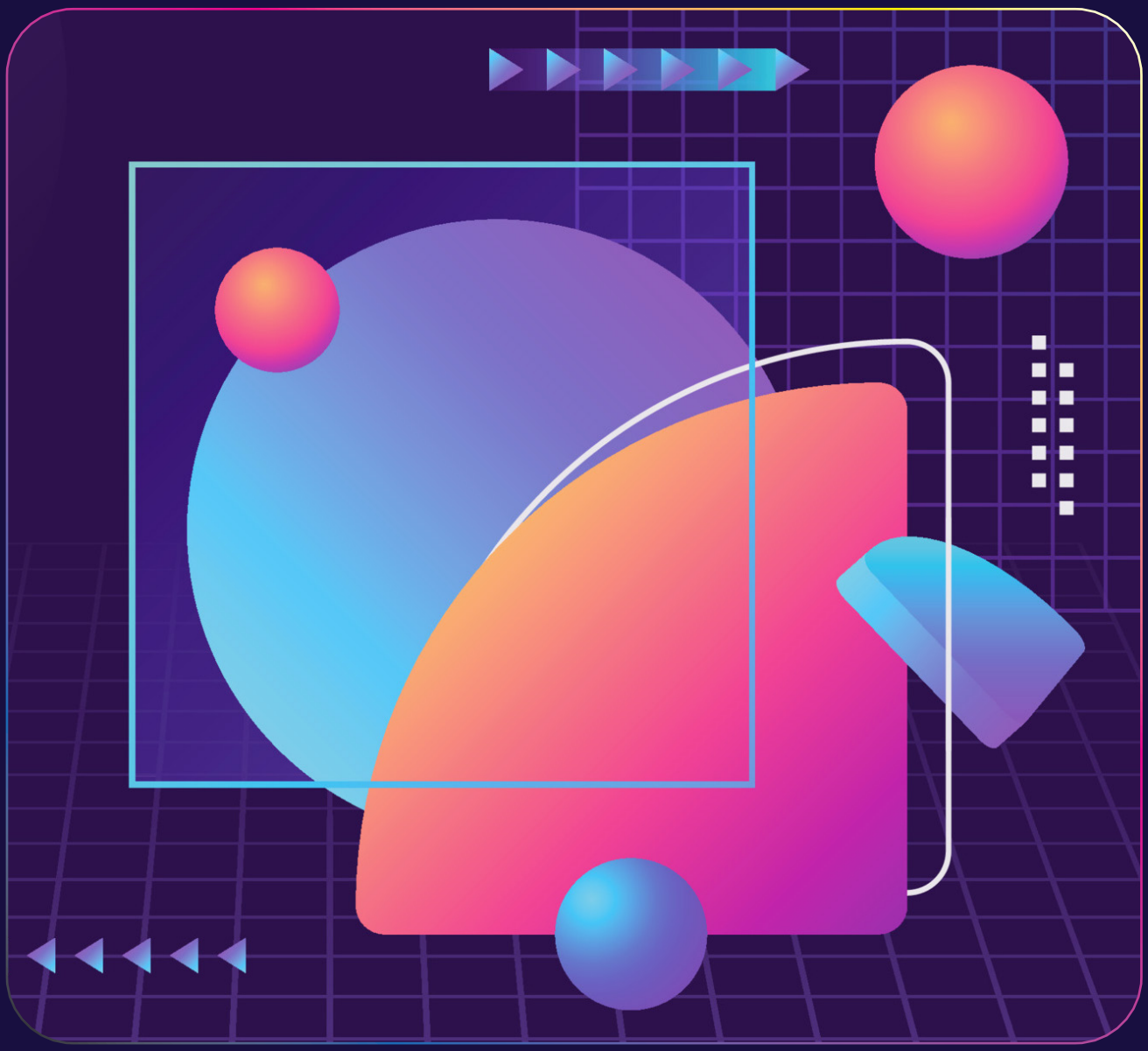
UK CREATIVE INDUSTRIES

How do cognitive and perceptual differences of neurodiverse individuals affect creative processes and outputs?

By Adam Islaam
DES7064 Dissertation



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Adam

ETHICAL NOTICE:

Given the unique experiences of neurodiverse individuals, it is essential to clarify that this study will not delve into determining the ideal professional roles for different types of neurodivergence. Instead, it will adopt a holistic approach to examine the benefits of neurodiversity within creative problem-solving and processes.

Abstract

This study investigates how cognitive and perceptual differences among neurodiverse individuals affect their creative processes and outputs. Neurodiversity includes various cognitive profiles such as Autism Spectrum Disorder (ASD), Attention Deficit Hyperactivity Disorder (ADHD), Dyslexia and Obsessive-Compulsive Disorder (OCD). These differences can significantly influence how creative tasks are approached and executed. A comprehensive literature review was conducted to explore existing theories and methodologies related to creativity and cognitive diversity. This review discussed key concepts such as the psychology of creative problem-solving, design justice and crucial skills for future workplaces, including creative and analytical thinking.

The research methodology combined qualitative and quantitative data, utilising inductive thematic analysis of structured interviews and cognitive creative tests like the Torrance Tests of Creative Thinking (TTCT). This approach aimed to capture a wide spectrum of creative thinking and problem-solving styles across neurodiverse groups for comparative analysis.

Preliminary findings indicate that neurodiverse individuals often contribute unique perspectives to problem-solving, resulting in innovative solutions that may not be readily produced by neurotypical thinkers. However, obstacles like workplace integration and communication barriers can affect the efficacy and recognition of these creative contributions. The study concludes by highlighting the distinct strengths of each neurodivergent group and proposing the Triple Diamond design framework to foster more flexible, inclusive and effective collaboration.

Praslova et al. (2023) highlight an important consideration, noting that “stereotypical job fit recommendations may leave those with dual diagnoses or multiple neurodivergent traits without any suitable careers.”

Contents

List of figures and tables

Figures:

Tables:

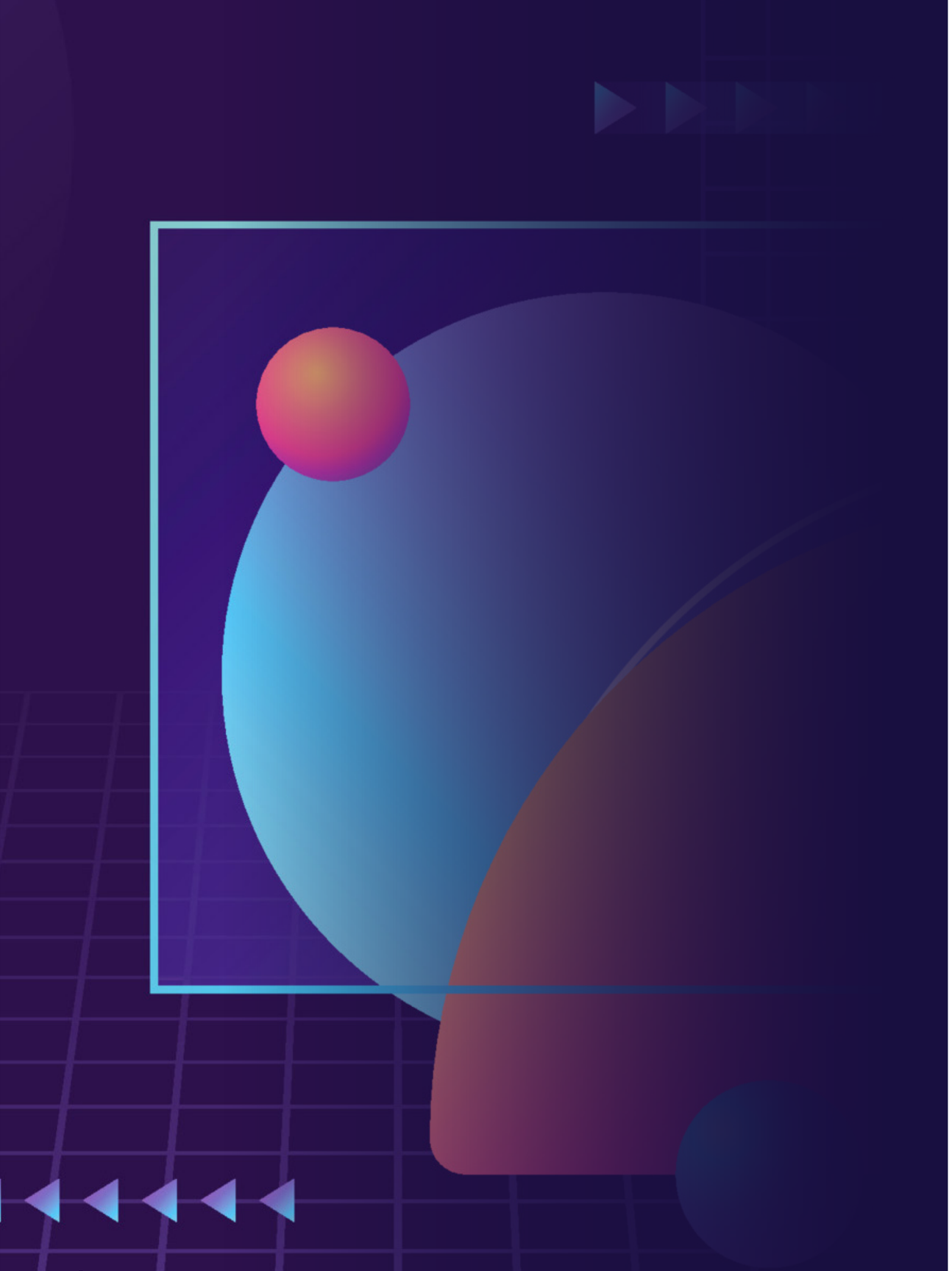
List of abbreviations and glossary

Abbreviations:

ADHD	Attention Deficit Hyperactivity Disorder
ASD	Autism Spectrum Disorder
DE&I	Diversity, Equity and Inclusivity
NHS	National Health Service, UK
TTCT	Torrance Tests of Creative Thinking
OCD	Obsessive Compulsive Disorder
ONS	Office for National Statistics, UK
WEF	World Economic Forum

Glossary:

Stim	A repetitive behaviour that is beyond what is considered culturally or socially acceptable such as finger-flicking, rocking back and forth, humming and more.
Fluency	The quantity of meaningful ideas generated, indicating the richness of thought.
Originality	The uniqueness of responses compared to standard norms, highlighting innovative thinking.
Elaboration	The level of detail or development added to ideas, indicating the ability to expand upon concepts.
Abstractness of Titles	The degree of abstraction in captions, reflecting the ability to capture underlying meanings.
Resistance to Premature Closure	The ability to keep an open mind and consider multiple possibilities.



Introduction

The study of neurodiversity in the workplace is an emerging field at the intersection of organisational behaviour, psychology and diversity management. Particularly in the dynamic realms of the creative industries, there's a growing understanding of how neurodiversity plays a crucial role in fostering innovation and creativity. Neurodiverse individuals, with their unique perspectives and skills, have the potential to significantly enhance creative processes and outcomes (Harris, 2023). However, despite these clear advantages, integrating neurodiverse talent poses challenges. Workplaces often lack the necessary support structures to cater to their distinct needs (Robertson, 2009). Research indicates that teams incorporating neurodivergent professionals may experience a substantial 30% increase in productivity compared to those without such team members. Furthermore, the inclusion and integration of neurodivergent professionals extend beyond productivity, positively impacting team morale as well (Austin and Pisano, 2017).

It's noteworthy that existing studies tend to focus on specific aspects of neurodiversity, such as Autism Spectrum Disorder (ASD) or Attention Deficit Hyperactivity Disorder (ADHD) in isolation when exploring cognition, integration and creativity. However, there is a notable shortage of comparative research across different neurodiverse conditions. Understanding how various neurocognitive profiles uniquely contribute to creative thinking and problem-solving remains an area requiring further exploration.

Keywords:

- Neurodiverse
- Neurotypical
- Cognition
- Perception
- Creativity
- Innovation
- Mental health

The following neurodivergent conditions have been selected for the study as they are the most diagnosed ailments in the UK over the past decade (NHS, 2022):

Autism Spectrum Disorder (ASD): A neurodevelopmental disorder marked by enduring difficulties in social communication and reciprocity across various situations, alongside restricted, repetitive and stereotypical behaviour, interests, and/or activities (Zaky, 2017).

Attention Deficit Hyperactivity Disorder (ADHD): Individuals may have difficulty with attention, impulse control and hyperactivity, affecting their performance in diverse aspects of life like education, employment, and interpersonal connections. Symptoms may encompass inattention, impulsiveness, and hyperactivity, though they can differ significantly from person to person (Barkley, 2014).

Dyslexia: A form of reading impairment characterised by consistent and unanticipated difficulties in achieving proficient reading skills, even with appropriate teaching methods, sufficient cognitive abilities, and favourable socio-cultural circumstances (Shaywitz, 1998).

Obsessive Compulsive Disorder (OCD): A heterogeneous condition characterised by recurrent, intrusive thoughts (obsessions) and repetitive behaviours or mental acts (compulsions) (Leckman et al., 2010).

This study aims to investigate individual contributions of people with ASD, ADHD, dyslexia and OCD to creative problem-solving and how diverse cognitive profiles influence creative collaboration and innovation. It acknowledges the unique strengths and challenges associated with each condition and seeks to understand how these can complement each other, leading to potentially novel and innovative outcomes.

AIMS, OBJECTIVES AND RESEARCH QUESTIONS

Aims:

- **Investigate** the individual contributions of neurodiverse individuals to creative problem-solving
- **Identify** frameworks that can leverage the unique strengths of neurodivergence to enhance creativity, innovation and productivity in creative industries.

Objectives:

- **Catalogue** and describe the range of cognitive and perceptual differences that characterise neurodiversity among individuals working in creative industries.
- **Examine** and compare how these cognitive and perceptual differences affect creative problem-solving.
- **Evaluate** the effect of neurodiversity on creative processes and outputs.
- **Identify** and recommend best practices for managing neurodiverse teams in creative fields to harness the strengths of team members.
- **Develop** practical frameworks that organisations in the creative industry can implement to utilise and support neurodiverse individuals and teams.

Research questions:

- How do cognitive and perceptual differences associated with ASD, ADHD, Dyslexia and OCD impact the creative processes of neurodiverse individuals?
- What are the unique strengths and challenges associated with each neurodiverse condition in the context of creative problem-solving?
- How do diverse cognitive profiles interact within team settings to influence creative collaboration and innovation?

Literature review

BACKGROUND

The term ‘neurodiversity’ was first coined by sociologist Judy Singer in 1998, Singer articulated the necessity of transforming the perception of ASD from a medicalised disability into a burgeoning civil movement (Fung et al., 2022). Today, neurodiversity encompasses various neurological conditions including autism spectrum disorder (ASD), attention deficit hyperactivity disorder (ADHD), obsessive compulsive disorder (OCD), dyslexia, epilepsy and more as normal variations in human cognition rather than deficits (Armstrong, 2012).

This perspective gains heightened significance within creative industries, given that the distinct strengths inherent in neurodivergent individuals can contribute significantly to creative processes. Notably, meticulous attention to detail, a characteristic often observed in individuals with ASD (Grandin, 2009), can result in extraordinary contributions to creative endeavours. The unique cognitive characteristics, including a heightened focus on specific details and patterns, may offer a novel lens through which to approach creative expression and problem-solving.

Moreover, in the realm of creative thinking, the innovative problem-solving abilities linked to ADHD play a pivotal role (White and Shah, 2006). Research has delved into the neural correlates of creativity, revealing intriguing connections between ADHD and right brain activity. Magnetic resonance imaging (MRI) and positron emission tomography (PET) scanning have demonstrated that the brain patterns of individuals with ADHD closely resemble those of highly creative individuals (Batty et al., 2010). This convergence suggests that the unconventional thinking and spontaneous ideation associated with ADHD may align with the cognitive processes characteristic of highly creative minds.

Therefore, understanding the neurodivergent cognitive traits within the context of creative industries not only highlights the potential for exceptional contributions but also underscores the interconnectedness between neurodiversity and creative thinking processes. As creative endeavours often thrive on unconventional approaches and unique perspectives, the integration of neurodivergent strengths can foster an environment where innovation flourishes.

METHODS

This literature review encompasses journal articles, books, UK governmental data and statistics from UK charities, all tailored to the four chosen neurodivergent populations selected for this research.

Utilising primarily Litmaps and Google Scholar, the journals were meticulously searched using associated key terms and strings based on the following topics: neurodiversity, neurodivergence, cognition, problem-solving, design thinking, and creativity. Physical resources were accessed from the libraries of Birmingham City University, The British Library and The Library of Birmingham.

Two criteria were applied to filter out certain resources: firstly, articles with less than 10 citations were disregarded to ensure the rigour and credibility of the research used, and secondly, journal articles specifically related to neurodivergence were excluded if they were published before 1998, the year Singer’s seminal work was released.

STATISTICS

Though it varies by age, region and neurodiversity type, it is estimated that 10-20% of the global population is considered neurodivergent (Aon, 2021).

In the UK, between 1998 and 2018, the number of recorded ASD diagnoses increased by 787%. The statistical analysis indicates that the increase is likely due to improved reporting and diagnosis practices rather than an actual surge in ASD cases. The data also reveals that the rise in diagnoses was more significant for females compared to males and the increase varied based on age, with adults showing the greatest uptick (Russell et al. 2021).

In recent years, there has been a notable increase in ASD diagnoses among NHS registered patients with a learning disability. Specifically, the percentage of patients diagnosed with ASD rose from 21.4% in 2017-18 to 30.7% in 2021-22, affecting 55.7% of this patient population. Simultaneously, the diagnosis of ADHD increased from 5.5% to 8.0% and from 0.5% to 0.8% for patients without a learning disability. Notably, 4.8% of patients with a learning disability received dual diagnoses for both ADHD and ASD (NHS, 2022). As reported by O’Nions et al. (2023), the rise in diagnoses suggests that it is now estimated that 1 in 36 children in the UK has ASD.

According to the British Dyslexia Association (2012) Dyslexia impacts around 10% of the population in the UK, with 4% experiencing severe conditions. This encompasses over 1 million school-aged children and 3.3 million working adults. It is also estimated that 1.2% of the population has OCD (OCD UK, 2018).

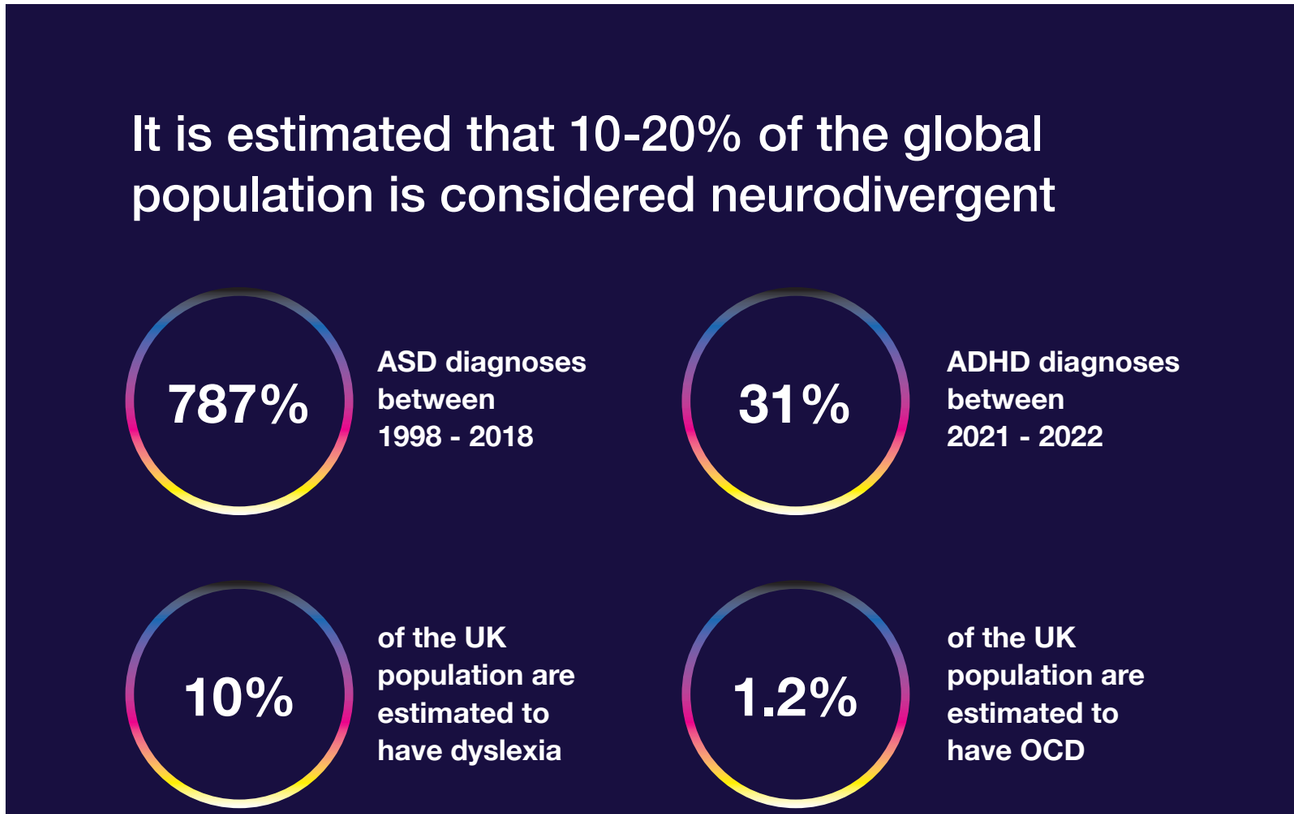


Figure 1: Neurodiversity statistics by Islaam, A (2024)

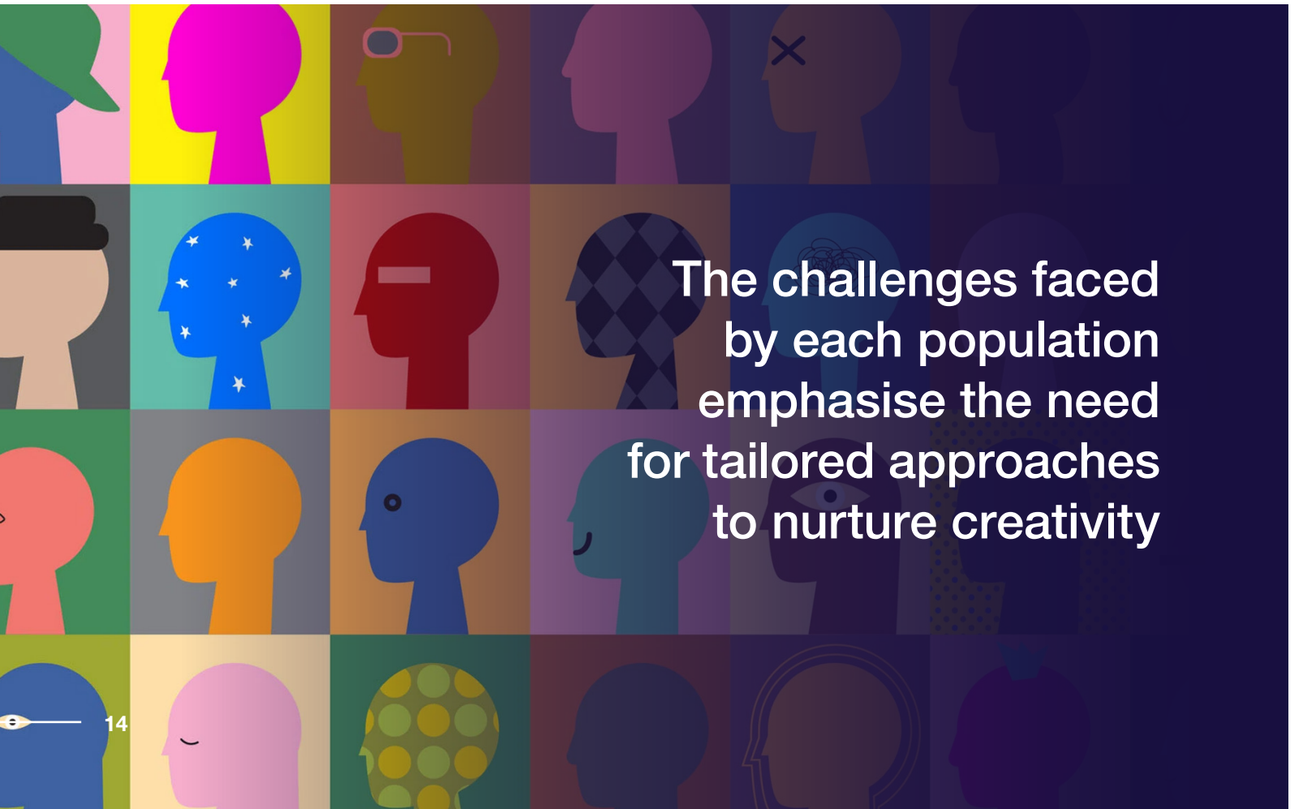
COGNITIVE PROFILES AND CREATIVITY

Cognitive profiles among neurodiverse individuals are diverse and multifaceted, giving rise to unique patterns of thinking and problem-solving. While direct comparisons of creative problem-solving across different neurodiverse conditions are limited, extensive evidence supports the notion that each neurodiverse group possesses distinct creative capabilities.

A study by McDowall, Doyle and Kiseleva (2023) of 990 neurodivergent employees and 127 employers in the UK found that over 80% of the neurodivergent employees exhibited hyperfocus, 78% demonstrated creativity, 75% engaged in innovative thinking, 71% excelled in detail processing and 64% exhibited authenticity in their interactions with colleagues. The study also emphasises the importance of recognising the strengths in neurodiverse thinking as well as suggesting there are numerous knowledge and attitude gaps in benchmarking and quality assurance in workplace contexts.

In a separate study, Axbey et al. (2023) conducted a comparative analysis of how 71 individuals with and without ASD approached the construction of structures within different pairs. The objective was to explore whether individuals demonstrated a tendency to emulate those sharing a similar diagnostic profile. Their findings revealed that within pairs, featuring both autistic and non-autistic individuals, there was a reduction in the similarity of designs. This suggests a tendency among participants to imitate those possessing similar neurocognitive characteristics, aligning with precedent studies. Additionally, pairs comprising individuals with distinct autistic classifications exhibited heightened levels of creativity and innovation.

Understanding both the distinct strengths and potential obstacles that neurodiverse individuals may experience is crucial for creating inclusive and supportive environments that allow for the full realisation of their creative potential (Grandin, 2009). The challenges faced by each population emphasise the need for tailored approaches to nurture creativity and address specific obstacles within neurodiverse communities.



Autism Spectrum Disorder (ASD)

Strengths:

A study by Happé and Vital (2009) suggested that individuals with ASD may excel in tasks requiring strong systemising abilities and meticulous attention to detail, proving advantageous in fields that demand detailed analytical work and innovative solutions. Additionally, Livingston et al. (2020) observed heightened abilities in pattern recognition and logical reasoning among individuals with ASD, crucial components of innovative thinking.

Individuals with ASD also often display high levels of divergent thinking, adopting unconventional approaches to problem-solving (Sasson et al., 2017). Neuroimaging studies by Chávez-Eakle et al. (2007) have further shown distinct patterns of brain connectivity associated with enhanced creativity in individuals with ASD.

Potential obstacles:

Despite the creative strengths associated with ASD, individuals may face challenges in social interactions and communication. Difficulties in empathising with others can pose obstacles in collaborative creative processes (Baron-Cohen et al., 2015). Additionally, the potential for sensory sensitivities and rigid thinking patterns may impact the adaptability required in certain creative environments (Grandin, 2006).

Attention Deficit Hyperactivity Disorder (ADHD)

Strengths:

White and Shah (2006) suggest that the impulsive nature of individuals with ADHD can lead to the generation of unconventional ideas, fostering creativity. Moreover, a meta-analysis by Runco and Jaeger (2012) revealed a positive correlation between ADHD symptoms and creative ideation across various age groups and settings. A recent behavioural study by Stoite et al. (2022) has also shown that individuals with ADHD exhibit enhanced cognitive flexibility, facilitating their capacity for generating numerous innovative solutions.

Potential obstacles:

Individuals with ADHD may encounter difficulties in maintaining focus and sustaining attention, potentially leading to challenges in completing creative projects (Barkley, 1997). The impulsive nature of ADHD, while contributing to creative ideation, can also result in issues related to inhibitory control and verbal fluency (White & Shah, 2006). These challenges may affect collaborative efforts and the overall quality of work.

Dyslexia

Strengths:

Menghini et al. (2010) found that individuals with dyslexia tend to rely more on visual strategies for problem-solving, which can enhance their creativity in certain domains. Recent neurocognitive research by Franceschini et al. (2013) has revealed distinct patterns of brain activation in individuals with dyslexia during visual-spatial tasks.

A report by Logan (2009) noted a higher incidence of dyslexia among entrepreneurs, suggesting that the coping strategies and creative problem-solving skills developed to navigate traditional educational challenges may contribute to entrepreneurial creativity and success. Additionally, Leather et al. (2011) found that individuals with dyslexia often exhibit strengths in identifying opportunities and thinking outside the box, critical skills for entrepreneurship. A comparative study, also by Logan (2009), has shown that individuals with dyslexia who pursue entrepreneurial endeavours often demonstrate resilience and adaptability in the face of challenges, contributing to their success in business ventures.

Potential obstacles:

Individuals with dyslexia often face obstacles in traditional educational settings, which can impact learning and academic achievement. The struggle with reading and written language may result in difficulties communicating ideas effectively. These challenges, if not addressed, can create barriers to accessing and expressing creativity in conventional ways (Shaywitz, 1998).

Obsessive-Compulsive Disorder (OCD)

Strengths:

Individuals with OCD often exhibit a heightened attention to detail and a preference for order and symmetry, traits that can influence certain types of problem-solving and creative expression (Mancini (2018). Stamatis and Mamani (2020) demonstrated altered patterns of neural connectivity in individuals with OCD during tasks requiring creative problem-solving, suggesting potential neural mechanisms underlying their creative abilities. Individuals with OCD often excel in tasks requiring thoroughness, contributing to high-quality outcomes in creative projects (Coles et al., 2007). Moreover, neuroimaging research by Cocchi et al. (2011) has demonstrated that individuals with OCD show enhanced abilities in cognitive control, allowing them to maintain focus and accuracy during tasks.

Potential obstacles:

The meticulous attention to detail associated with OCD, while advantageous in some creative tasks, may lead to perfectionism and an overemphasis on precision at the expense of spontaneity (Parrish et al., 2008). The repetitive nature of certain OCD behaviours may also be time-consuming, potentially hindering productivity in creative endeavours (Mancini, 2018). Additionally, the heightened anxiety often accompanying OCD may impact the overall well-being of individuals and consequently, their creative output (Stamatis & Mamani, 2020).

	ASD	ADHD	Dyslexic	OCD
Attention to detail				
Systematic thinking				
Idea generation				
Risk-taking				
Visual-spatial awareness				
Entrepreneurial skills				
Collaboration				
Accuracy/Focus				
Flexibiliy				

Table 1. Comparison of cognitive profiles by Islaam, A (2024). Purple represents skills identified, whilst orange are skills that need support.

By comparing key cognitive abilities among neurodivergent populations we can identify commonalities and patterns, offering insights into shared experiences and challenges. In turn, it informs interventions and support systems, enhancing outcomes in education, employment and social interactions.

Acknowledging the unique strengths of neurodivergent individuals has the potential to move society beyond deficit-based views, promoting inclusivity and equity. Recognising where neurodivergent individuals may need empathy and support is essential for developing targeted interventions (Harris, 2023). This proactive approach ensures environments cater to diverse cognitive needs, fostering success and well-being.

Blank cells in Table 1 highlight research gaps, emphasising the need for continued investigation. Addressing these gaps is crucial for informed policies and support systems in creative industries.

FUTURE SKILLS

The Future of Jobs Survey conducted by the World Economic Forum (WEF), consolidates insights from 803 companies, jointly employing over 11.3 million individuals. The survey spans 27 industry clusters and encompasses 45 economies from all corners of the globe.

In the context of future skills, the aforementioned attributes of neurodiversity closely align with the WEF's identified key skills for 2027. Significantly, cognitive skills claim the top two positions, with 9% of surveyed companies prioritising creative thinking as the primary core skill for the future. Analytical thinking, another pivotal cognitive skill, closely follows. It outpaces self-efficacy skills: resilience, flexibility, agility, curiosity and lifelong learning. Leadership and social influence rank fifth, succeeding technological literacy. The top 10 core skills also encompass collaborative attitudes: empathy, active listening, leadership, social influence and quality control (World Economic Forum, 2023).

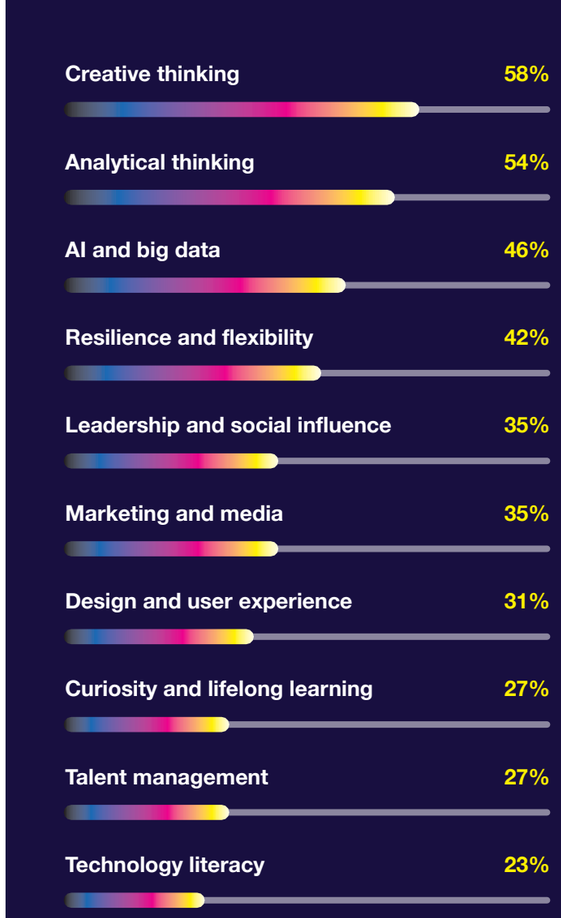


Figure 2: WEF future skills by Islaam, A (2024)

DIVERSITY, EQUITY AND INCLUSION (DE&I)

The WEF also estimates that by 2027, diversity, equity and inclusion (DE&I) programmes will prioritise the following three core populations:

The year-on-year rise in diagnoses for primarily ASD and ADHD cases among younger generations (NHS, 2022. Refer to page 13) presents a potential avenue for enhancing DE&I by strategically recruiting from the WEF's core three priority populations: women, under 25 and individuals with disabilities including those who are neurodiverse.

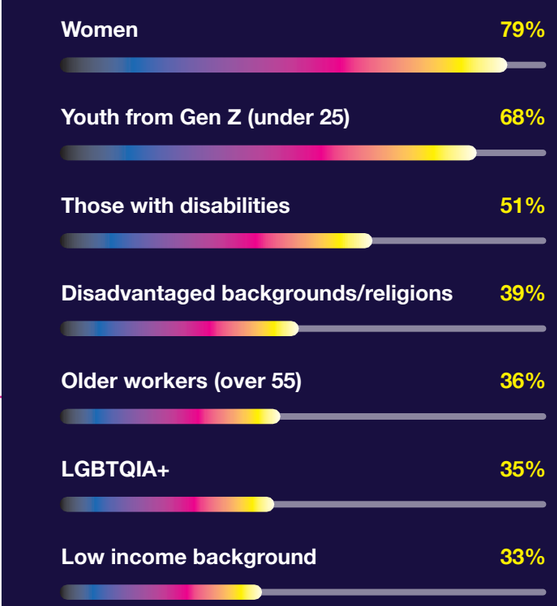


Figure 3: WEF diversity, equity and inclusivity by Islaam, A (2024)

In the context of the UK, *The Future of Work: Jobs and Skills in 2030* report published by the UK Commission for Employment and Skills (GOV UK, 2014) suggests the following skills necessary for innovation in the workplace:

Technology growth and adaptability

- Technological expansion will have a significant impact on employment and skills in the future. Continuous adaptation of skill sets is fundamental for successful participation in the labour market. More so than ever before, individuals who are not willing or able to do this will face being left behind.

Interconnectivity and collaboration

- Employees will need to have the skills to work across different disciplines, collaborate virtually and demonstrate cultural sensitivity.

Convergence of innovation

- Convergence of innovation will lead to the emergence of new jobs that combine different disciplines and sectors. Cross-sectoral and cross-discipline collaboration will be crucial in developing innovative products and services.

Increased individual responsibility

- Individuals will need to take more responsibility for their own skills development. Continuous learning and upskilling will be necessary to keep up with technological advancements and remain competitive in the labour market.

As we move forward into a future where adaptability and creativity are paramount, the integration of neurodiversity principles into our understanding of skills becomes not just a matter of DE&I but a strategic imperative for harnessing the full spectrum of human potential.

Delving deeper into these cognitive characteristics not only provides insights into the creative potential in each neurodiverse group but also underscores the essential need to acknowledge the inherent variability within individuals. The concept of neurodiversity advocates for embracing and celebrating these differences, emphasising the creation of environments that not only recognise but actively support diverse manifestations of creativity across an array of processes, skill sets and cognitive profiles.

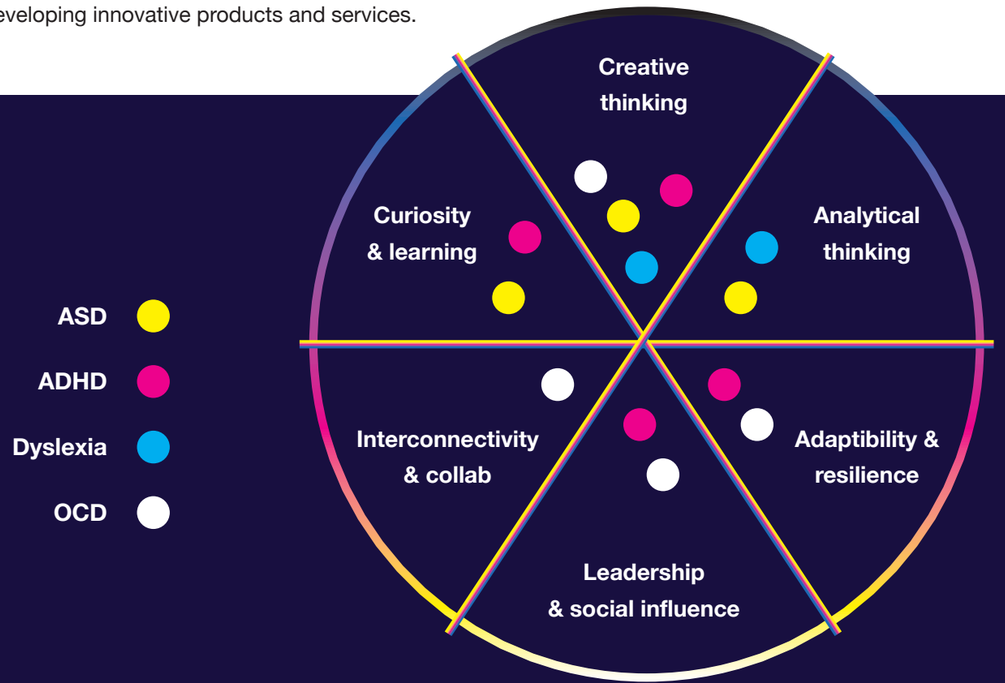


Figure 4: Triangulation of future skills (World Economic Forum, 2023), the future of work in the UK (GOV, 2014) and neurodiverse cognitive profiles by Islaam, A (2024).

CREATIVE PROCESSES

In creative sectors, it's essential to explore how individuals approach problem-solving (cognition), the process of idea development (methodology) and the influence of inclusivity on innovation and outputs (design justice). This understanding is vital for effectively understanding and supporting the potential of neurodiverse communities.

Cognitive, creative problem-solving

Wallas (1926) and Hadamard (1945) introduced one of the earliest models of the creative process in the early part of the last century, influencing many modern methodologies (Aldous, 2005). The classical model comprises four distinct phases: preparation, incubation, illumination and verification. In preparation, problems are identified, information is gathered and conscious thoughts are stimulated. Temporary abandonment during complex problems leads to the incubation phase, where ideas restructure unconsciously. Eventually, solutions emerge in the illumination phase, often recognised as the 'aha' experience. Hadamard (1945) described illumination as the unconscious mind presenting the solution to the conscious mind. Verification refines identified solutions, with the possibility of returning to earlier stages if deemed unworkable.

Shaw (1989) expanded on this, uncovering emotional poles mapping to different stages of creativity, suggesting a role for non-cognitive activity. The 'Arieti loop' entails cycling between conscious and unconscious thinking during preparation and incubation. The 'Vinacke loop' predicts both non-conscious and conscious cycling between incubation and illumination. The 'Lalas loop' suggests cycling between illumination and verification, with further verification leading to more illumination. The 'Communication loop' anticipates feedback between verification and ongoing validation. Multiple feedback loops, incorporating conscious and non-conscious mental activity, collectively are referred to as the 'Rossman loop' (Shaw, 1989).

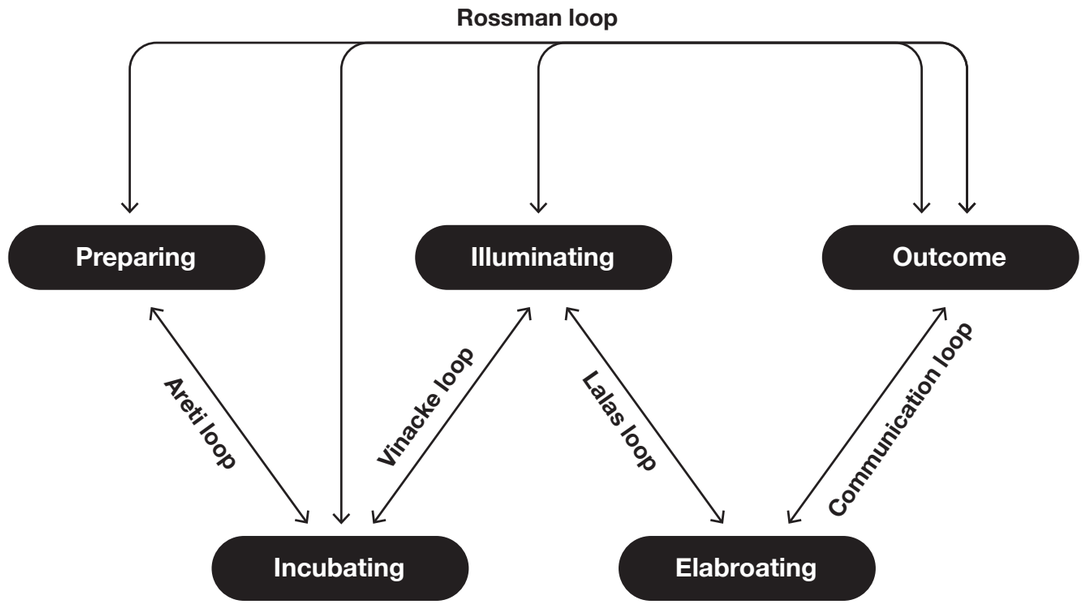


Figure 5: Rossman Loop by Wallas (1926) adapted by Islaam (2024)

Damasio (1994) underscores the importance of emotions in bolstering rationality, advocating for greater recognition of feelings and diverse intuition to enhance cognitive processes. He suggests that feelings are cognitive entities and that creative industries could benefit from emphasising connections between current feelings and future outcomes.

In a study involving 405 novel problem solvers, Aldous (2005) found that successful solutions consistently stemmed from a feeling-based approach to reasoning. These experts derived valid solutions using associative patterns of reasoning, with subsequent conscious explanations emerging through rule-based reasoning upon further questioning. Observing diverse thought patterns results in greater idea generation.

Cognitive psychology distinguishes between two reasoning systems: the rational system, characterised by conscious activity and the experiential system, characterised by non-conscious activity (Sloman, 1996). Epstein (1994) proposes that creativity involves intricate processing of both systems.

Building on this, Aldous (2007) outlines three essential criteria for creative problem-solving: engagement of visuo-spatial and linguistic brain circuits, incorporation of conscious and non-conscious mental activity and the generation of intuition-induced feelings.

Expanding on this concept, Aldous (2007) proposes an additional layer to the classical problem-solving model. Self State One aligns with non-conscious processing, Self State Two with conscious processing and the Intuitive function serves as an evaluative filter, mediating interactions between the two states and facilitating the generation and interpretation of feelings. Additionally, the Intuitive function mediates interactions between visuo-spatial and linguistic circuits.

Roberts and Roberts (2015) suggest that creativity often involves lateral thinking, a skill that may not be inherent to certain neurodiverse individuals who tend to prefer linear, logical, problem-solving or patterns. However, being open to the possibility of making mistakes or choosing less conventional approaches allows individuals to delve into the complexities and challenges innate in creative problem-solving. This exploration occurs within the realm between knowledge and uncertainty, aligning with the concepts of Self State One, Two, and the Intuitive Function of creative thinking as set out by the WEF (2023).

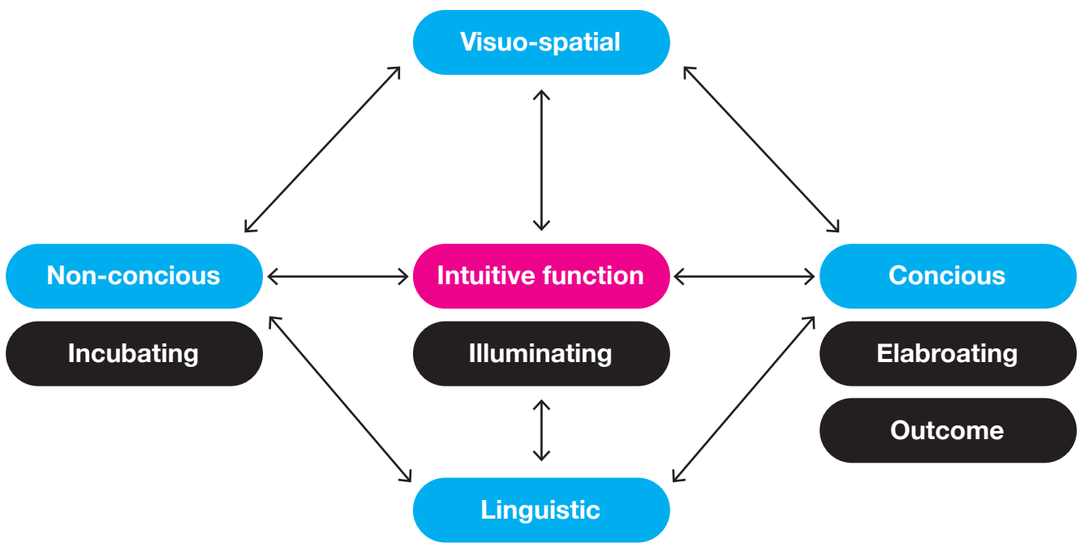


Figure 6: Expanded Rossman Loop by Aldous (2005) adapted by Islaam (2024)

Modern creative methodologies

Various methodologies have emerged from this classical model to streamline the creative process. Among these are the Double Diamond, the Iterative Loop and the Design Thinking iterative process (see Appendix 2). While these methodologies aim to enhance efficiency and effectiveness in design, it's essential to consider how they can be made inclusive to accommodate neurodivergent individuals.

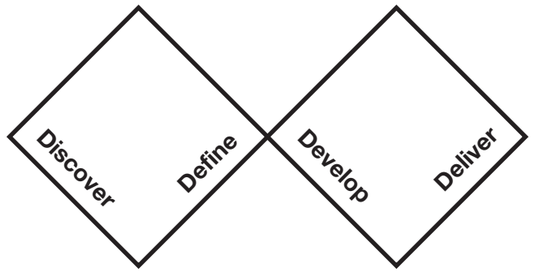


Figure 7: Double Diamond by British Design Council (2023)

Double Diamond

The Double Diamond model, conceived by the British Design Council, presents a structured creative approach comprising four fundamental phases: Discover, Define, Develop and Deliver. This methodology underscores the significance of both divergent and convergent thinking in design, enabling creatives to explore a broad spectrum of ideas before honing in on specific solutions (Design Council, 2023).

According to Verschoor (2015), each of these phases involves specific psychological and cognitive processes that are key to addressing complex problems both creatively and systematically:

1. Discover

- **Curiosity and openness:** This initial phase focuses on exploration and inquiry without predetermined solutions. It encourages a mindset of curiosity, where designers aim to understand the user, the system, and the broader context.
- **Empathy:** Engaging with and comprehending the experiences and needs of users is critical. Empathy allows designers to view the problem from multiple perspectives, particularly from those most impacted.
- **Suspension of judgment:** It's essential to reserve judgment and keep options open to gather a broad and unfiltered range of insights and data.

2. Define

- **Analysis and synthesis:** This phase involves organising and making sense of the data collected during the Discover phase. It requires analytical skills to identify patterns and key insights.
- **Critical thinking:** Clearly defining the problem demands a critical approach to ensure that the actual issues are addressed rather than just the symptoms.
- **Decision making:** Defining the problem often involves choosing one direction or problem statement among many potential ones, necessitating robust decision-making processes.

3. Develop

- **Creativity and Innovation:** With a clear problem defined, the Develop phase focuses on generating a wide range of solutions and approaches. This demands high levels of creativity and out-of-the-box thinking.
- **Iterative thinking:** The development of ideas often involves iterating on concepts, testing, and refining them, which requires resilience and a willingness to fail and learn from mistakes.
- **Collaboration:** Working with others to brainstorm ideas, build prototypes, and solicit feedback leverages collective intelligence and diverse perspectives, enhancing the innovation process.

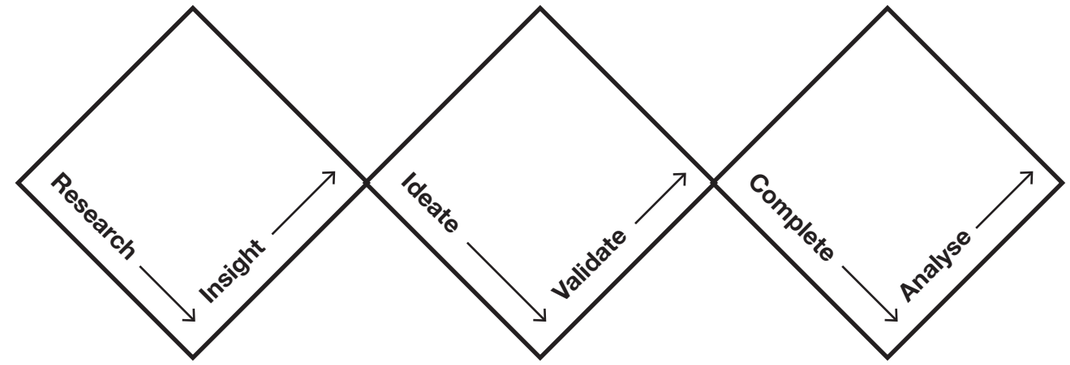
4. Deliver

- **Execution:** This final phase involves the practical application of the chosen solution. It requires a focus on detailed planning, execution, and project management skills.
- **Stress management:** As deadlines approach and solutions are implemented, managing stress and maintaining team morale are crucial.
- **Adaptability:** Being responsive to feedback and willing to adjust the final product or solution in real-time demands adaptability and flexibility.

Throughout the Double Diamond process, there is a continual oscillation between divergent thinking (expanding the range of possibilities) and convergent thinking (narrowing down options to focus on the most viable solutions). This dynamic is crucial in promoting innovation while ensuring practical outcomes.

Integration of neurodivergent individuals into the Double Diamond process entails acknowledging and appreciating their varied cognitive styles and approaches to problem-solving. For instance, neurodivergent individuals, such as those with ADHD, often demonstrate prowess in divergent thinking, thereby fostering the generation of innovative ideas and solutions (Sasson et al., 2017). By fostering an inclusive environment that embraces diverse perspectives, creatives can effectively leverage the creative potential of neurodivergent individuals across the entirety of the creative process (see page 15).

Although the Double Diamond is a well-established design framework, some critics believe it is not comprehensive enough. Gray (2019) proposes a Triple Diamond approach, which enhances clarity in planning, updating stakeholders on progress and collaborating with development teams. This model also integrates into the designers' workflow the necessity to continue working on the project post-launch. Without designated time in their schedules to advance projects beyond the prototyping stage, the quality of the work can deteriorate and relationships may suffer as a result (Gray, 2019).



Research	Experiment	Deliver
• Align stakeholders	• Explore solutions	• Iterate journeys and logic
• Research audience	• Prototype and test	• Tracking and analytics/ROI
• Organise data	• Refactor decisions	• Monitor results
• Write recommendations		• Continue or redesign

Figure 8: Triple Diamond by Gray (2019)

The design thinking personality

What does it mean to be a creative person? Tim Brown (2009) describes the following core cognitive characteristics to observe in design thinkers and creatives:

Empathy: Design thinkers possess the ability to empathise with various stakeholders, including colleagues, clients and end users, by adopting a "people-first" approach to conceptualising solutions that address explicit or latent needs. Through meticulous observation and astute analysis, they uncover nuanced details often overlooked by others, leveraging these insights to drive innovation.

Integrative thinking: Beyond relying solely on analytical methods that present either/or choices, design thinkers possess the capacity to grasp all relevant—and sometimes conflicting—aspects of complex problems. They then devise novel solutions that surpass existing alternatives.

Optimism: Design thinkers maintain the belief that, regardless of the constraints posed by a problem, superior solutions exist compared to current alternatives.

Experimentalism: Recognising that significant breakthroughs arise not from incremental adjustments but from bold exploration, design thinkers approach challenges with inventive questioning and innovative problem-solving that venture into new territory.

Collaboration: The most effective design thinkers not only collaborate across disciplines but often possess substantial experience in multiple fields—individuals with diverse backgrounds such as working together synergistically.

It is noteworthy that the design thinking personality profile outlined by Tim Brown (2009) also correlates with the World Economic Forum's Skills for the Future (2023), the UK Government's Skills for the Future (2014) and the comparison of cognitive, neurodivergent profiles detailed on page 18.

Inclusive design vs. design justice

While investigating established methodologies for creative processes and their connections to neurodiversity can offer benefits, a deeper understanding of achieving inclusivity and equity can be explored by examining the literature on the implementation of ‘inclusive design’ and ‘design justice’ within creative processes.

Inclusive design prioritises the observation of users to identify their requirements and incorporates them during the evaluation of early-stage design concepts (Waller et al., 2015). Over time, research in inclusive design has developed strategies for participant exclusion, quantifying the number of individuals unable to use specific products and services, and integrating various accessibility standards to meet pre-established criteria (Clarkson & Coleman, 2015).

Conversely, design justice places significant emphasis on the design process itself, departing from the notion that design expertise is exclusive to professionals. Instead, it advocates for collaborative design practices led by marginalised individuals (Costanza-Chock, 2018), fostering a focus on designing “with” rather than “for” people.

Both approaches acknowledge the necessity of diverse involvement in the development process, as reflected in the quote “nothing about us, without us” (Costanza-Chock, 2018). However, inclusive design prioritises achieving an accessible outcome over the level of participation in the design process.

Dismissing the idea of a one-size-fits-all solution, design justice challenges the notion of finding a universal approach for everyone. Bardzell (2010) questions the widespread acceptance of usability evaluations and mental models in design, arguing that they often reflect masculine biases. This pursuit of universalism, a goal of inclusive design, tends to favour a predominantly male perspective, side-lining other viewpoints. To redress this imbalance, Bardzell advocates for pluralism in design. This approach acknowledges diverse truths, perspectives and viewpoints, rather than adhering to a single truth or perspective. Stressing the significance of cultural sensitivity, Bardzell underscores the importance of actively engaging and including a variety of voices in the design process allowing for neurodiverse and marginalised leadership, participation, collaboration and inclusion to enhance innovation. Design with, rather than for.

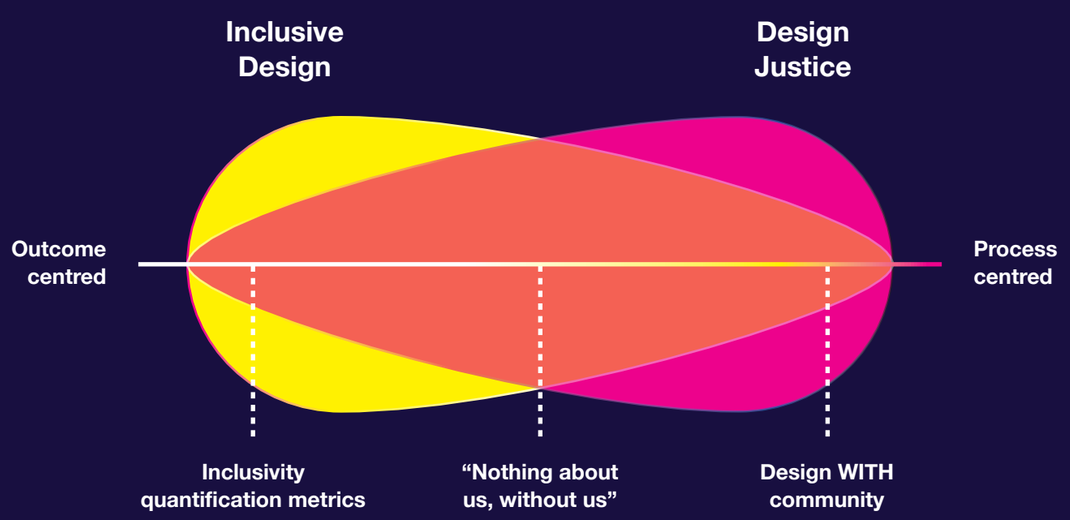


Figure 9: Inclusive design vs. design justice by Islaam, A (2024)

TEAMS AND ENVIRONMENTAL FACTORS

Integrating neurodiverse team members can lead to more comprehensive problem-solving, enhanced creativity and improved productivity (Krzeminska et al., 2019). However, it is essential to consider the impact of the work environment on neurodiverse individuals, as environmental factors can significantly influence their performance and well-being. To harness the full potential of neurodiverse teams, it is essential to create an inclusive and supportive work culture, in which many aspects derive from universal and human-centric design principles (McDowall et al., 2023).

Georgeac and Rattan (2022) suggest that fostering psychological safety, providing clear communication channels and offering opportunities for individualised accommodations are essential for promoting the well-being and performance of neurodiverse employees. For instance, creating designated quiet spaces and minimising strong odours, like those from food or perfume, can alleviate sensory sensitivities experienced by individuals with ADHD and ASD. Additionally, employing various communication methods ensures accessibility for neurodiverse employees (Bruyère and Colella, 2022). These adjustments not only accommodate neurodiversity but also enhance the comfort of all employees by reducing distractions and complexity.

Explicitly outlining communication expectations can also mitigate uncertainties in workplace social interactions, benefiting both neurotypical and neurodiverse individuals. Establishing clear protocols for email and communication etiquette, promotes clarity and efficiency. Formalising workplace norms not only supports neurodiverse employees but also aids new hires and individuals from diverse backgrounds. By incorporating small adjustments grounded in universal design principles, workplaces can promote equity and inclusivity efficiently (Steinfeld and Maisel, 2012).

MENTAL HEALTH AND WELLBEING

Although skills demonstrated by neurodiverse individuals are perceived as advantageous, the UK Office of National Statistics (ONS, 2022) reports that among employed individuals with neurodivergence and disabilities, over 20% identified a mental health condition as the primary cause of their disability. This includes 17.6% reporting depression, anxiety or nervousness and 3.9% indicating other cognitive afflictions or disorders. Notably, depression, anxiety or nervousness emerged as the most prevalent type of impairment mentioned in the UK ONS Annual Population Survey (2022). This is also reflected by the UK National Health Service as during 2021-22, 21.2% of patients with a learning disability received treatment with antidepressants (NHS, 2022).

POTENTIAL OBSTACLES

Cognitive and perceptual differences within neurodiversity can offer both advantages and obstacles. While these differences enable some to excel in problem-solving that requires exceptional pattern recognition or creative thinking (Krzeminska et al., 2019) they may also lead to difficulties in traditional workplace settings such as unflexible workflows, navigating social norms or managing sensory overload. Misunderstandings, communication challenges and accessibility are also significant challenges for neurodiverse individuals in the workplace (Robertson, 2009).

Stigma is also prevalent in personal and professional environments. in 2022, 78% of autistic people in the UK were unemployed (ONS, 2022) whilst the National Autistic Society reports that 45% of neurodivergent individuals have either been forced out or have quit their jobs due to difficulties arising from misunderstandings. As of 2021, only one out of every 16 autistic adults held a full-time job (Ash, 2022).

CONCLUSION

While the above research focuses on individual neurodiverse conditions, they collectively suggest that different neurodiverse groups possess overlapping, yet unique cognitive and perceptual styles that can enhance creative abilities in distinct ways. The variability in thinking patterns, problem-solving approaches and perceptual sensitivities among these groups indicates a rich area for research into how these diverse cognitive profiles contribute to creativity both individually and collaboratively.

The influence of neurodiversity on creativity and innovation is increasingly recognised as a valuable asset within creative sectors. Neurodivergent individuals often bring novel approaches and perspectives to problem-solving and creative processes, enhancing the quality and innovation of creative outputs (Scott et al., 2014).

Their unique cognitive styles contribute to a richer diversity of thought, which is crucial for innovation in teams and can lead to ground-breaking advancements (Buetow et al., 2018). The role of neurodiverse individuals in fostering an environment where innovation thrives cannot be overstated, highlighting the importance of embracing cognitive diversity in creative collaborations (West, 2019). Despite these strengths, the literature also points to significant challenges faced by neurodivergent individuals, including higher rates of mental health issues and substantial barriers to employment and social acceptance (NHS, 2022).

This study will look to establish key connections and recommendations between creative processes, cognition and where neurodiverse creativity can innovate and make impactful contributions.

Methodology

OVERVIEW

This study will take a pragmatic philosophy employing a mixed-methods design incorporating both quantitative and qualitative data to capture the nuanced effects of neurodiversity on creative processes and outputs. This design allows for a human-centric understanding of neurodiverse contributions to creativity and innovation, combining statistical analysis with thematic, ethnographic insights (Kumar, 2014).

APPROACH

An inductive research methodology will facilitate the development of theories that emerge organically from the data. This approach is essential for the integrity of the study, ensuring that any theoretical conclusions are intrinsically linked to the empirical evidence gathered. By utilising coding and categorisation, this method allows for identifying patterns and constructing theories without the constraints of pre-existing hypotheses. The inductive approach affords the necessary flexibility to incorporate new insights as they arise, thereby significantly enriching the scholarly value and accuracy of the research outcomes (Streefkerk, 2023).

SAMPLING

The study will target a sample of individuals working in creative industries such as design, advertising, digital media and the arts, with a primary focus on those who identify as neurodiverse including conditions such as ASD, ADHD, dyslexia and OCD. These conditions have been chosen as they are the most commonly diagnosed in the UK (refer to page 13). The time horizon is cross-sectional to conclude my data gathering.

Given the higher rates of neurodiversity among males, a higher proportion of male participants is anticipated (NHS, 2022). To ensure balanced data, an equal number of participants representing each of these neurodiverse conditions will be recruited. Methods of recruitment will include industry and personal networks, social media platforms, and organisations that support neurodiversity in the workplace (see Appendix 3).

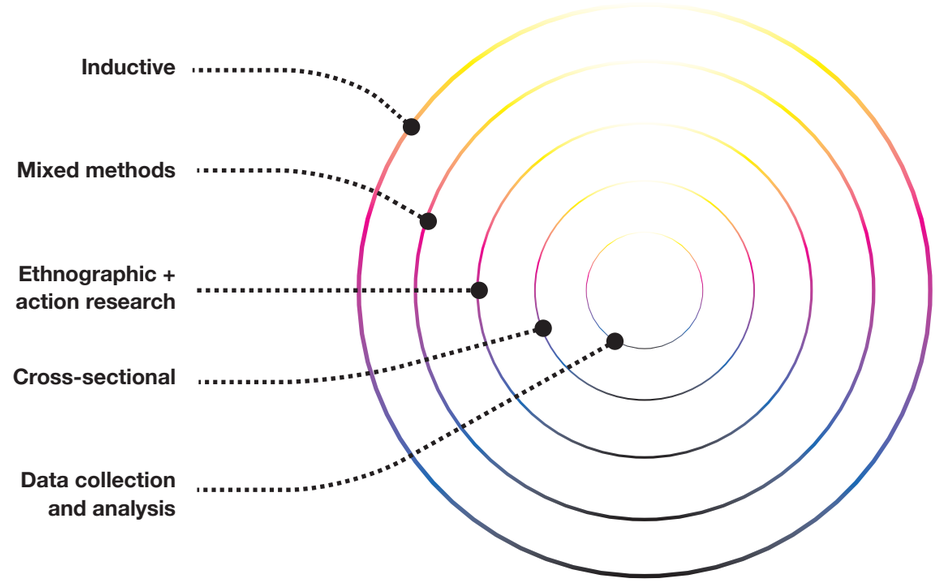
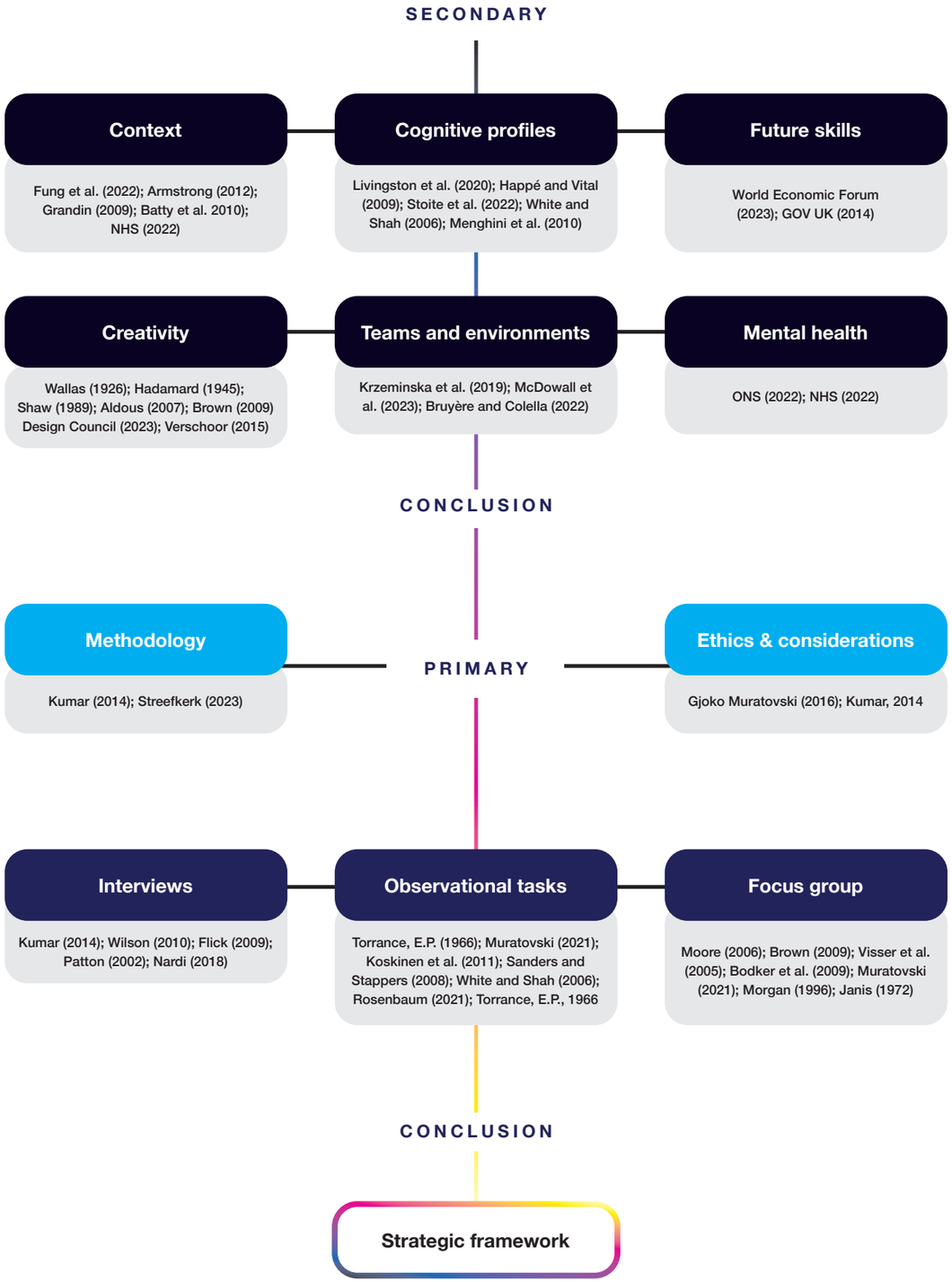


Figure 10: Methodology by Islaam, A (2024)



28 Figure 11: Methodology choices by Islaam, A (2024)

Data collection

Observational task

Observational methodologies involve systematically observing participant interactions with tasks, products or environments and attentively noting behaviours, challenges and preferences without direct intervention. This approach provides contextual insights into cognition and perception, informing a human-centric design process (Muratovski, 2021).

The rationale behind conducting observational research encompasses the following key objectives:

- **Comprehending behaviour and context**: To grasp the natural dynamics of cognition and interactions within specific contexts. It unveils deviations between actual and intended behaviour, revealing avenues for innovation (Koskinen et al., 2011).
- **Identification of needs**: To uncover latent needs that participants may not overtly express. This deep understanding fosters the creation of innovative and human-centred design solutions (Sanders and Stappers, 2008).

Chosen tasks:

The Torrance Tests of Creative Thinking (TTCT) are widely used assessments known for their reliability. They require examinees to draw or write about their life experiences, assessing various mental characteristics such as fluency, originality and flexibility (refer to Appendix 4). These tests have been utilised for identifying creatively gifted individuals and are part of gifted matrices in the USA and worldwide, particularly in multicultural settings and with special populations (Torrance, E.P., 1966).

The tests can be split into two; Figural and Verbal:

Figural: tasks that require participants to draw or construct creative figures or images based on specific instructions or stimuli.

Verbal: tasks that prompt participants to generate creative responses verbally, such as coming up with unusual uses for common objects or completing incomplete figures.

Research conducted by White and Shah (2006) found that individuals with ADHD outperformed their non-ADHD counterparts on the TTCT. However, these same individuals with ADHD did not perform as well on the Remote Associates Test (RAT) and the semantic Incidental Operant Response (IOR) task when compared to those without ADHD. The study indicated that the relationship between ADHD and creative potential was, to some extent, influenced by differences in inhibitory control.

Expected results from observational tasks

Observational tasks yield in-depth qualitative and quantitative insights offering a nuanced understanding of participant behaviours, preferences and sociocultural contexts, surpassing the limitations of surveys or interviews alone (Rosenbaum, 2021).

Structured interview

Structured interviews consisting of open-ended questions will be conducted to provide comparable, uniform answers between neurodiverse participants. Open-ended questions allow for a wealth of qualitative data concerning patterns, behaviours or perceptions across a population. Content analysis grounded in thematic analysis will be explored (Kumar, 2014).

The purpose of conducting a structured interview encompasses the following key objectives:

- **Standardisation**: Ensuring that each participant is asked the same questions in the same order, reducing interviewer bias and enhancing the reliability of the data collected. This

standardisation facilitates the comparison of responses across participants (Wilson, 2010).

- **Replicability**: The structured format enhances the replicability of the research. Other researchers can repeat the study using the same interview protocol to verify findings or to conduct longitudinal studies that track changes over time (Flick, 2009).

Disadvantages:

- **Limited depth and flexibility:** structured interviews, due to their pre-defined set of questions, may not allow for the exploration of unexpected topics or in-depth discussions. This can result in missing nuanced insights that open-ended conversations might reveal (Bryman, 2016).

- **Respondent's perspective may be overlooked:** the fixed nature of questions might not capture the participant's viewpoint, complexities of their experiences or the context of their responses, leading to potentially superficial data (Patton, 2002).

- **Social desirability bias:** the presence of the interviewer and the formal setting of structured interviews can lead to social desirability bias, where participants might answer in a way they believe is expected or acceptable, rather than truthfully. The participants comfort level with the interviewer can also affect results (Nardi, 2018).

Focus group

The study will offer an opportunity for neurodiverse participants to co-design a design thinking process that proposes when, how and why neurodivergent thinking could enhance innovation in creative problem-solving (Moore, 2006).

The purpose of conducting a focus group encompasses the following key objectives:

- **Validation of assumptions**: Focus groups serve to validate or challenge assumptions based on direct participant observation, ensuring that recommendations and decisions remain grounded in authentic behaviour and needs (Brown, 2009).

- **Idea generation and innovation**: Co-design sessions leverage the collective creativity of the group, facilitating the generation of innovative ideas and solutions. The collaborative environment encourages diverse perspectives, leading to more creative and often unexpected solutions (Visser et al., 2005).

- **Iterative feedback and refinement**: These sessions allow for the immediate sharing of feedback on design concepts and prototypes. This iterative process of critique and refinement is vital for rapidly evolving a design to better meet individual needs (Bodker et al., 2009).

Expected results from observational tasks

To observe how participants interact to identical questioning, how they moderate their opinions, react to differing perspectives and how disagreements are managed as well as collective problem-solving (Muratovski, 2021). Presenting previous findings for data and process validation will also be beneficial.

Disadvantages

According to Maxwell (2013), the following disadvantages should be considered with observational research tasks:

- **Group dynamics and dominance:** the dynamics within a focus group can lead to certain individuals dominating the conversation, potentially overshadowing quieter participants and skewing the data collected. This can result in a bias towards the opinions of more vocal participants, limiting the diversity of input (Morgan, 1996).

- **Consensus difficulty:** reaching a consensus in co-design sessions with diverse participants can be challenging. Conflicting opinions and interests may hinder the decision-making process, leading to compromises that might not fully satisfy any party (Lauren, 2007).

- **Risk of groupthink:** there is a risk that participants in a co-design session may conform to group opinions, suppressing dissenting views in favour of harmony. This phenomenon, known as groupthink, can stifle innovation and lead to less optimal design outcomes (Janis, 1972).

Data analysis

Data will be analysed using methodological triangulation, which incorporates statistical analysis, thematic analysis and content analysis to ensure a comprehensive evaluation of findings.

Statistical analysis

This will be derived from the Torrance Tests of Creative Thinking (TTCT). Both the figural and verbal components of these tests will generate quantitative data, which will be statistically coded to assess the fluency, originality and flexibility of creativity within neurodiverse populations (Torrance, E.P., 1966).

Thematic analysis

This will be conducted on interviews held after each observational task with the same neurodiverse participants. The aim is to delve deeper into their patterns and relationships of learning and problem-solving (Caulfield, 2019). These interviews provide an opportunity for participants to share insights that may not have been evident during the observational tasks.

Content analysis

This will be applied to discussions within the focus group to gather feedback on the recommendations derived from the statistical and thematic analyses. Incorporating content analysis is crucial for addressing design justice (see page 24) and discussing critical issues before finalising generalised recommendations (George, 2021).

ETHICAL CONSIDERATIONS

The following ethical considerations are to be employed during the study:

Cultural sensitivity: Researchers must consider cultural factors that could influence participants' responses and their interpretation of assessment tasks. It is essential to use assessment tools and procedures that are culturally appropriate to mitigate the risk of cultural bias (Gjoko Muratovski, 2016).

Validity and reliability: It is crucial to ensure that assessment tools are both valid and reliable to achieve accurate and meaningful results. Researchers and clinicians should employ standardised and validated measures that are proven to be reliable and valid for the population being assessed (Kumar, 2014).

Fairness and equity: Researchers must ensure that all participants have an equal opportunity to demonstrate their abilities. This involves eliminating biases in assessment procedures and providing necessary accommodations for participants with disabilities or special needs (Kumar, 2014).

“I knew what I was doing, ‘Neuro’ was a reference to the rise of neuroscience. ‘Diversity’ is a political term; it originated with the black American civil rights movement. As a word, ‘neurodiversity’ describes the whole of humanity. But the neurodiversity movement is a political movement for people who want their human rights.”

Judy Singer (Harris, 2023).

Primary research

OVERVIEW

Torrance Tests of Creative Thinking (TTCT)

The Torrance Tests of Creative Thinking (TTCT) are renowned for their reliability and effectiveness in identifying creatively gifted individuals through assessing various mental characteristics such as fluency, originality, and flexibility. Divided into Figural and Verbal sections, these tests challenge participants to engage in tasks ranging from drawing creative figures to providing verbal responses, detailed further in Appendix 4.

For the TTCT evaluation, selected tests incorporate references to the Triangulation of global future skills (World Economic Forum, 2023), the future of work in the UK (GOV, 2014), and neurodiverse cognitive profiles, as detailed on page 18:

Figural:

Picture completion: Participants are given incomplete pictures and are asked to finish them creatively, using their imagination to add missing elements.

- Shape: An incomplete circle with a portion missing.
- Prompt: “Draw something that could fit into the missing part of this circle to create a complete picture.”
- TTCT: Originality/Abstractness of Titles
- WEF reference: Creative thinking

Parallel lines or circles: Participants are presented with a series of circles and are instructed to transform them into recognisable objects or images.

- Shape: A series of circles.
- Prompt: “Transform these circles into a recognisable object or scene.”
- TCTT: Elaboration
- WEF reference: Analytical thinking

Memory: Participants are shown an image including 25 familiar objects. They are asked to memorise as many as possible within 1 minute then asked to recall them later in the session.

- Prompt: “Try to memorise as many of these objects as possible, I will ask you to recall them at the end of the session.”
- TCTT: Fluency/ Resistance to premature closure
- WEF reference: Creative thinking/ Adaptability and resilience

Verbal:

Unusual uses: Participants are given everyday objects (e.g., a paperclip) and are asked to generate as many unusual or creative uses for them as possible within a given time limit.

- Object: Paperclip
- Prompt: “List as many unusual or creative uses for a paperclip as you can think of.”
- TCTT: Fluency
- WEF reference: Creative thinking/ Adaptability and resilience

Ask and guess: Participants engage in a verbal exchange where they take turns asking and guessing questions to stimulate creative thinking and problem-solving.

- Prompt: “You are given the word ‘umbrella.’ Ask questions to guess what item I am thinking of.”
- TCTT: Flexibility
- WEF reference: Curiosity and learning

Product improvement: Participants are shown a common product (e.g., a pencil) and are tasked with suggesting innovative improvements or modifications to enhance its design or functionality.

- Product: Mobile phone
- Prompt: “How would you improve the design or functionality of a mobile phone to make it more useful or innovative?”
- TCTT: Originality
- WEF reference: Creative and analytical thinking

Scoring for the Figural TTCT encompasses three tasks: Picture Construction, Memory Recall and Parallel Lines or Circles, evaluated against five key criteria:

- **Fluency** evaluates the quantity of meaningful ideas generated, indicating the depth of thought.
- **Originality** measures the uniqueness of responses compared to standard norms, highlighting innovative thinking.
- **Elaboration** assesses the level of detail or development added to ideas, indicating the ability to expand upon concepts.
- **Abstractness of Titles** gauges the degree of abstraction in captions, reflecting the ability to capture underlying meanings.
- **Resistance to Premature Closure** assesses the ability to maintain an open mind and consider multiple possibilities.

Similarly, scoring for the Verbal TTCT involves tasks such as Ask and Guess, Product Improvement and Unusual Uses, evaluated against three main criteria:

- **Fluency** measures the total number of relevant responses provided.
- **Flexibility** assesses the ability to shift perspectives or thought paths.
- **Originality** evaluates the uniqueness of ideas or answers.

To ensure standardisation and consistency all observational tasks and interviews were conducted via Zoom and Miro. The Figural assessment included a brief instructional component on Miro’s functionality, this did not impact the statistical data as tasks were untimed and participants were given ample time to complete each task to their satisfaction. This approach maintains consistent testing conditions across participants.

Raw participant scores

See Appendix 5 for expanded, individual results.

Figural: The following table depicts the overall creativity index scoring for each participant, in order of the date they were conducted, for the three Figural TTCT including Picture Construction, Memory Recall and Parallel Circles.

Participant #	Fluency	Originality	Abstractness	Elaboration	Resistance	Creativity index %
#1 – ADHD	63	56	67	64	65	**63%**
#2 – Dyslexia	52	32	38	46	52	**44%**
#3 – Dyslexia	57	56	52	50	55	**54%**
#4 – OCD	64	57	68	65	67	**64%**
#5 – ASD	53	51	43	54	57	**52%**
#6 – OCD	21	16	13	21	26	**19%**
#7 – ADHD	63	65	54	59	55	**59%**
#8 – ASD	47	40	41	47	30	**41%**
#9 – Dyslexia	38	32	34	46	24	**35%**
#10 – ADHD	52	44	47	59	36	**48%**
#11 – ASD	34	31	34	45	23	**33%**
12 – OCD #	28	24	27	39	17	**27%**

Table 2: Figural participant scores by Islaam, A (2024)

These initial figural findings suggest that among the neurodiverse participants, individuals with OCD and ADHD demonstrated notable performance levels. Particularly, the participant with OCD attained the highest performance, closely followed by an individual with ADHD. Their strengths primarily lay in Abstractness, indicating their adeptness at grasping deeper meanings and concepts. Moreover, both participants exhibited strong scores in Resistance to Premature Closure, indicating their capacity to entertain diverse perspectives and explore multiple possibilities before drawing conclusions.

However, it is intriguing to note that the remaining two participants with OCD achieved lower scores in comparison. This variance will be further explored in the following chapters.

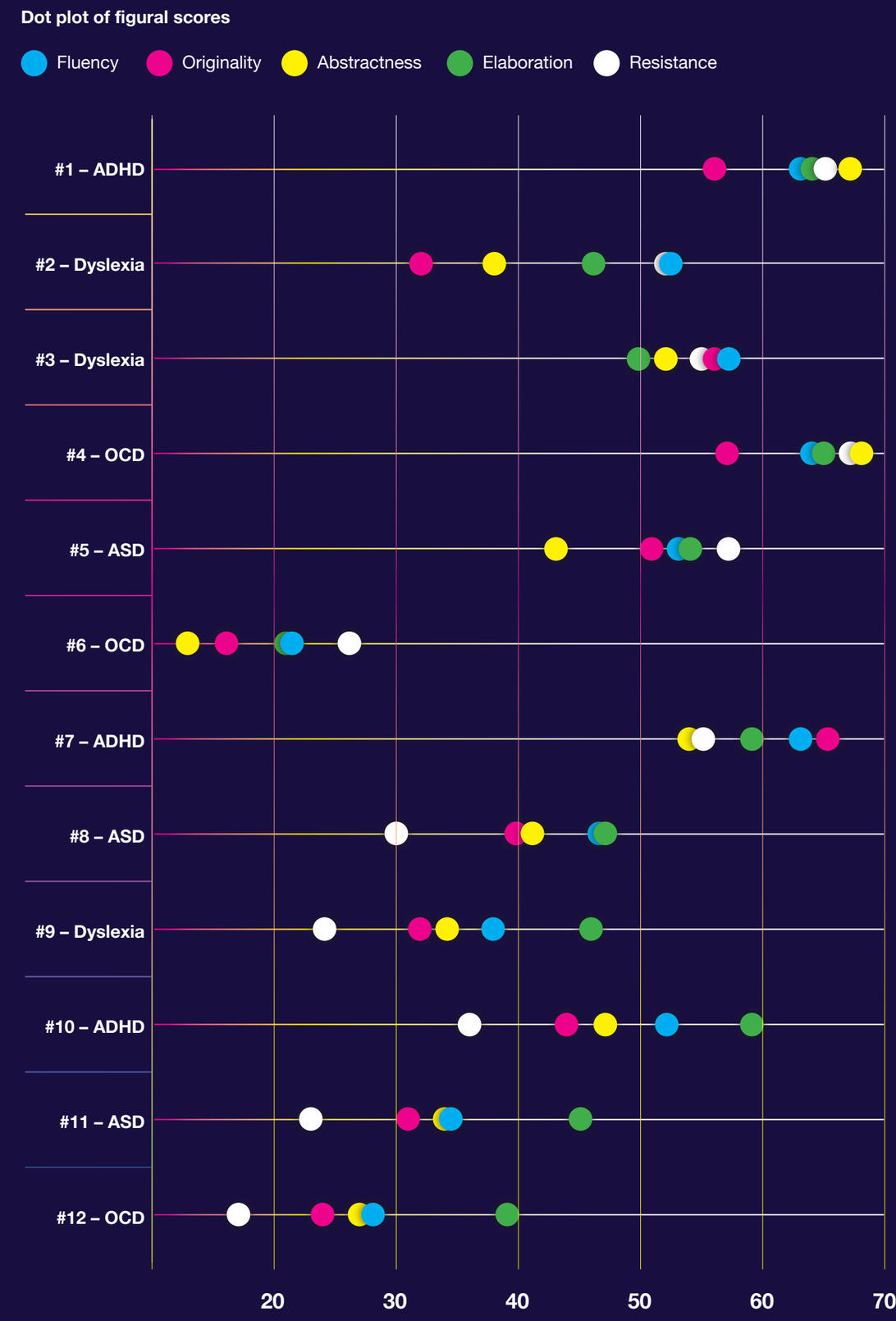


Figure 12: Figural dot plot by Islaam, A (2024)

Verbal:

The following table depicts the overall creativity index scoring for the three Verbal TTCT including Ask and Guess, Product Improvement and Unusual Uses.

Participant #	Fluency	Flexibility	Originality	Creativity index %
1 – ADHD	71	65	62	**66%**
2 – Dyslexia	38	39	33	**37%**
3 – Dyslexia	57	47	47	**50%**
4 – OCD	64	57	68	**63%**
5 – ASD	53	46	51	**50%**
6 – OCD	14	11	11	**12%**
7 – ADHD	67	60	79	**69%**
8 – ASD	22	17	28	**22%**
9 – Dyslexia	60	49	72	**60%**
10 – ADHD	81	69	90	**69%**
11 – ASD	49	43	61	**51%**
12 – OCD	42	32	52	**42%**

Table 3: Verbal participant scores by Islaam, A (2024)

Participants show varying levels of creativity across different aspects, the Creativity Index percentages range from as low as 12% (OCD) to as high as 69% (ADHD).

Concerning the verbal creativity assessment, all three ADHD participants (Participants #1, #7, and #10) have emerged as the highest scorers, with percentages of 66%, 69%, and 69% respectively. These participants also show relatively high scores in all three components; relevant responses, adeptness in shifting perspectives and the generation of unique ideas, particularly the Originality criterion.

This outcome resonates strongly with prior research findings, for instance, the work of White and Shah (2006) suggests that the impulsivity characteristic of ADHD individuals serves as a catalyst for creativity. Similarly, Runco and Jaeger's (2012) meta-analysis reveals a positive association between ADHD symptoms and creative thinking.

Participants with Dyslexia (Participants #2, #3, and #9) display a moderate range of creativity scores, from 37% to 60%. Participant #9, in particular, shows strong performance in Originality.

Participants with OCD (Participants #4, #6, and #12) show a wider variation in scores. Participant #4 scores comparatively high at 63%, whereas Participant #6 has significantly lower scores across all components, leading to the lowest Creativity index at 12%.

Participants with ASD (Participants #5, #8, and #11) have scores that tend towards the middle and lower end, with Creativity index percentages of 50%, 22%, and 51% respectively. The lower scores (e.g., Participant #6 with OCD and Participant #8 with ASD) may indicate challenges in generating a wide range of ideas or thinking flexibly and originally under test conditions.

To delve deeper into these findings, a comprehensive examination of each assessment task is necessary to gain insights that align with the future skills map outlined on page 17. Subsequent chapters will explore correlations between the results obtained from the Torrance Tests of Creative Thinking (TTCT) and their implications for neurodiversity within the creative industries of the future. This holistic approach promises to shed light on the unique contributions of neurodiverse individuals and their potential impact on shaping the landscape of creativity in the future.

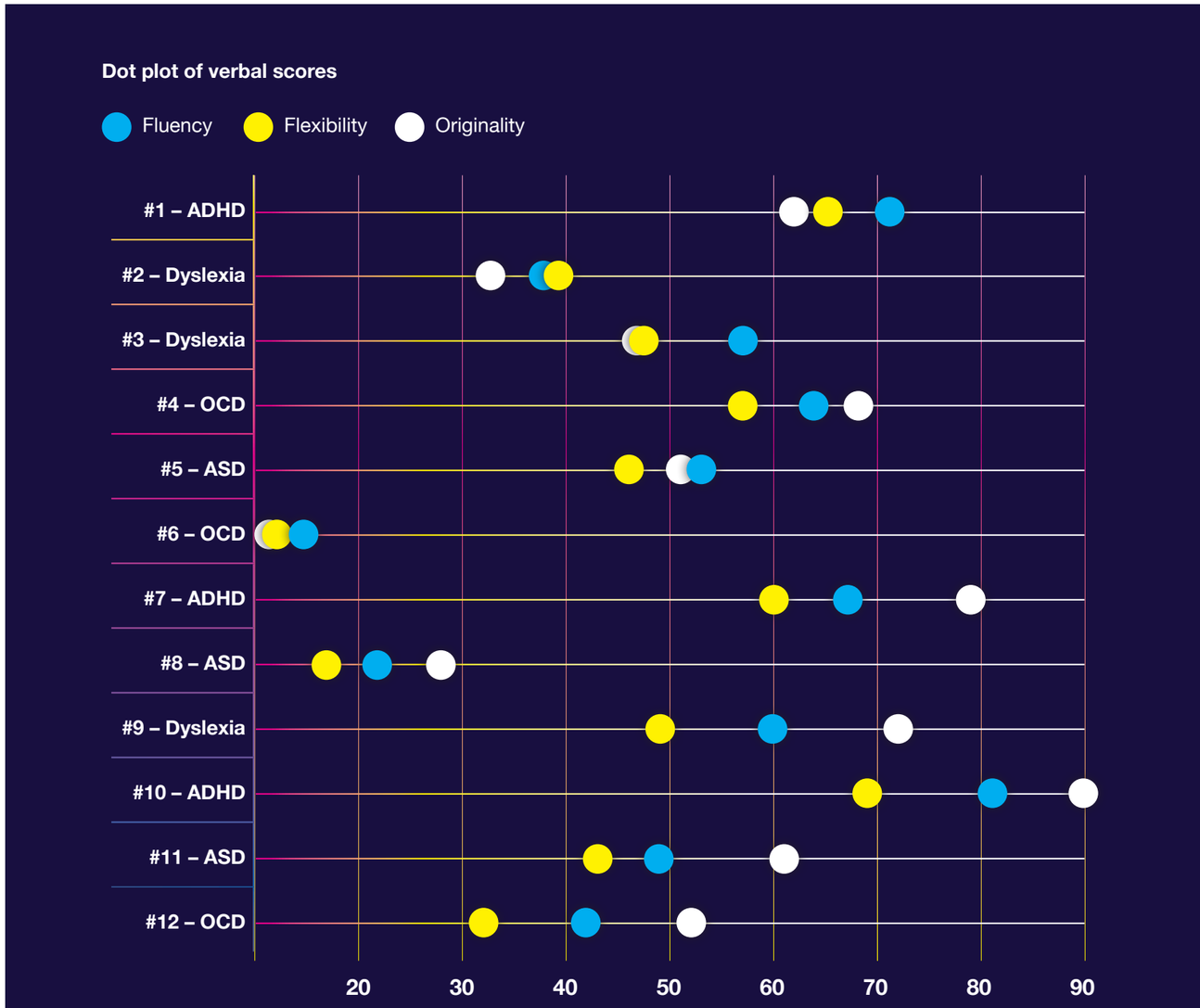


Figure 13: Verbal dot plot by Islaam, A (2024)

AUTISM SPECTRUM DISORDER (ASD)

See Appendix 5 for expanded, individual results and Appendix 6 for data analysis.

Figural:

Category	Mean	Median	Deviation
Fluency	7,44444444	7	2,30656919
Originality	6,77777778	6	2,90143079
Titles	6,55555556	6	2,03563033
Elaboration	8,11111111	7,5	2,32350873
Resistance	6,11111111	5	3,25194763

Verbal:

Category	Mean	Median	Deviation
Fluency	6,58333333	5,5	3,02890119
Flexibility	6,88888889	6,5	3,00761561
Originality	5,88888889	6	2,7415944

Table 4: ASD, figural and verbal aggregated scores by Islaam, A (2024)

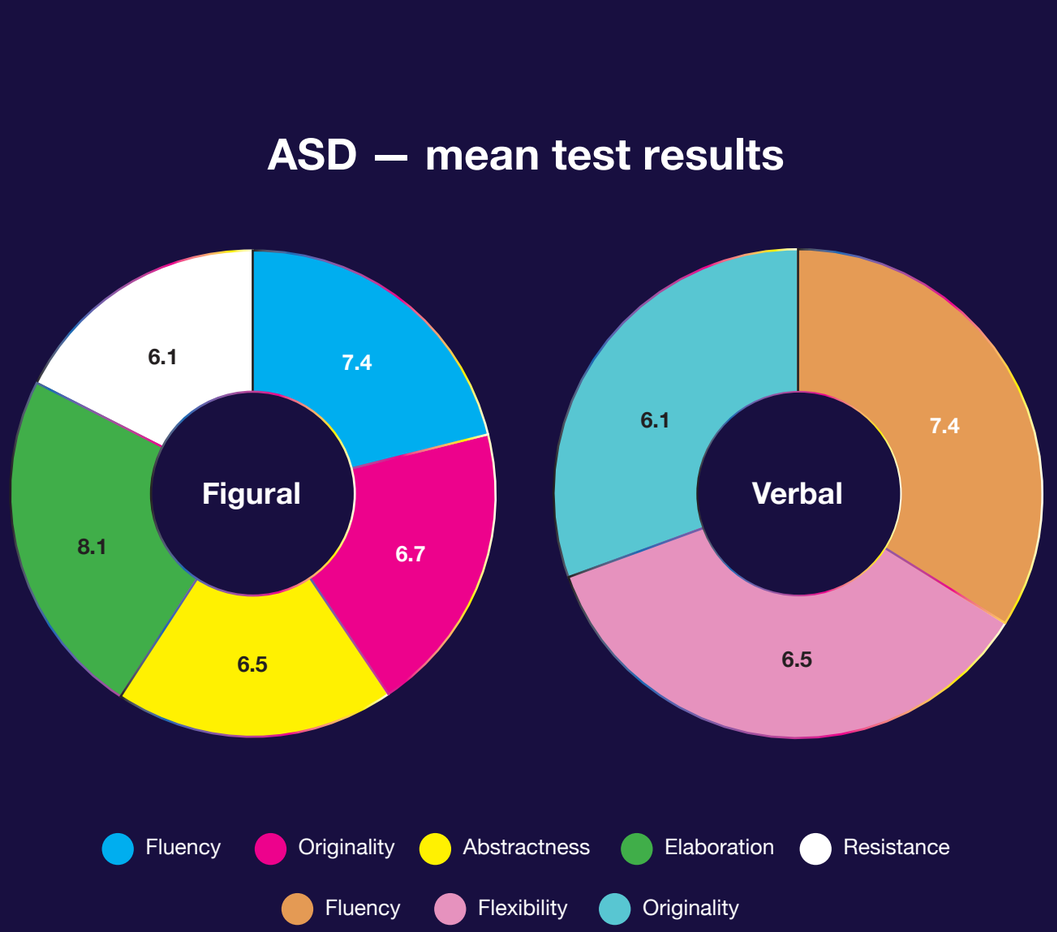
The data from the Torrance Tests of Creative Thinking (TTCT) suggests that individuals with Autism Spectrum Disorder (ASD) exhibit a capacity for generating ideas, as evidenced by relatively high scores in fluency in both figural and verbal tasks. This indicates that individuals with ASD are proficient at creativity within the Intuitive Function as described by Aldous (2007), generating a good number of ideas within both visual and linguistic contexts (see page 20).

However, differences emerge in the aspects of originality and resistance to premature closure. While individuals with ASD show moderately high originality scores in both figural and verbal tasks, their scores tend to be slightly lower compared to other neurodivergent populations. This suggests that while they can produce unique and unconventional ideas, they may struggle somewhat more with generating truly novel concepts.

Individuals with ASD also demonstrate particularly strong scores in elaboration, especially in figural tasks. This implies that they excel at developing and expanding upon their ideas, suggesting a richness and depth of thought. However, this strength in elaboration may also be accompanied by a weakness in resistance to premature closure, suggesting that individuals with ASD may find it challenging to fully commit to or explore a single idea before moving on to the next.

In verbal tasks, individuals with ASD exhibit decent scores in flexibility, indicating an ability to shift between different categories or perspectives. However, their originality scores in verbal tasks are slightly lower compared to figural tasks, suggesting a tendency towards more conventional or expected responses in linguistic contexts.

Overall, while individuals with ASD demonstrate strengths in fluency and elaboration across both figural and verbal domains, they may encounter challenges related to originality and resistance to premature closure. This suggests that successful solutions often stem from a feeling-based approach to reasoning (Aldous, 2005), which may resonate with individuals with ASD who demonstrate strengths in elaboration and fluency but may encounter challenges related to originality and resistance to premature closure (see page 35).



CORE COGNITIVE TRAITS:

High fluency:
Generates a large number of ideas in both figural and verbal tasks.

Strong elaboration:
Excels in adding detail and building on ideas, particularly in figural tasks.

Moderate to high originality:
Produces unique ideas, though novel concept generation may be challenging.

Flexibility in thinking:
Capable of shifting perspectives, especially in verbal tasks.

Challenges with closure:
Struggles with exploring ideas thoroughly before moving on.

Figure 14: ASD pie charts by Islaam, A (2024)

ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD)

See Appendix 5 for expanded, individual results and Appendix 6 for data analysis.

Figural:

Category	Mean	Median	Deviation
Fluency	9,88888889	9,5	3,02711062
Originality	9,16666667	8,5	3,65014101
Titles	9,33333333	8,5	3,37813036
Elaboration	10,1111111	10	3,89402089
Resistance	8,66666667	8,5	3,59738467

Verbal:

Category	Mean	Median	Deviation
Fluency	11,75	13	4,24531828
Flexibility	12,1666667	13	2,91547595
Originality	10,7777778	11	3,26398449

Table 5: ADHD, figural and verbal aggregated scores by Islaam, A (2024)

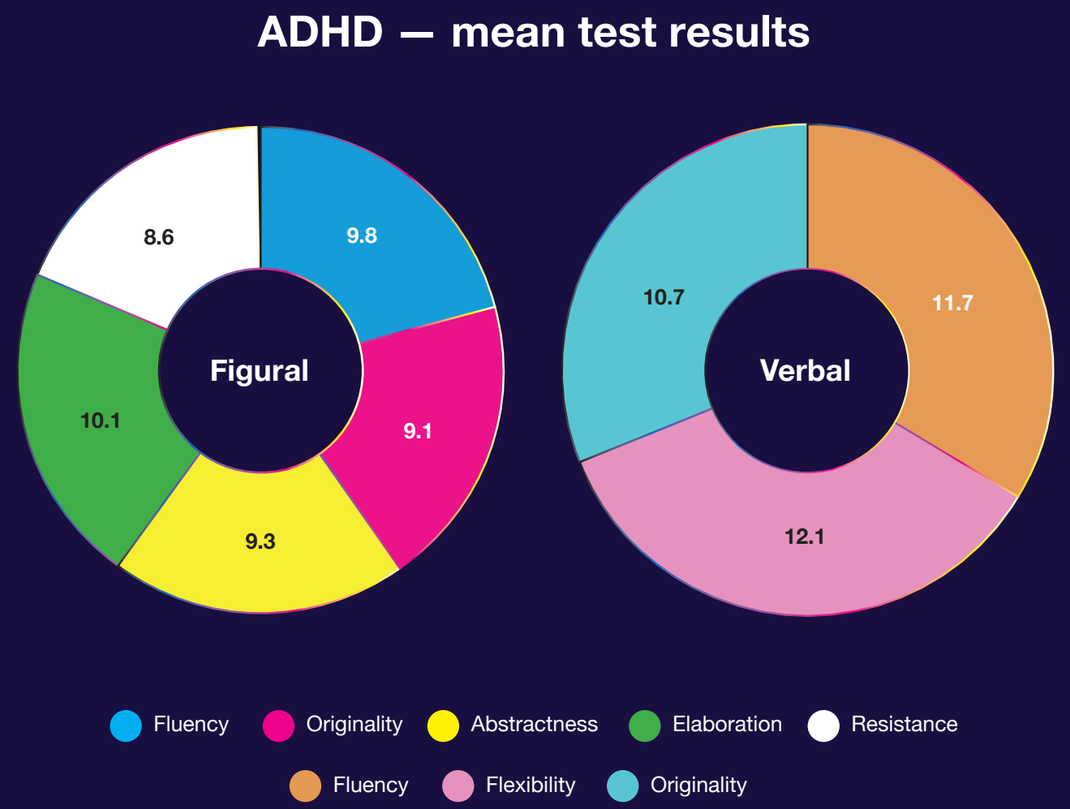
Generally, individuals with ADHD demonstrate a robust capacity to generate a multitude of ideas, which is reflected in their high fluency scores across both figural and verbal tasks. This suggests that these individuals can excel in dynamic thinking processes, enabling them to produce varied and numerous responses quickly.

In addition to generating many ideas, individuals with ADHD also display strong originality and elaboration skills. They not only come up with unique ideas but are also adept at developing these ideas in detail. This combination is crucial for effective creative problem-solving as it allows for the exploration of novel solutions and thorough examination of concepts. However, there is noticeable variability in their performance across different categories, indicative of the fluctuating attention and focus that is often characteristic of ADHD (see page 16). This variability might also reflect how distinct tasks or contexts differentially influence the performance of individuals with ADHD.

The data shows a tendency for participants to perform better in verbal tasks than in figural ones, particularly evident in their fluency and flexibility. This could suggest a stronger skill set or preference for verbal over visual-spatial tasks, which might be more engaging or intuitive for them. Flexibility in verbal tasks was particularly high, showcasing their ability to shift perspectives and approach problems from multiple angles.

One area where scores were generally lower compared to others was in resistance to premature closure, which assesses the ability to keep options open while working towards a solution. For individuals with ADHD, who may sometimes hasten through tasks, it can be challenging to maintain an open-ended exploration of ideas.

Overall, while the participants with ADHD show pronounced strengths in generating and developing ideas, the performance variability and the challenges in maintaining open-ended exploration highlight the complex interplay between their cognitive traits and creative task demands.



CORE COGNITIVE TRAITS:

High fluency:
Demonstrates strong ability to generate multiple ideas, with high scores in both figural and verbal tasks.

Strong originality and elaboration:
Exhibits creativity in producing unique ideas and further developing them in detail.

Excellent flexibility in verbal tasks:
Shows superior capacity to adapt and shift perspectives, particularly in verbal contexts.

Lower resistance to premature closure:
Faces challenges in maintaining open exploration of ideas, reflecting potential difficulties with sustained focus.

Variable performance:
Indicates fluctuating attention and focus, affecting consistency across tasks.

Figure 15: ADHD pie charts by Islaam, A (2024)

DYSLEXIA

See Appendix 5 for expanded, individual results and Appendix 6 for data analysis.

Figural:

Category	Mean	Median	Deviation
Fluency	9,88888889	9,5	3,02711062
Originality	9,16666667	8,5	3,65014101
Titles	9,33333333	8,5	3,37813036
Elaboration	10,1111111	10	3,89402089
Resistance	8,66666667	8,5	3,59738467

Verbal:

Category	Mean	Median	Deviation
Fluency	11,75	13	4,24531828
Flexibility	12,1666667	13	2,91547595
Originality	10,7777778	11	3,26398449

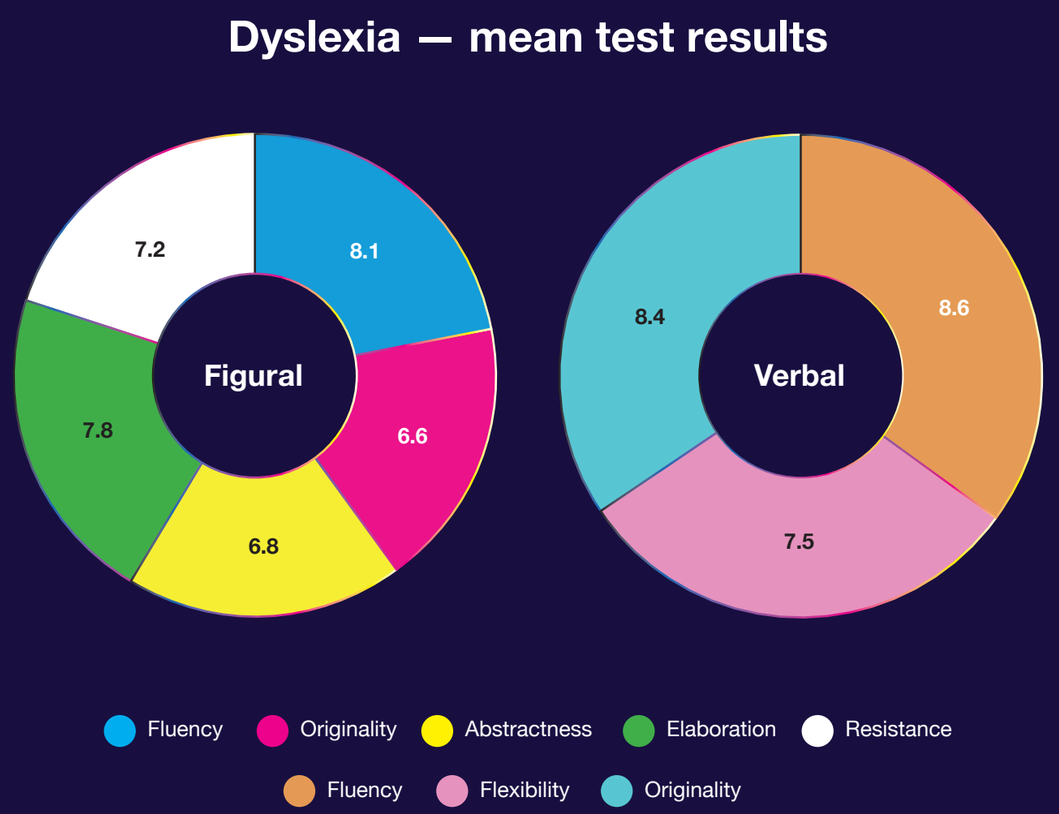
Table 6: Dyslexia, figural and verbal aggregated scores by Islaam, A (2024)

Across the figural tasks, participants with dyslexia show a moderate level of fluency, which reflects their ability to generate a fair amount of ideas. This is complemented by their scores in originality and titles, which, while somewhat lower, still indicate a capacity to produce unique ideas and aptly title them, although with considerable variability as evidenced by the high standard deviations.

Elaboration scores are relatively higher, suggesting that once an idea is initiated, individuals with dyslexia are quite capable of expanding on it. This ability to develop ideas more thoroughly may be linked to their strong visual-spatial skills, a common strength among many with dyslexia (see page 16). Resistance to premature closure, however, shows a lower average score with high variability. This suggests that maintaining openness in problem-solving and delaying closure to explore ideas further can be challenging, possibly reflecting the difficulties in managing and organising thought processes.

In verbal tasks, fluency scores are higher than in figural tasks, indicating a better performance in generating verbal content. This might seem counterintuitive given the typical language challenges associated with dyslexia, but it could also suggest a compensation mechanism where greater effort or creative strategies are employed. Flexibility in verbal tasks is moderate, indicating an ability to shift between different concepts or approaches adequately. The originality score in verbal tasks is quite high and shows considerable variability, highlighting that when individuals with dyslexia engage with verbal content creatively, they can produce highly original outputs, though consistently doing so can be a struggle.

Overall, the data reflects that while participants with dyslexia demonstrate notable creative strengths, particularly in idea development and verbal originality, they face significant challenges in aspects like maintaining an open-ended exploration in problem-solving and consistent originality in idea generation. This performance profile underscores the need for supportive strategies that enhance their creative expression and problem-solving skills, taking into account the unique cognitive profiles associated with dyslexia.



CORE COGNITIVE TRAITS:

Moderate fluency:
Shows a reasonable ability to generate ideas, more prominently in verbal than figural tasks.

Variable originality:
Capable of producing unique ideas in both verbal and figural tasks, though with high variability.

Stronger elaboration:
Particularly adept at expanding on ideas, especially in figural tasks.

Moderate flexibility:
Demonstrates an adequate ability to switch between concepts or approaches, more noticeable in verbal tasks.

Challenges with resistance to closure:
Struggles to keep the problem-solving process open, reflected in high variability and lower scores in this area.

Figure 16: Dyslexia pie charts by Islaam, A (2024)

OBSESSIVE-COMPULSIVE DISORDER (OCD)

See Appendix 5 for expanded, individual results and Appendix 6 for data analysis.

Figural:

Category	Mean	Median	Deviation
Fluency	9,88888889	9,5	3,02711062
Originality	9,16666667	8,5	3,65014101
Titles	9,33333333	8,5	3,37813036
Elaboration	10,1111111	10	3,89402089
Resistance	8,66666667	8,5	3,59738467

Verbal:

Category	Mean	Median	Deviation
Fluency	11,75	13	4,24531828
Flexibility	12,1666667	13	2,91547595
Originality	10,7777778	11	3,26398449

Table 7: OCD, figural and verbal aggregated scores by Islaam, A (2024)

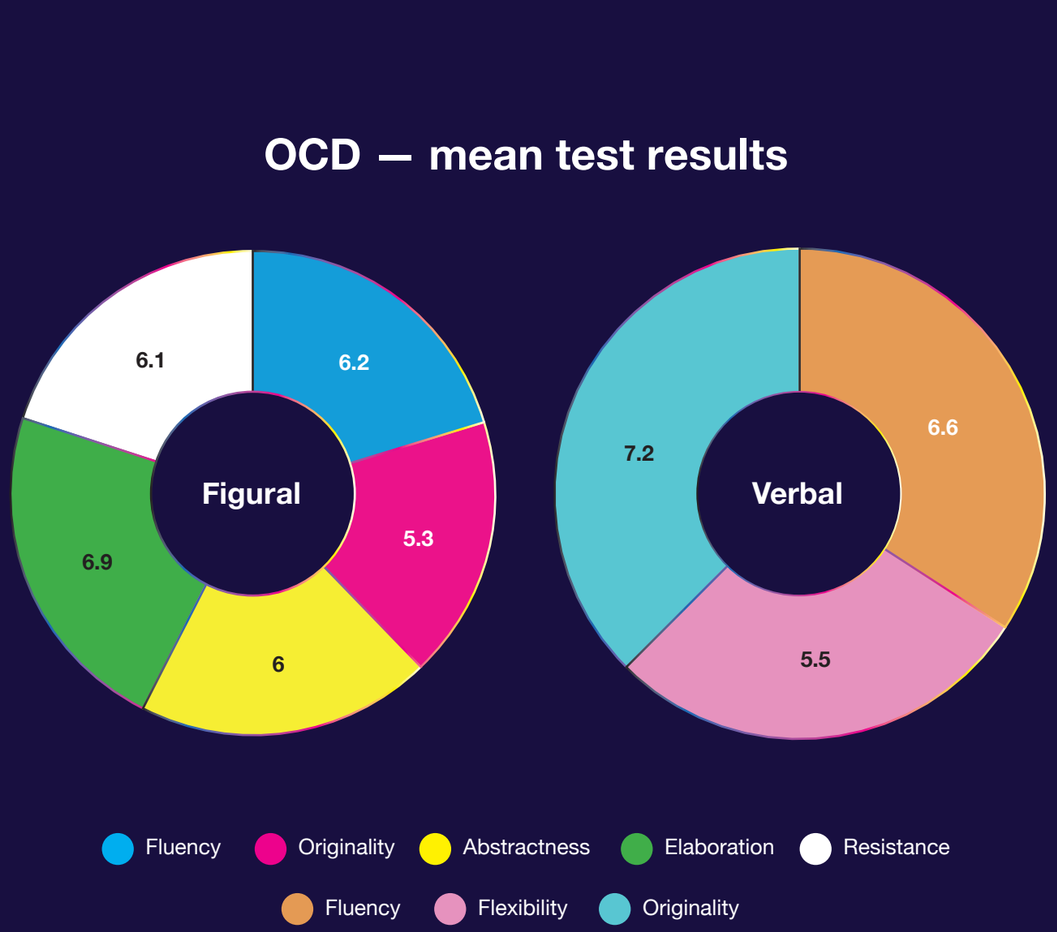
In figural tasks, the data shows moderate levels of fluency, which suggests that individuals with OCD can generate ideas, but perhaps not as prolifically or freely as other neurodivergent conditions. This may be influenced by the characteristic tendencies of OCD to focus intensely on specific details, which might hinder rapid ideation. The scores for originality are somewhat lower, indicating a challenge in generating highly unique or unconventional ideas. This could reflect a preference for order and symmetry, common in OCD, which might restrict more novel or abstract thinking (see page 16).

The scores for titles and elaboration are slightly higher than originality but still show significant variability, as indicated by the high deviations. This suggests that while there is potential to develop and title ideas, the ability to do so consistently might be disrupted by the intrusive and repetitive thoughts typical of OCD. Resistance to premature closure also shows moderate scores with considerable variability, pointing to potential difficulty in keeping the problem-solving process open.

In verbal tasks, fluency scores are slightly higher, implying a somewhat better ability to generate ideas in a linguistic format compared to visual formats. However, the flexibility score is notably lower, indicating a struggle with shifting between different concepts or perspectives. This aligns with the often rigid thought patterns associated with OCD, which may limit the ease with which individuals can adapt or consider alternative viewpoints.

Interestingly, originality in verbal tasks is comparatively higher and exhibits the most variability among all scores. This could suggest that when engaging with verbal content, participants with OCD can generate unique ideas more effectively than in visual tasks, although the consistency of this ability is variable. This might be due to the less visually structured nature of verbal thinking, which could provide fewer triggers for OCD symptoms compared to the more tangible and visually oriented figural tasks.

Overall, the data reflects that participants with OCD possess certain creative abilities but face challenges primarily related to the characteristic symptoms of OCD, such as a need for order, difficulty with cognitive flexibility and a tendency towards closure.



CORE COGNITIVE TRAITS:

Moderate fluency:
Demonstrates an ability to generate ideas, although less prolifically, with higher fluency noted in verbal tasks.

Lower originality:
Faces challenges in generating highly unique or unconventional ideas, particularly in figural tasks.

Limited flexibility:
Struggles with adapting and shifting between different concepts, more evident in verbal tasks.

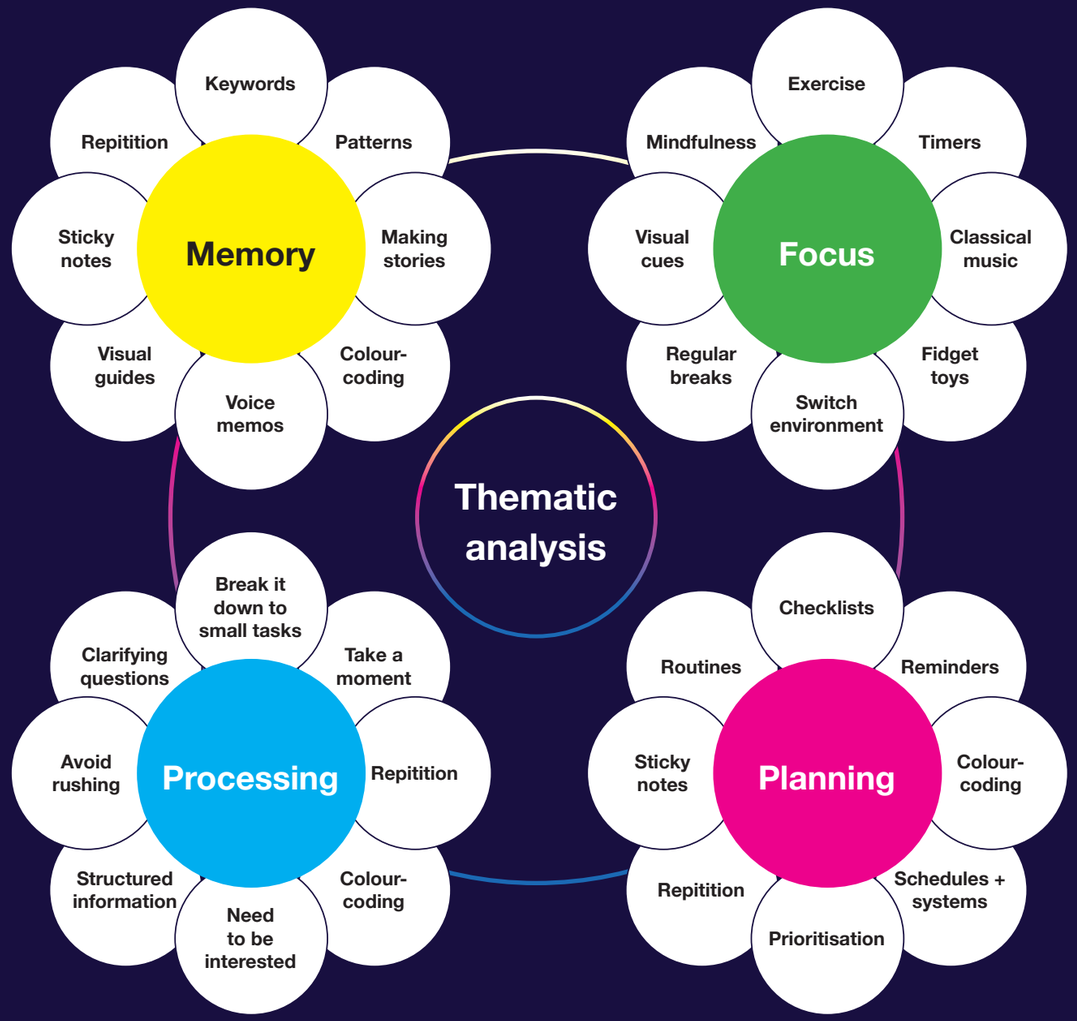
Variable elaboration and titles:
Shows potential in developing and titling ideas but with significant inconsistency.

Moderate resistance to closure:
Indicates difficulty in maintaining an open-ended problem-solving process with considerable variability.

Figure 17: OCD pie charts by Islaam, A (2024)

INDUCTIVE THEMATIC ANALYSIS

These interviews were conducted to gain a deeper understanding of elements that cannot be discerned solely from quantitative data. Utilising standardised, open-ended questions ensures uniformity and comparability of responses, vital for identifying consistent patterns, behaviours or perceptions across the studied population (Flick, 2009).



48 Figure 18: Thematic analysis by Islaam, A (2024)

Cross-condition commonalities

- **Structured task management:** Across all conditions, breaking down tasks into smaller, more manageable components is a universal strategy. This aids in reducing cognitive overload and improving task completion.
- **Visual and written supports:** Whether it's through digital planners, visual schedules or sticky notes, visual and written supports are a backbone for memory and organisation in ADHD, ASD, Dyslexia and OCD.
- **Prioritisation and scheduling:** Effective time management through prioritising tasks and using scheduling tools is common across all groups, essential for coping with daily demands and reducing stress.
- **Adaptability and environment control:** Modifying environments to suit individual sensory and cognitive needs, like quiet spaces or distraction-free settings is noted across conditions, enhancing focus and productivity.

ADHD

- **Breaking tasks into smaller steps:** This strategy helps manage overwhelming tasks by simplifying them into manageable parts. Participants across ADHD found this helpful to stay on task.
- **Use of timers and structured breaks:** This is frequently noted as aiding concentration, allowing for sustained mental effort with defined resting intervals.
- **Repetition and reminders:** Methods such as repetition, reminders (sticky notes, alarms), and auditory aids (classical music) are prominent, aiding memory retention and focus.

ASD

- **Visual and written aids:** Participants with ASD heavily rely on visual supports (photos, symbols, visual schedules) and detailed written instructions to comprehend and remember information.
- **Sensory management:** Techniques like using noise-cancelling headphones or creating sensory-friendly environments help in reducing distractions and enhancing focus.
- **Interest-based engagement:** The need to be interested in the subject to process and plan effectively is significant among ASD participants, similar to ADHD.

Dyslexia

- **Use of visual aids and storytelling:** Transforming information into visual formats or narratives helps in better retention and understanding. Visual aids are consistently used to support memory.
- **Structured information processing:** Similar to other conditions, breaking tasks into smaller tasks and asking clarifying questions are vital to help manage information processing.

OCD

- **Structured planning and detailed lists:** A high emphasis on structure and organisation, using detailed checklists, calendars, and prioritisation strategies to manage daily tasks and reduce anxiety.
- **Repetition and methodical review:** These participants often engage in repetitive behaviours and thorough methodological reviews to ensure accuracy and completeness in their tasks.

These shared strategies indicate a broad use of compensatory mechanisms that are tailored to each individual's needs but resonate across different neurological or psychological challenges. The overlap in methods suggests that certain cognitive and organisational tools are universally beneficial, irrespective of the specific condition.

SUMMARY OF PRIMARY ANALYSIS

Based on the comprehensive analysis from the Torrance Tests of Creative Thinking (TTCT) and thematic interviews, we have detailed insights into the creative profiles of individuals with ASD, ADHD, Dyslexia and OCD. These findings not only corroborate much of the existing researc but also reveal new insights into the unique strengths and potential obstacles of different neurodivergent populations and creative problem-solving. An expanded table utilising these findings is presented below, as originally introduced in the comparison figure on page 16.

Table 8: Expanded comparison of cognitive profiles by Islaam, A (2024)

Identified skills from secondary research
Identified skill gaps from secondary research
Identified skills from primary research
Identified skill gaps from primary research

Autism Spectrum Disorder (ASD)

- **Strengths**: Individuals with ASD demonstrate high levels of fluency and elaboration, indicating a strong ability to generate multiple ideas and develop them in depth, particularly in figural tasks.
- **Potential obstacles:** Originality and resistance to premature closure are comparatively lower, suggesting difficulties in generating highly unique ideas and exploring a single idea thoroughly before moving on.

Attention Deficit Hyperactivity Disorder (ADHD)

- **Strengths**: ADHD profiles show exceptionally high fluency and flexibility, especially in verbal tasks, reflecting an ability to rapidly generate a variety of ideas and switch between different thoughts or concepts effectively.
- **Potential obstacles:** While highly creative, individuals with ADHD might struggle with maintaining focus long enough to fully develop and close off ideas, as indicated by lower scores in resistance to premature closure.

Dyslexia

- **Strengths**: Individuals with dyslexia show notable capabilities in elaboration and verbal originality, suggesting they can expand well on ideas and produce highly original verbal content, possibly leveraging strong visual-spatial skills.
- **Potential obstacles:** There is significant variability in performance, particularly in maintaining an open-ended exploration and achieving consistent originality, reflecting potential difficulties in organizing and managing thought processes.

Obsessive-Compulsive Disorder (OCD)

- **Strengths**: In verbal tasks, originality is a standout, suggesting that OCD participants can produce unique ideas, particularly when the tasks are less visually structured and perhaps less triggering of OCD symptoms.
- **Potential obstacles:** OCD profiles indicate lower overall creativity scores, especially in flexibility and fluency in figural tasks, likely due to the rigid and repetitive thought patterns associated with OCD that hinder free ideation and cognitive flexibility.

Comparative Insights

- **Verbal vs. figural tasks**: ADHD and OCD individuals appear to perform differently across verbal and figural domains, with ADHD showing stronger verbal skills and OCD showing somewhat better originality in verbal tasks compared to figural tasks.
- **Fluency and flexibility**: ADHD profiles are characterised by high fluency and flexibility across tasks, unlike ASD and OCD, which show more moderate levels. Dyslexia shows a mixed performance but generally fares well in verbal fluency.
- **Elaboration and originality**: While all groups show some level of strength in originality, ASD and ADHD participants seem to excel in elaboration, indicating a richer development of ideas.

Each neurodivergent condition brings distinct creative strengths and challenges. ADHD participants may benefit from tasks that capitalise on their rapid ideation and flexibility, while those with ASD might excel in environments that allow deep, detailed exploration of concepts. Individuals with dyslexia could thrive in tasks requiring strong visual-spatial skills and creative verbal expression whereas those with OCD might perform better in structured environments that align with their need for order but still allow for creative expression in less visually oriented tasks.

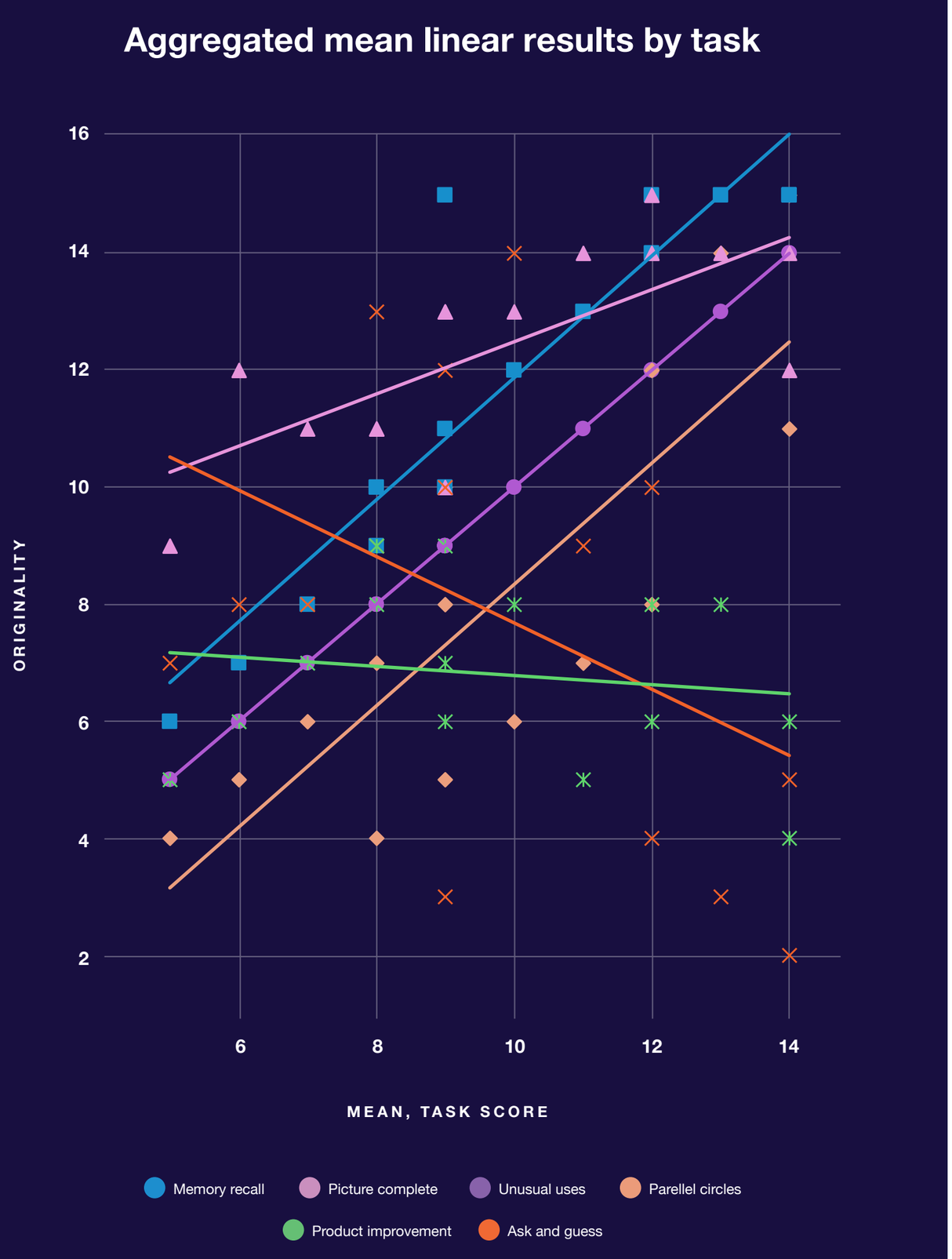


 Figure 19: Aggregated task results by Islaam, A (2024)

CONCLUSION

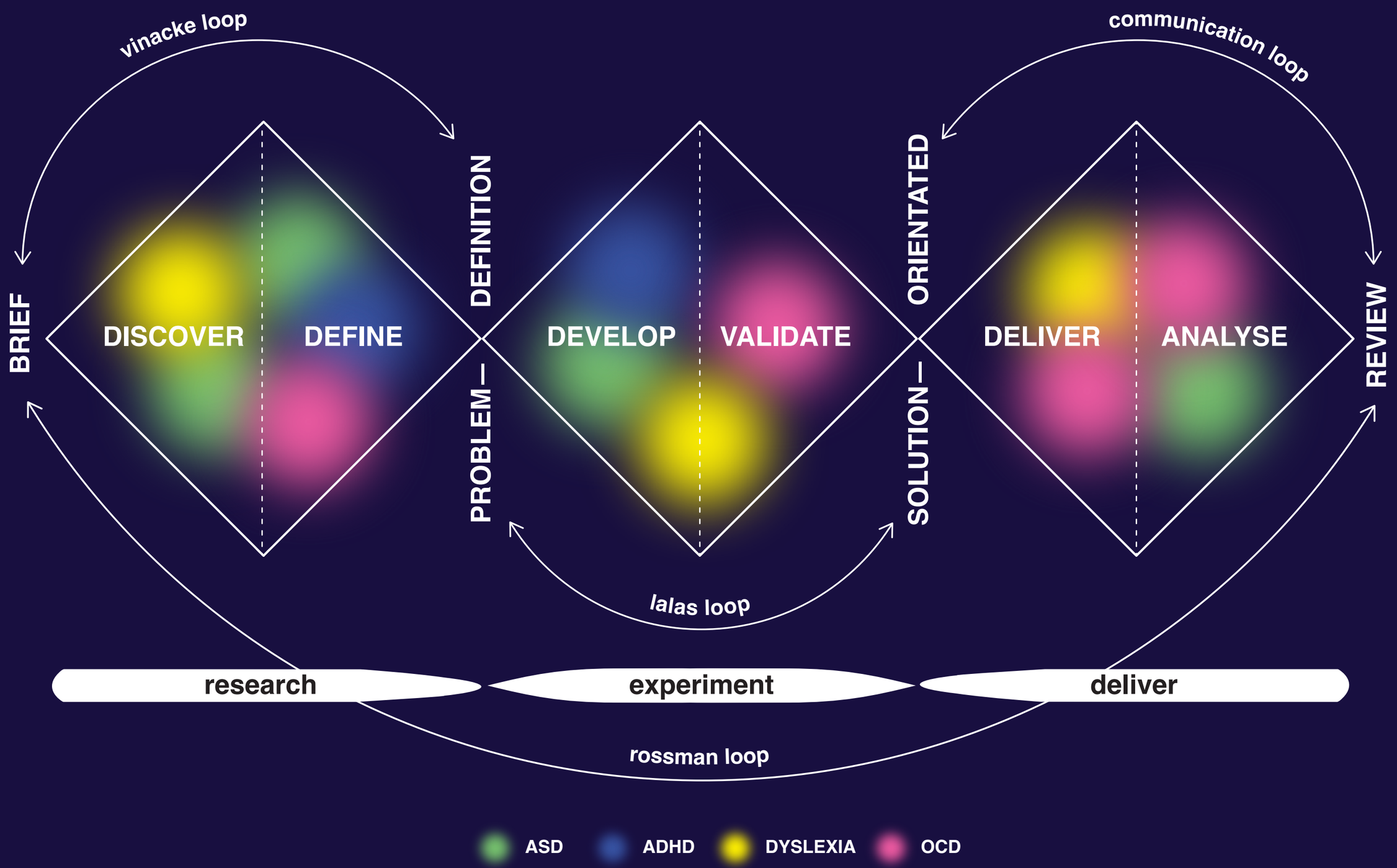
In interpreting these findings through the lens of neurodiversity, it is crucial to consider the diverse cognitive profiles and strengths inherent within neurodiverse populations. While no sweeping generalisations can be made, it is plausible that certain neurodiverse traits, such as heightened attention to detail or divergent thinking patterns, may influence performance across different tasks and creative problem-solving. Further research exploring the specific relationship between neurodiversity and creative problem-solving could provide valuable insights into harnessing the unique talents and perspectives of neurodiverse individuals.

Furthermore, the insights gleaned from this study underscore the importance of adopting a strengths-based approach to neurodiversity, recognising and celebrating the diverse talents and contributions of neurodiverse individuals. By reframing neurodiversity as a source of innovation and creativity rather than a deficit to be remedied employers, and society at large, can harness the full potential of neurodiverse populations to drive positive change and innovation across various creative industries.

Recommendation

TRIPLE DIAMOND + NEURODIVERSITY

See Appendix 8 for focus group analysis.



54 Figure 20: Triple Diamond reccomendation by Islaam, A (2024)

Combining the cognitive elements outlined on page 21 of each phase in the Double Diamond design framework (Design Council, 2023), along with the traits associated with neurodiverse conditions (refer to page 50), provides a deeper understanding of how neurodiversity can enrich and innovate each stage of the design process. Throughout the Triple Diamond model (Gray, 2019), the intentional blending of neurodiverse traits demonstrates adaptability across various stages.

In the Discover (Research) phase, key cognitive elements such as curiosity, openness, empathy and suspension of judgment play crucial roles. Neurodiverse traits, such as individuals with ASD, exhibit attention to detail and strong idea-generation capabilities, aiding in comprehensive exploration and understanding. Dyslexia fosters verbal idea generation and collaboration, facilitating effective brainstorming and communication of ideas. The Vinacke Loop, characterised by cycles between conscious idea generation and subconscious restructuring of concepts, aids in the development of innovative approaches during research, something individuals with ADHD excel at.

During the Define phase, critical cognitive elements encompass analysis, synthesis, critical thinking and decision-making. Neurodiverse traits associated with conditions such as ASD, ADHD and OCD prove particularly advantageous in this stage. ASD traits manifest in systematic thinking and accuracy, assisting in organising and analysing data meticulously. ADHD strengths lie in generating a wide array of ideas, beneficial for exploring possibilities before defining the main problem. OCD traits, such as attention to detail and systematic thinking, contribute to a meticulous approach to problem definition, enhancing clarity and precision.

In the Develop (Experiment) phase, cognitive elements such as creativity, innovation, iterative thinking and collaboration are essential. ASD strengths in idea development ensure thorough exploration and refinement of innovative solutions. ADHD attributes like risk-taking and flexibility aid in iterating designs and adapting to feedback. Dyslexia fosters collaboration and visual-spatial awareness, enhancing teamwork and envisioning practical applications. The Lalas Loop, which involves transitioning from experimentation to delivery through cycles of idea refinement and solution validation, leads to enhanced clarity and effectiveness in the final product suitable to individuals with OCD.

During the Deliver (Validate and Analyse) phase, key cognitive elements include execution, stress management and adaptability. Dyslexic traits such as entrepreneurial skills and flexibility assist in navigating project complexities and adapting based on feedback. OCD traits, including attention to detail and accuracy, ensure the final product meets defined standards. ASD strengths in precision and focus are crucial for the final analysis and delivery, ensuring alignment with user needs. Feedback loops like the Communication Loop, which facilitates continuous improvement and refinement of the design process through feedback between validation and ongoing experimentation stages, are crucial in this phase. Additionally, the Rossman Loop, involving revisiting earlier stages to incorporate new insights and adjust strategies as needed, ensures alignment with project objectives.

CONCLUSION

Each phase of the Triple Diamond framework benefits significantly from the unique traits associated with various neurodiverse conditions. The qualities of individuals with ASD, ADHD, dyslexia and OCD bring valuable perspectives and skills that can enhance the design process, from the initial research and discovery phase through to the final delivery and review. Embracing neurodiversity not only contributes to a more inclusive working environment but also enriches the creative and problem-solving processes, which are essential in design thinking.

Expanded, Triple Diamond table of results:

RESEARCH	
Discover	**Define**
ASD: • Attention to detail • Idea generation **Dyslexia**: • Attention to detail • Collaboration • Verbal idea generation	**ASD**: • Systematic thinking • Accuracy/Focus **ADHD:** • Idea generation **OCD:** • Attention to detail • Systematic thinking • Verbal idea generation
EXPERIMENT	
Develop	**Validate**
ASD: • Idea development **ADHD:** • Risk taking • Flexibility **Dyslexia:** • Collaboration • Idea development • Visual-spatial awareness	**Dyslexia:** • Systematic thinking • Entrepreneurial skills **OCD:** • Attention to detail • Systematic thinking • Accuracy/Focus
DELIVER	
Deliver	**Analyse**
Dyslexia: • Entrepreneurial skills • Flexibility • Collaboration **OCD:** • Attention to detail • Accuracy/Focus	**ASD:** • Accuracy/Focus **OCD:** • Attention to detail • Systematic thinking • Accuracy/Focus

Table 9: Triple Diamond cognitive associations by Islaam, A (2024)

Limitations and future research

Due to time limitations, the evaluation of “Leadership and Social Influence” and “Interconnectivity and Collaboration” as skills of the future (WEF, 2022) was not possible within the scope of this study. The Torrance Tests of Creative Thinking (TTCT), which were employed for assessing creativity, do not explicitly measure these dimensions. The TTCT primarily focuses on divergent thinking and does not encompass assessments for leadership qualities or the ability to collaborate and connect socially, which are recognised as critical components in the World Economic Forum’s agenda. This gap highlights the need for integrating more comprehensive evaluation tools that can capture a wider array of creative and interpersonal skills in future studies.

It is crucial to conduct future evaluations of the triple diamond framework to understand its practical application and to gather new insights for continuous improvement. Observing how neurotypical colleagues interact with and support neurodiverse individuals within this framework can provide valuable information. By studying these interactions, we can identify best practices and potential areas for enhancement. This approach not only helps in refining the framework but also promotes a more inclusive working environment. Understanding the dynamics between neurotypical and neurodiverse employees will aid in optimising the effectiveness of the triple diamond model, ensuring it meets the needs of all users more effectively.

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Appendix 1 – Research proposal

MAJOR PROJECT PROPOSAL. DES7064

How do cognitive and perceptual differences of neurodiverse individuals affect creative processes and outputs?

By Adam Islaam
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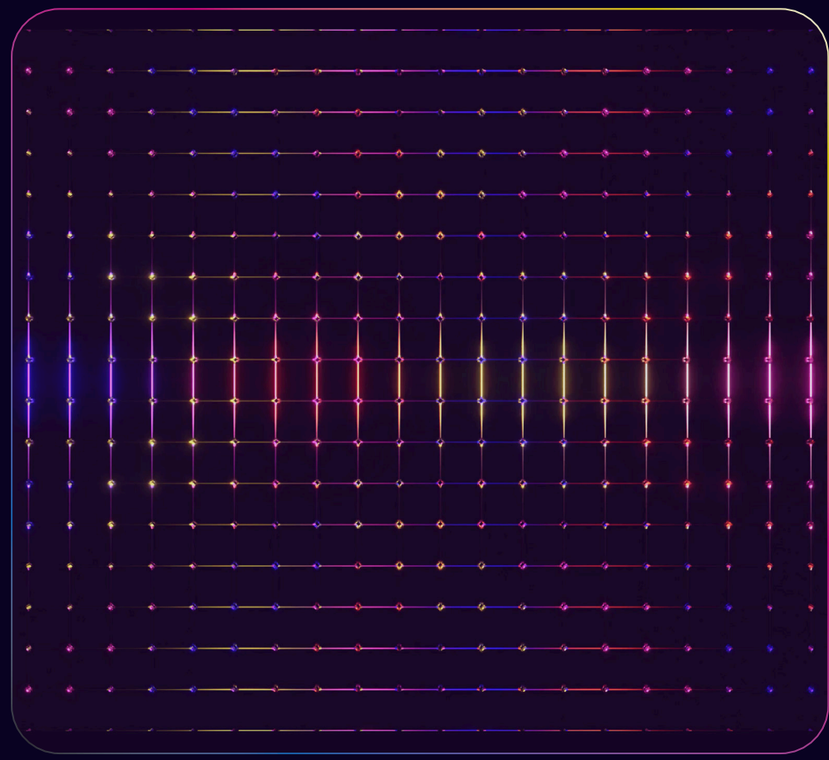


Contents

Introduction

The exploration of neurodiversity in the workplace represents a burgeoning field of study that intersects organisational behaviour, psychology and diversity management. The creative industries, known for their dynamic and evolving work environments, have increasingly recognised the importance of neurodiversity in fostering innovation and creativity. According to Austin and Pisano (2017), neurodiverse individuals bring unique perspectives and skills that can enhance creative processes and outcomes. However, the integration of neurodiverse talent remains a challenge with workplaces often not fully equipped to support their distinct needs (Robertson, 2009).

Numerous studies focus on a single aspect of neurodiversity (e.g., ASD or ADHD) in isolation when exploring cognition, integration and creativity. There is currently a shortage of comparative research across different neurodiverse conditions to understand how various neurocognitive profiles contribute to creative thinking and problem-solving uniquely.

The following neurodivergent conditions have been selected for the study as they are the most diagnosed ailments in the UK (NHS, 2022):

- **Autism Spectrum Disorder (ASD):** A neurodevelopmental disorder marked by enduring difficulties in social communication and reciprocity across various situations, alongside restricted, repetitive and stereotypical behaviour, interests and/or activities (Zaky, 2017).
- **Attention Deficit Hyperactivity Disorder (ADHD):** Individuals may have difficulty with attention, impulse control and hyperactivity, affecting their performance in diverse aspects of life like education, employment and interpersonal connections. Symptoms may encompass inattention, impulsiveness and hyperactivity, though they can differ significantly from person to person (Barkley, 2014).
- **Dyslexia:** A form of reading impairment characterised by consistent and unanticipated difficulties in achieving proficient reading skills, even with appropriate teaching methods, sufficient cognitive abilities and favourable socio-cultural circumstances (Shaywitz, 1998).
- **Obsessive Compulsive Disorder (OCD):** A heterogeneous condition characterised by recurrent, intrusive thoughts (obsessions) and repetitive behaviours or mental acts (compulsions) (Leckman et al., 2010).

This study aims to investigate individual contributions of people with ASD, ADHD, OCD and dyslexia to creative problem solving and how diverse cognitive profiles interact within team settings to influence creative collaboration and innovation. It acknowledges the unique

strengths and challenges associated with each condition and seeks to understand how these can complement each other in hybrid, neurotypical team environments, leading to potentially novel and innovative outcomes.

It's crucial to clarify that this study will not explore the optimal professional roles for various types of neurodivergence but will rather take a holistic approach to the design thinking process. Praslova et al. (2023) highlight an important consideration, noting, "stereotypical job fit recommendations may leave those with dual diagnoses or multiple neurodivergent traits without any suitable careers."

Keywords:

- Neurodiverse
- Neurotypical
- Cognition
- Perception
- Creativity
- Workplace dynamics
- Hybrid teams
- Innovation
- Mental health

Terminology:

ASD	Autism Spectrum Disorder
ADHD	Attention Deficit Hyperactivity Disorder
OCD	Obsessive Compulsive Disorder

Aims, objectives and research questions

Aims:

- To explore how neurodivergent problem-solving can innovate creative outputs and processes.
- To examine how workplace dynamics in hybrid teams can evolve to encourage alternative problem-solving by neurodiverse employees in hybrid teams.
- To identify strategies and practices that can leverage the unique strengths of neurodivergence to enhance creativity, innovation and productivity in creative industries.

Objectives:

- To catalog and describe the range of cognitive and perceptual differences that characterise neurodiversity among individuals working in creative industries.
- To examine how these cognitive and perceptual differences influence the dynamics of team collaboration, communication and conflict resolution in creative projects.
- To evaluate the effect of neurodiversity on the creative process and outputs.
- To identify and recommend best practices for managing neurodiverse teams in creative fields, focusing on structure, communication and conflict resolution strategies that harness the strengths of all team members.
- To develop practical frameworks that organisations in the creative industry can implement to support neurodiverse individuals and teams.

Research questions:

- How do specific cognitive and perceptual differences (e.g., those found in ASD, ADHD, Dyslexia) uniquely contribute to or challenge teamwork in creative contexts?
- How can creative processes be best suited to individuals with certain types of neurodiversity and how can teams be optimally composed to leverage these strengths?
- What specific communication strategies can be employed to facilitate better understanding and collaboration among neurodiverse team members in creative projects?
- How do environmental factors (e.g., workspace design, meeting structures, technology use) impact the productivity and creativity of neurodiverse teams?
- How can training programs for team leaders and members in creative fields be designed to increase awareness of neurodiversity and improve team dynamics and output quality?

Literature review

The term 'neurodiversity' was first coined by sociologist Judy Singer in 1998 in her article "Neurodiversity in Materials Science", Singer articulated the necessity of transforming the perception of autism from a medicalised disability into a burgeoning social movement (Fung et al., 2022). Today, neurodiversity encompasses various neurological conditions including autism spectrum disorder (ASD), attention deficit hyperactivity disorder (ADHD), obsessive compulsive disorder (OCD), dyslexia, epilepsy and more as normal variations in human cognition rather than deficits (Armstrong, 2012).

This perspective is particularly relevant in creative industries, where the unique strengths of neurodivergent individuals, such as the meticulous attention to detail often found in people with ASD (Grandin, 2009) or the innovative problem-solving abilities associated with ADHD (White and Shah, 2006), can lead to exceptional contributions. Research has linked creativity with right brain activity, magnetic resonance imaging (MRI) and positron emission tomography (PET) scanning have shown that the brain patterns of individuals with ADHD resemble those of highly creative individuals (Batty et al., 2010).

CONTEXT

In the UK, among 55.7% of NHS registered patients with a learning disability, there has been a significant increase in the diagnosis of autism from 21.4% in the 2017-18 period to 30.7% by 2021-22. Concurrently, the percentage of learning-disabled patients diagnosed with ADHD rose from 5.5% to 8.0% across the same timeframe. Additionally, the proportion of patients without a learning disability but diagnosed with ADHD increased from 0.5% to 0.8%. Notably, 4.8% of patients with a learning disability were diagnosed with both ADHD and Autism (NHS, 2022).

COGNITIVE PROFILES AND CREATIVITY

Whilst direct evidence specifically comparing creative problem-solving across various neurodiverse conditions is limited, there is substantial evidence supporting the unique creative capabilities within individual neurodiverse groups. The following are generalised characteristics of each condition:

Autism Spectrum Disorder (ASD)

A study by Happé and Vital (2009) suggested that individuals with autism may excel in tasks requiring strong systemising abilities and meticulous attention to detail, proving advantageous in fields that demand detailed analytical work and innovative solutions. Additionally, Livingston et al. (2020) observed heightened abilities in pattern recognition and logical reasoning among individuals with ASD, crucial components of innovative thinking.

Individuals with ASD also often display high levels of divergent thinking, adopting unconventional approaches to problem-solving (Sasson et al., 2017). Recent neuroimaging studies by Chávez-Eakle et al. (2007) have further shown distinct patterns of brain connectivity associated with enhanced creativity in individuals with ASD. Interestingly Baron-Cohen et al. (2015) found that individuals with ASD tend to score lower in terms of empathy than their neurotypical counterparts.

Attention Deficit Hyperactivity Disorder (ADHD)

White and Shah (2006) suggest that the impulsive nature of individuals with ADHD can lead to the generation of unconventional ideas, fostering creativity. Moreover, a meta-analysis by Runco and Jaeger (2012) revealed a positive correlation between ADHD symptoms and creative ideation across various age groups and settings. A recent behavioural study by Stoite et al. (2022) has also shown that individuals with ADHD exhibit enhanced cognitive flexibility, facilitating their capacity for generating numerous innovative solutions. In contrast, White and Shah (2006) observed the impulsive nature of individuals with ADHD can often lead to struggles with verbal fluency and inhibitory control.

Dyslexia

Menghini et al. (2010) found that individuals with dyslexia tend to rely more on visual strategies for problem-solving, which can enhance their creativity in certain domains. Recent neurocognitive research by Franceschini et al. (2013) has revealed distinct patterns of brain activation in individuals with dyslexia during visual-spatial tasks.

A report by Logan (2009) noted a higher incidence of dyslexia among entrepreneurs, suggesting that the coping strategies and creative problem-solving skills developed to navigate traditional educational challenges may contribute to entrepreneurial creativity and success. Additionally, Leather et al. (2011) found that individuals with dyslexia often exhibit strengths in identifying opportunities and thinking outside the box, critical skills for entrepreneurship. A comparative study, also by Logan (2009), has shown that individuals with dyslexia who pursue entrepreneurial endeavours often demonstrate resilience and adaptability in the face of challenges, contributing to their success in business ventures.

Obsessive-Compulsive Disorder (OCD)

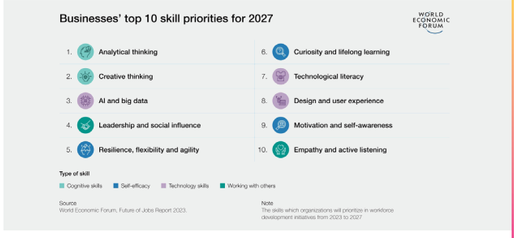
Individuals with OCD often exhibit a heightened attention to detail and a preference for order and symmetry, traits that can influence certain types of problem-solving and creative expression (Mancini (2018). Stamatis and Mamani (2020) demonstrated altered patterns of neural connectivity in individuals with OCD during tasks requiring creative problem-solving, suggesting potential neural mechanisms underlying their creative abilities. Individuals with OCD often excel in tasks requiring thoroughness, contributing to high-quality outcomes in creative projects (Coles et al., 2007). Moreover, neuroimaging research by Cocchi et al. (2011) has demonstrated that individuals with OCD show enhanced abilities in cognitive control, allowing them to maintain focus and accuracy during tasks.

	ASD	ADHD	Dyslexia	OCD
Attention to detail	■			■
Systematic thinking	■			■
Idea generation	■	■		
Risk-taking		■		■
Visual-spatial awareness			■	
Entrepreneurial skills			■	

Table 1. Comparison of cognitive profiles. Islaam, A (2024).

A study by McDowall, Doyle and Kiseleva (2023) of 990 neurodivergent employees and 127 employers in the UK found that over 80% of the neurodivergent employees exhibited hyperfocus, 78% demonstrated creativity, 75% engaged in innovative thinking, 71% excelled in detail processing and 64% exhibited authenticity in their interactions with colleagues. The study also emphasises the importance of recognising the strengths in neurodiverse thinking as well as suggesting there are numerous knowledge and attitude gaps in benchmarking and quality assurance in workplace contexts.

The aforementioned skills align with the World Economic Forum's identified top skills for 2027, emphasising the importance of individuals who are detail orientated, creative and divergent in the evolving landscape of work (World Economic Forum, 2023).



MENTAL HEALTH AND WELLBEING

Although skills demonstrated by neurodiverse individuals are perceived as advantageous, the UK Office of National Statistics (ONS, 2022) reports that among employed individuals with neurodivergence and disabilities, over 20% identified a mental health condition as the primary cause of their disability. This includes 17.6% reporting depression, anxiety or nervousness and 3.9% indicating other cognitive afflictions or disorders. Notably, depression, anxiety or nervousness emerged as the most prevalent type of impairment mentioned in the ONS Annual Population Survey. This is also reflected by the UK National Health Service as during the period of 2021-22, 21.2% of patients with a learning disability received treatment with antidepressants (NHS, 2022).

OBSTACLES

Cognitive and perceptual differences within neurodiversity can offer both advantages and challenges. While these differences enable some to excel in problem-solving that requires exceptional pattern recognition or creative thinking (Krzeminska et al., 2019) they may also

lead to difficulties in traditional workplace settings such as strict workflows, navigating social norms or managing sensory overload. Misunderstandings, communication challenges and accessibility are also significant challenges (Robertson, 2009).

Stigma is also prevalent in personal and professional environments. in 2022, 78% of autistic people in the UK were unemployed (ONS, 2022) whilst the National Autistic Society reports that 45% of neurodivergent individuals have either been forced out or have quit their jobs due to difficulties arising from misunderstandings. Currently, only one out of every 16 autistic adults holds a full-time job. Fox & Partners LLP has observed an increase in employment tribunal claims related to neurodiversity discrimination, with the number of cases rising to 93 in 2021, up from 70 in the previous year (Ash, 2022).

SUMMARY

While the above examples focus on individual neurodiverse conditions, they collectively suggest that different neurodiverse groups possess overlapping, yet unique cognitive and perceptual styles that can enhance creative abilities in distinct ways. The variability in thinking patterns, problem-solving approaches and perceptual sensitivities among these groups indicates a rich area for research into how these diverse cognitive profiles contribute to creativity both individually and in comparison to each other.

The influence of neurodiversity on creativity and innovation is increasingly recognised as a valuable asset within creative sectors. Neurodivergent individuals often bring novel approaches and perspectives to problem-solving and creative processes, enhancing the quality and innovation of creative outputs (Scott et al., 2014).

Their unique cognitive styles contribute to a richer diversity of thought, which is crucial for innovation in teams and can lead to ground-breaking advancements (Buetow et al., 2018). The role of neurodiverse individuals in fostering an environment where innovation thrives cannot be overstated, highlighting the importance of embracing cognitive diversity in creative collaborations (West, 2019). Despite these strengths, the literature also points to significant challenges faced by neurodivergent individuals, including higher rates of mental health issues and substantial barriers in employment and social acceptance.

This study will look to establish key connections and recommendations between design thinking processes, communication styles and where neurodiverse creativity can innovate and make impactful contributions.

Proposed methodology

A mixed-methods research design will be employed, incorporating both quantitative and qualitative approaches to capture the nuanced effects of neurodiversity on creative processes and outputs. This design allows for a comprehensive understanding of neurodiverse contributions to creativity and innovation, combining statistical analysis with ethnographic insights from participants.

The study will target a sample of individuals working in creative industries such as design, advertising, digital media and arts, with a particular focus on those who identify as neurodiverse (including ASD, ADHD, dyslexia and OCD) and their neurotypical colleagues. Recruitment will be through industry networks, social media platforms and organisations supporting neurodiversity in the workplace.

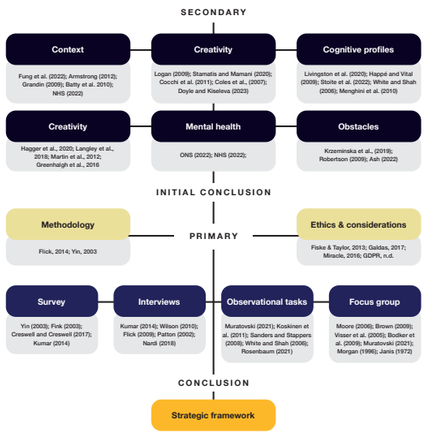


Figure 1. Proposed methodology. Islaam, A (2024)

SURVEY

An online survey will be conducted to collect quantitative data and insights from a segment of the population at a particular moment in time (Yin, 2003). Concerning this study, the sample will involve individuals with ASD, ADHD, dyslexia and OCD. A separate survey may be necessary for neurotypical colleagues to further understand phenomena relating to experience and perceptions of neurodivergent processes, creativity, communication styles and workplace dynamics.

The rationale behind conducting surveys encompasses the following key objectives:

- **Descriptive analysis**: To describe the characteristics of a large population, making it feasible to collect data on lived experiences or perceptions including attitudes, preferences and behaviours (Fink, 2003).
- **Explanatory research**: To explain relationships between variables and to test hypotheses that have been formulated after the initial exploratory research phase (Creswell and Creswell, 2017).

Expected results from conducting a survey

The results expected from conducting a survey include numerical data that can be analysed statistically and thematically to identify patterns, trends and correlations among variables.

Disadvantages

Kumar (2014) describes the following disadvantages to consider when conducting a survey:

Low response rate

- Explaining the purpose clearly and concisely whilst making sure the length and design of each question is suitable to the participant is essential to lessen a low response rate.

Fewer opportunities to clarify issues

- Respondents typically do not have an opportunity to ask the researcher for clarity if a question is perplexing. The clarity and design of each survey question is paramount to prevent or lessen misinterpretation of a questions meaning.

Spontaneous responses

- Could be a foreseen issue concerning individuals with ADHD. To mitigate this, conducting some surveys in person dependent on location and available time may be appropriate.

OBSERVATIONAL TASK

Observational methodologies involve systematically observing participant interactions with tasks, products or environments and attentively noting behaviours, challenges and preferences without direct intervention. This approach provides contextual insights into cognition and perception, informing a human-centric design process. (Muratovski, 2021).

The rationale behind conducting observational research encompasses the following key objectives:

- **Comprehending behaviour and context**: To grasp the natural dynamics of cognition and interactions within specific contexts. It unveils deviations between actual and intended behaviour, revealing avenues for innovation (Koskinen et al., 2011).
- **Identification of needs**: To uncover latent needs that participants may not overtly express. This deep understanding fosters the creation of innovative and human-centred design solutions (Sanders and Stappers, 2008).

Example case study

The Unusual Uses Test (UUT) is recognised as a key indicator for assessing divergent thinking, inviting participants to come up with as many applications as possible for a mundane object, such as a brick, for example constructing a dwelling or paving a drive. The diversity, originality and versatility of the responses are indicators of an individual's capacity for divergent thinking (Torrance, 1974). Research conducted by White and Shah (2006) found that individuals with ADHD outperformed their non-ADHD counterparts on the UUT. However, these same individuals with ADHD did not perform as well on the Remote Associates Test (RAT) and the semantic Incidental Operant Response (IOR) task when compared to those without ADHD. The study indicated that the relationship between ADHD and creative potential was, to some extent, influenced by differences in inhibitory control.

Expected results from observational tasks

Observational tasks yield in-depth qualitative and quantitative insights offering a nuanced understanding of participant behaviours, preferences and socio-cultural contexts, surpassing the limitations of surveys or interviews alone (Rosenbaum, 2021).

Disadvantages

According to Maxwell (2013), the following disadvantages should be considered with observational research tasks:

Time and resource intensive

- Observational research can be time consuming and resource intensive, requiring significant investment in personnel and equipment.

Observer bias

- The presence of an observer can influence the behaviour of participants, leading to unnatural or biased responses.

Interpretation

- Interpreting observational data can be subjective and prone to misinterpretation, as it relies heavily on the observer's perception and judgment.

STRUCTURED INTERVIEW

Structured interviews consisting of open-ended questions will be conducted to provide comparable, uniform answers between neurodiverse and neurotypical participants. Open ended questions allow for a wealth of qualitative data concerning patterns, behaviors or perceptions across a population. Content analysis grounded in thematic analysis will be explored (Kumar, 2014).

The purpose of conducting a structured interview encompasses the following key objectives:

- **Standardisation**: Ensuring that each participant is asked the same questions in the same order, reducing interviewer bias and enhancing the reliability of the data collected. This standardisation facilitates the comparison of responses across participants (Wilson, 2010).
- **Replicability**: The structured format enhances the replicability of the research. Other researchers can repeat the study using the same interview protocol to verify findings or to conduct longitudinal studies that track changes over time (Flick, 2009).

Disadvantages

Limited depth and flexibility

- Structured interviews, due to their pre-defined set of questions, may not allow for the exploration of unexpected topics or in-depth discussions. This can result in missing nuanced insights that open-ended conversations might reveal (Bryman, 2016).

Respondent's perspective may be overlooked

- The fixed nature of questions might not capture the participant's viewpoint, complexities of their experiences or the context of their responses, leading to potentially superficial data (Patton, 2002).

Social desirability bias

- The presence of the interviewer and the formal setting of structured interviews can lead to social desirability bias, where participants might answer in a way they believe is expected or acceptable, rather than truthfully. The participants comfort level with the interviewer can also affect results (Nardi, 2018).

Example questions

Can you please tell me about your role and experience in the creative industry?	
Do you identify as neurodiverse, or have you worked closely with colleagues who are neurodiverse?	
Neurotypical	**Neurodiverse**
In your experience, how does neurodiversity impact the creative process within your team or personal work?	**In what ways do you think your neurodiversity influences your approach to the creative process?**
Can you share specific instances where neurodiverse thinking contributed to problem-solving or innovation in a project?	Can you provide examples where your neurodiverse perspective has led to unique solutions or innovations in projects?
How do communication styles vary among neurodiverse and neurotypical team members in your experience?	**How do you experience communication within your team or with colleagues? Are there any challenges or advantages you've noticed due to neurodiversity?**
What strategies have been effective in facilitating collaboration and understanding within diverse teams?	What strategies or accommodations have helped improve collaboration and understanding between you and your neurotypical colleagues?
What challenges, if any, have you or your neurodiverse colleagues faced in the workplace, particularly related to creativity and innovation?	**What specific challenges have you encountered in the workplace related to your neurodiversity, especially regarding creativity and innovation?**
How have these challenges been addressed, and what solutions or accommodations have been most effective?	How have these challenges been addressed? Are there particular solutions or accommodations that you found helpful?
What forms of support do you believe are essential for fostering an inclusive environment that maximises the creative potential of neurodiverse individuals?	**What kind of support do you think is crucial for creating an inclusive environment that leverages the creative abilities of neurodiverse individuals?**
Are there specific policies, programs or practices in place within your organisation that support neurodiversity?	Are there any specific policies, programs, or practices your organization has implemented that you find supportive of neurodiversity?
Based on your experiences, what do you believe are the key benefits of embracing neurodiversity in creative industries?	**From your perspective, what are the major benefits of including neurodiverse individuals in creative projects and teams?**
What recommendations would you make to organisations looking to better integrate and support neurodiverse talent?	Based on your experiences, what recommendations would you give to organizations to better support and integrate neurodiverse talent?

FOCUS GROUP

The study will offer an opportunity for neurodiverse participants to co-design a design thinking process that proposes when, how and why neurodivergent thinking could enhance innovation in creative problem-solving (Moore, 2006).

The purpose of conducting a focus group encompasses the following key objectives:

- **Validation of assumptions**: Focus groups serve to validate or challenge assumptions based on direct participant observation, ensuring that recommendations and decisions remain grounded in authentic behaviour and needs (Brown, 2009).
- **Idea generation and innovation**: Co-design sessions leverage the collective creativity of the group, facilitating the generation of innovative ideas and solutions. The collaborative environment encourages diverse perspectives, leading to more creative and often unexpected solutions (Visser et al., 2005).
- **Iterative feedback and refinement**: These sessions allow for the immediate sharing of feedback on design concepts and prototypes. This iterative process of critique and refinement is vital for rapidly evolving a design to better meet individual needs (Bodker et al., 2009).|

Expected results from observational tasks

To observe how participants interact to the identical questioning, how they moderate their opinions, react to differing perspectives and how disagreements are managed as well as collective problem-solving (Muratovski, 2021). Presenting previous findings for data and process validation will also be benefical.

Disadvantages

According to Maxwell (2013), the following disadvantages should be considered with observational research tasks:

Group dynamics and dominance

- The dynamics within a focus group can lead to certain individuals dominating the conversation, potentially overshadowing quieter participants and skewing the data collected. This can result in a bias towards the opinions of more vocal participants, limiting the diversity of input (Morgan, 1996).

Consensus difficulty

- Reaching a consensus in co-design sessions with diverse participants can be challenging. Conflicting opinions and interests may hinder the decision-making process, leading to compromises that might not fully satisfy any party (Lauren, 2007).

Risk of groupthink

- There is a risk that participants in a co-design session may conform to group opinions, suppressing dissenting views in favor of harmony. This phenomenon, known as groupthink, can stifle innovation and lead to less optimal design outcomes (Janis, 1972).

SAMPLING

Concerning this study, the sample will primarily focus on the neurodiverse population. To stratisfy this population, individuals with ASD, ADHD, dyslexia and OCD have been selected as the most diagnosed ailments in the UK. As males have higher rates of neurodiversity a higher proportion of male participants is expected (NHS, 2022). Equals numbers of each neurodiverse condition will be necessary to ensure my data is balanced. Access will be through industry and personal networks, social media platforms and organisations supporting neurodiversity in the workplace.

Neurotypical individuals will also be included for contextual and comparative data.

ETHICS AND LIMITATIONS

Ethical considerations are crucial in research to ensure the rights and well-being of participants are protected. Here are some key points (Larson, 2009):

- **Informed consent:** Obtain informed consent from participants, ensuring they understand the nature of the study, risks, benefits and their right to withdraw at any time.
- **Confidentiality and anonymity:** Protect participants' privacy by ensuring that their identity and responses are kept confidential or anonymised as appropriate.
- **Avoiding harm:** Take measures to minimise any potential harm or discomfort to participants. Ensure that risks are minimised and justified by the potential benefits of the research.
- **Deception:** Minimise the use of deception in research and ensure that any deception used is justified and does not cause undue harm.
- **Conflict of interest:** Disclose any potential conflicts of interest that could bias the research findings or compromise the integrity of the study.
- **Data handling and storage:** Follow ethical guidelines for the handling, storage and disposal of data to ensure security and prevent unauthorised access.

SUMMARY

A mixed-methods research design will be employed. This design integrates both quantitative and qualitative approaches, allowing for a comprehensive exploration of neurodiverse contributions to creativity and innovation. By combining statistical analysis with ethnographic insights from participants, the study aims to capture the nuanced effects of neurodiversity on creative processes and outputs.

The research will target individuals working in creative industries such as design, advertising, digital media and arts. This focus will provide insights into how neurodiversity influences creativity within professional contexts. Recruitment will be conducted through industry and personal networks, social media platforms and organizations supporting neurodiversity in the workplace. By involving both numerous neurodiverse populations and their neurotypical colleagues the study will enable comparative analysis and a deeper understanding of the dynamics at play during the creative process.

Multiple sources of evidence and triangulation of findings from interviews, surveys, observations and focus groups will strengthen the quality and overall findings (Yin, 2003).

Conclusion

Numerous studies often focus solely on one aspect of neurodiversity, like ASD or ADHD, in isolation when exploring cognition, integration and creativity. Currently, there is a shortage of comparative research across different neurodiverse conditions to understand how various neurocognitive profiles uniquely contribute to creative thinking and problem-solving.

The proposed methodology for this study aims to explore the intricate relationship between neurodiversity and creative processes within various UK creative industries. Neurodiversity refers to the spectrum of neurological differences such as autism spectrum disorder (ASD), attention deficit hyperactivity disorder (ADHD), dyslexia, and obsessive-compulsive disorder (OCD). These differences can manifest in unique perspectives and approaches to problem-solving and creativity. Understanding how neurodiversity influences creativity is essential for fostering inclusive environments that harness the full potential of diverse talents.

The research aims to empirically demonstrate the unique contributions of neurodiverse individuals to creativity and innovation in UK creative industries by identifying specific cognitive and perceptual styles that have the potential to enhance specific stages of design thinking within the creative processes. The study hopes to inform practices and policies that leverage neurodiversity as a strength, fostering more inclusive and innovative creative work environments.

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Appendix 2 – Design thinking methodologies

Design thinking is a methodology used primarily for solving complex problems and discovering desirable solutions for clients. A design mindset is not problem-focused, it's solution-focused and action-oriented. It involves both analysis and imagination. Below is a table of some well-known design thinking frameworks along with their authors:

These frameworks share commonalities but often emphasise different aspects of the process or adapt it for specific contexts or industries. Each framework's approach to iterative design, emphasis on user needs and phases of ideation and prototyping reflect a broad but consistent understanding of design thinking principles.

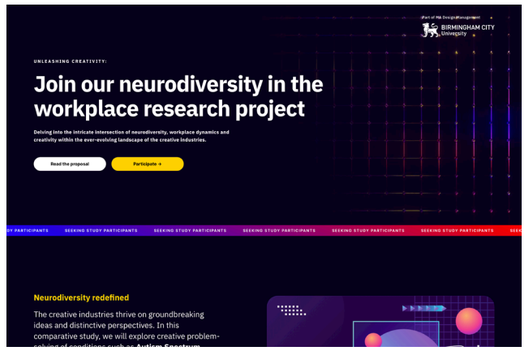
Framework	Author(s)	Brief Description
d.school Model	Hasso Plattner Institute of Design at Stanford	Emphasizes five phases: Empathize, Define, Ideate, Prototype, Test.
Double Diamond	British Design Council	Consists of four stages: Discover, Define, Develop, Deliver. This model emphasizes diverging and converging thought processes.
IDEO's Design Thinking	IDEO	Focuses on the same five phases as the d.school but with IDEO's unique touch on applying the methodology to business and innovation.
IBM Design Thinking	IBM	A loop of Observe, Reflect, Make. It also includes key concepts like Hills, Playbacks, and Sponsor Users.
Google Ventures (GV) Design Sprint	Jake Knapp and others at Google Ventures	A five-day process for answering critical business questions through design, prototyping, and testing ideas with customers.
Lean UX	Jeff Gothelf and Josh Seiden	Focuses on the actual experience being designed, rather than deliverables. It is highly iterative and integrates Lean and Agile principles.
Circular Design	Ellen MacArthur Foundation	Applies principles of the circular economy to design thinking, focusing on sustainability and designing out waste.
Human-Centered Design (HCD)	IDEO and other contributors	Another name for the broader design thinking process, stressing the need for empathy and a focus on people in the design process.

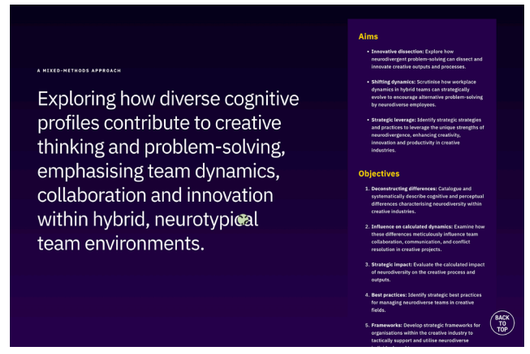
Appendix 3 - Campaign for participants

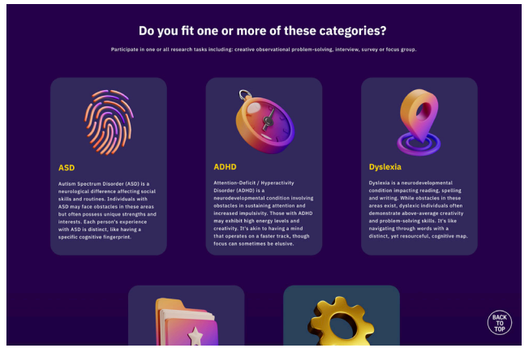
SOCIAL MEDIA CAMPAIGN

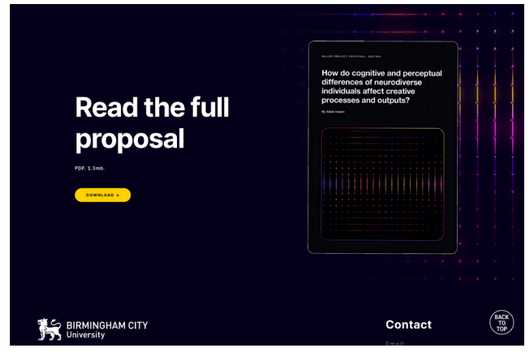
A social media campaign was launched on Feburary 25th 2024 to utilise my network (and their networks) in finding neurodiverse participants for this study. I utilised LinkedIn, Instagram, Facebook and X (Twitter). In total I received 10 participants through this campaign, others were contacted directly to participate.

WEBSITE









PARTICIPANT CONSENT

Participants were guided to the website and asked to fill in a form confirming they had read and understood the information provided and voluntarily agreed to participate in this research study. The following text was used to inform participants of the conditions of participating in this study:

Voluntary participation and withdrawal:

Your participation in this study is entirely voluntary, you may withdraw at any time before May 1st 2024 without any consequences. If you have participated and would like your data removed from this study please contact the researcher Adam Islaam, Adam.Islaam@mail.bcu.ac.uk

Confidentiality:

All information provided will be kept confidential. Your identity will be protected and data will be reported in aggregate form. No personally identifiable information will be disclosed.

Participant inclusion criteria:

- Individuals aged 18 years and above.
- Currently or previously employed in a creative industry.
- Diagnosed with either Autism Spectrum Disorder (ASD), Attention Deficit Hyperactivity Disorder (ADHD) and/or Dyslexia or Obsessive Compulsive Disorder (OCD).
- Neurotypical individuals who currently or have previously worked alongside neurodivergent colleagues.

Participant exclusion criteria:

- Individuals below 18 years of age.
- Not currently or previously employed in a creative industry.

Study procedures:

- If you agree to participate, you will be required to provide informed consent.
- You will be asked to complete a questionnaire.
- Participation involves interviews and observations related to your experiences in the workplace.
- Your identity will be kept confidential and your responses anonymised.

Risks and benefits:

There are minimal risks associated with participation, such as potential discomfort when discussing personal experiences. The benefits include contributing to a better understanding of neurodiversity in the workplace, potentially leading to improved practices in creative industries.

Contact Information:

If you have any questions or concerns about the study, you may contact the researcher Adam Islaam, at Adam.Islaam@mail.bcu.ac.uk

More information on BCU research ethics can be found here: https://www.bcu.ac.uk/research/areas/research-integrity/research-ethics

Appendix 4 – Cognitive creative tests

Disability determination relies partly on identifying signs and symptoms of impairments. Physical symptoms are typically straightforward to detect through a general medical examination. However, documenting cognitive or functional impairments, often claimed by disability applicants, is more challenging (Sweet et al., 2011). Relying solely on clinical interviews is inadequate for assessing cognitive impairments due to two primary reasons:

(1) participants often have difficulty accurately reporting their own cognitive functioning (Edmonds et al., 2014), and

(2) clinicians without neuropsychological test results are unreliable judges of participants' cognitive abilities (Moritz et al., 2005).

Psychological testing plays a crucial role in evaluating cognitive functioning, which includes intellectual capacity, attention, processing speed, language, visual-spatial abilities, and memory. Assessing sensorimotor and psychomotor functioning alongside cognitive abilities helps clarify the basis of cognitive impairments, making them essential in neuropsychological evaluations. These abilities require formal standardised psychometric assessment for detailed evaluation (Farias et al., 2008).

The UK Social Security Administration is revising functional domains to align with work settings, emphasising the importance of psychological testing. Cognitive testing can contribute significantly to assessing these proposed functional domains.

METHODS

A standard psychological or neuropsychological assessment is comprehensive and may involve both cognitive and non-cognitive evaluation methods. These assessments generally involve:

1. conducting a clinical interview,
2. administering standardised psychological tests for cognitive or non-cognitive functions, and
3. dedicating professional time to interpret and synthesise the gathered data.

In developing any reliable psychological measure, clear methods for administering tasks are crucial. These methods are used consistently by all examiners during data collection, ensuring reliability. Standard administration practices include providing a quiet environment, reading instructions precisely, and supplying necessary tools. Adhering to these procedures allows for accurate evaluation of individuals based on normative data. Deviating from standardised administration can lead to overestimation or underestimation of abilities due to variations in instructions or guidance provided (Lezak et al., 2012).

Specifically focusing on neurocognitive functioning, the US Social Security Disability Advice (SSA) evaluates mental residual functional capacity by appraising 15 abilities across six main categories:

- general cognitive/intellectual ability,
- language and communication,
- memory acquisition,
- attention and distractibility,
- processing speed, and
- executive functioning

Each of these abilities has been shown to predict an individual's capacity to work or their level of occupational attainment, whether they have mental disorders or are healthy adults.

EXPLORATION OF TESTS

Structure of Intelligence (SOI)

The Structure of Intelligence (SOI) is a theoretical framework that aims to understand and describe the underlying structure of human intelligence. Developed by psychologist J.P. Guilford, SOI proposes a multidimensional model of intelligence that goes beyond traditional views of intelligence as a single, unitary construct (Guilford, 1979).

Guilford's SOI model suggests that intelligence is composed of multiple distinct factors, each representing different facets or dimensions of cognitive functioning. These dimensions include:

1. **Operations**: These are the mental processes or operations involved in cognitive tasks, such as perception, memory, divergent thinking and convergent thinking.

2. **Contents**: This refers to the types of information or content that are processed during cognitive tasks, such as visual, auditory, symbolic or semantic information.

3. **Products:** These are the outcomes or results of cognitive processes, such as ideas, solutions, or responses generated during problem-solving tasks.

4. **Conditions**: These are the situational or contextual factors that influence cognitive processing, such as time constraints, task instructions or environmental cues (Guilford, 1979).

According to Goertzel (2013) Guilford proposed that each dimension of intelligence could be further subdivided into specific abilities or factors. For example, under the operations dimension, Guilford identified several specific abilities, including divergent production (the ability to generate multiple solutions to a problem), convergent production (the ability to find the single correct answer to a problem) and memory retrieval (the ability to recall information from memory).

One of the key contributions of the SOI model is its emphasis on divergent thinking, which Guilford considered to be a central aspect of creative intelligence. Divergent thinking involves generating multiple novel and unique solutions to a problem, rather than converging on a single correct answer. Guilford believed that divergent thinking was essential for creative problem-solving and innovation.

The SOI framework has been influential in shaping our understanding of intelligence and creativity, particularly in the fields of psychology, education, and creativity research. It has inspired numerous assessments and measures designed to measure the various dimensions of intelligence proposed by Guilford, as well as interventions aimed at fostering creative thinking and problem-solving skills (Goertzel, 2013).

Torrance Tests of Creative Thinking (TTCT)

The Torrance® Tests of Creative Thinking are widely used assessments known for their reliability. They require examinees to draw or write about their life experiences, assessing various mental characteristics such as fluency, originality, and flexibility. These tests have been utilised for identifying creatively gifted individuals and are part of gifted matrices in the USA and worldwide, particularly in multicultural settings and with special populations (Torrance, E.P., 1966).

The tests can be split into two; Figural and Verbal:

1. Figural: tasks that require participants to draw or construct creative figures or images based on specific instructions or stimuli.

2. Verbal: tasks that prompt participants to generate creative responses verbally, such as coming up with unusual uses for common objects or completing incomplete figures.

Scoring for the Figural TTCT involves three activities: Picture Construction, Picture Completion and Parallel Lines or Circles, which are evaluated based on five key criteria:

1. Fluency assesses the quantity of meaningful ideas generated, indicating the richness of thought.

2. Originality measures the uniqueness of responses compared to standard norms, highlighting innovative thinking.

3. Elaboration evaluates the level of detail or development added to ideas, indicating the ability to expand upon concepts.

4. Abstractness of Titles gauges the degree of abstraction in captions, reflecting the ability to capture underlying meanings.

5. Resistance to Premature Closure assesses the ability to keep an open mind and consider multiple possibilities.

Similarly, scoring for the Verbal TTCT involves tasks such as asking and guessing, product improvement, and unusual uses, evaluated based on three main criteria:

1. Fluency measures the total number of relevant responses provided.

2. Flexibility assesses the ability to shift perspectives or thought paths.

3. Originality evaluates the uniqueness of ideas or answers.

Each criterion's total score is calculated and combined to determine an overall creativity score for both versions of the test.

Selected test examples:

Included in this list are references to the Triangulation of global future skills (World Economic Forum, 2023), the future of work in the UK (GOV, 2014) and neurodiverse cognitive profiles (see page 18):

Figural:

1. **Picture completion**: Participants are given incomplete pictures and are asked to finish them creatively, using their imagination to add missing elements.
    a. Shape: An incomplete circle with a portion missing.
    b. Prompt: "Draw something that could fit into the missing part of this circle to create a complete picture."
        i. TTCT: Originality
        ii. WEF reference: Creative thinking

2. **Parallel lines or circles:** Participants are presented with a series of parallel lines or circles and are instructed to transform them into recognisable objects or images.
    a. Shape: A series of parallel lines.
    b. Prompt: "Transform these lines into a recognisable object or scene."
        i. TCTT: Elaboration
        ii. WEF reference: Analytical thinking

3. **Figure drawing:** Participants are asked to draw specific objects or scenes based on verbal prompts or descriptions.
    a. Prompt: "Draw a scene of a busy city street with as much detail as you can."

i. TCTT: Fluency

ii. WEF reference: Creative thinking

Verbal:

1. **Unusual uses**: Participants are given everyday objects (e.g., a paperclip) and are asked to generate as many unusual or creative uses for them as possible within a given time limit.

    a. Object: Paperclip

    b. Prompt: “List as many unusual or creative uses for a paperclip as you can think of.”

        i. TCTT: Fluency

        ii. WEF reference: Creative thinking/Adaptibility

2. **Ask and guess:** Participants engage in a verbal exchange where they take turns asking and guessing questions to stimulate creative thinking and problem-solving.

    a. Prompt: “You are given the word ‘umbrella.’ Ask questions to guess what item I am thinking of.”

        i. TCTT: Flexibility

        ii. WEF reference: Curiosity and learning

3. **Product improvement:** Participants are shown a common product (e.g., a pencil) and are tasked with suggesting innovative improvements or modifications to enhance its design or functionality.

    a. Product: Mobile phone

    b. Prompt: “How would you improve the design or functionality of a mobile phone to make it more useful or innovative?”

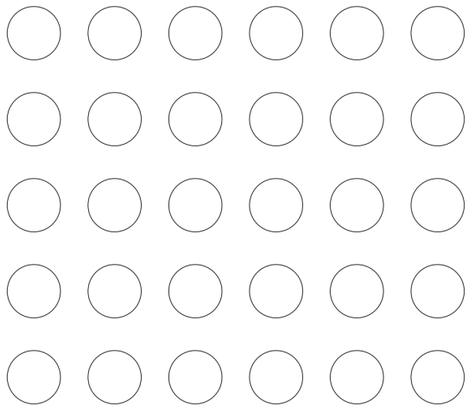
        i. TCTT: Resistance to premature closure

        ii. WEF reference: Creative and analytical thinking

•

Tim Brown’s Creativity and Play

In his TED talk “Tales of Creativity and Play,” Brown conducts two tasks to illustrate learned inhibitions. Firstly, he asks audience members to draw the person next to them in 30 seconds, revealing immediate self-criticism driven by fear of judgment by the subject. Secondly, he prompts participants to transform 30 circles into various objects within a minute, demonstrating a tendency to prioritise quality over quantity. Despite explicit instructions, many discard ideas prematurely. This highlights the potential value of overlooked concepts (Wilshere, 2017).



There is an identical task by TTCT mentioned above: the parallel lines or circles test. It was originally devised as a nonverbal assessment of ideational fluency and flexibility. Subsequent modifications aimed to emphasise originality and elaboration. The test utilises two printed forms. In one version, participants are presented with a page containing forty-two circles and instructed to sketch objects or pictures prominently featuring circles. In the alternative version, parallel lines are used instead of circles (Torrance, E.P., 1966).

These tasks, when compared to the SSA’s evaluation of mental residual functional capacity, utilise the following neurocognitive functions (in bold):

- general cognitive/intellectual ability,
- language and communication,
- memory acquisition, (could be tested if a participant is asked to draw the person next to them from memory)
- attention and distractibility,
- processing speed, and
- executive functioning

As I plan on testing participants online, this one may be difficult to conduct and analyse as participants may be unfamiliar or need guidance on how to draw using certain software.

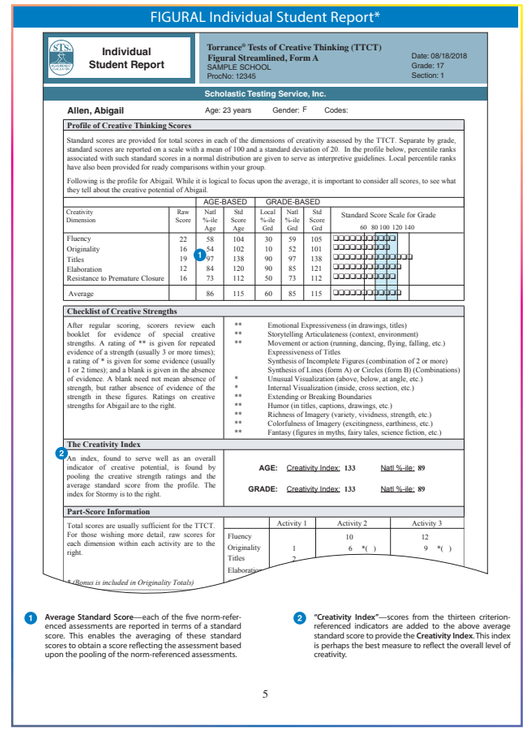
ETHICAL ISSUES

Cultural sensitivity: Consider cultural factors that may influence participants’ responses and interpretations of assessment tasks. Researchers should use culturally appropriate assessment tools and procedures to avoid cultural biases (Gjoko Muratovski, 2016).

Validity and reliability: Confirming that assessment tools are valid and reliable is essential for obtaining accurate and meaningful results. Researchers and clinicians should use standardized and validated measures that have demonstrated reliability and validity for the population being assessed (Kumar, 2014).

Fairness and equity: Ensuring that all participants have an equal opportunity to demonstrate their abilities. This includes avoiding biases in assessment procedures and providing appropriate accommodations for participants with disabilities or special needs (Kumar, 2014).

EXAMPLE OF EVALUATION SHEETS



FIGURAL Individual Student Report*

Individual Student Report

Torrance® Tests of Creative Thinking (TTCT)
Figural Streamlined, Form A
SAMPLE SCHOOL
ProcNo: 12345
Date: 08/18/2018
Grade: 17
Section: 1

Scholastic Testing Service, Inc.

Allen, Abigail — Age: 23 years — Gender: F — Codes:

Profile of Creative Thinking Scores

Standard scores are provided for total scores in each of the dimensions of creativity assessed by the TTCT. Separate by grade, standard scores are reported on a scale with a mean of 100 and a standard deviation of 20. In the profile below, percentile ranks associated with such standard scores in a normal distribution are given to serve as interpretive guidelines. Local percentile ranks have also been provided for ready comparisons within your group.

Following is the profile for Abigail. While it is logical to focus upon the average, it is important to consider all scores, to see what they tell about the creative potential of Abigail

Creativity Dimension	Raw Score	AGE-BASED Natl %-ile Age	AGE-BASED Std Score Age	GRADE-BASED Local %-ile Grd	GRADE-BASED Natl %-ile Grd	GRADE-BASED Std Score Grd	Standard Score Scale for Grade 60 80 100 120 140
Fluency	22	58	104	30	59	105	
Originality	16	54	102	10	52	101	
Titles	19	97	138	90	97	138	
Elaboration	12	84	120	90	85	121	
Resistance to Premature Closure	16	73	112	50	73	112	
Average		86	115	60	85	115	

Checklist of Creative Strengths

After regular scoring, scorers review each booklet for evidence of special creative strengths. A rating of ** is given for repeated evidence of a strength (usually 3 or more times), a rating of * is given for some evidence (usually 1 or 2 times), and a blank is given in the absence of evidence. A blank need not mean absence of strength, but rather absence of evidence of the strength in these figures. Ratings on creative strengths for Abigail are to the right.

**	Emotional Expressiveness (in drawings, titles)
**	Storytelling Articulateness (context, environment)
**	Movement or action (running, dancing, flying, falling, etc.)
	Expressiveness of Titles
	Synthesis of Incomplete Figures (combination of 2 or more)
	Synthesis of Lines (form A) or Circles (form B) (Combinations)
*	Unusual Visualization (above, below, at angle, etc.)
*	Internal Visualization (inside, cross section, etc.)
**	Extending or Breaking Boundaries
**	Humor (in titles, captions, drawings, etc.)
**	Richness of Imagery (variety, vividness, strength, etc.)
**	Colorfulness of Imagery (excitingness, earthiness, etc.)
**	Fantasy (figures in myths, fairy tales, science fiction, etc.)

The Creativity Index

An index, found to serve well as an overall indicator of creative potential, is found by pooling the creative strength ratings and the average standard score from the profile. The index for Stormy is to the right.

AGE: Creativity Index: 133 Natl %-ile: 89

GRADE: Creativity Index: 133 Natl %-ile: 89

Part-Score Information

Total scores are usually sufficient for the TTCT. For those wishing more detail, raw scores for each dimension within each activity are to the right.

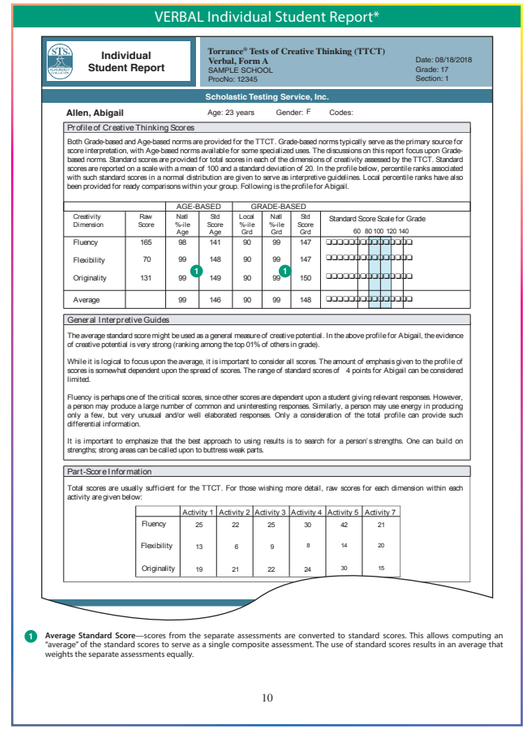
	Activity 1	Activity 2	Activity 3
Fluency		10	12
Originality	1	6 *( )	9 *( )
Titles	2		
Elaboration			

*(figure is included in Originality Totals)

1 **Average Standard Score**—each of the five norm-referenced assessments are reported in terms of a standard score. This enables the averaging of these standard scores to obtain a score reflecting the assessment based upon the pooling of the norm-referenced assessments.

2 **“Creativity Index”**—scores from the thirteen criterion-referenced indicators are added to the above average standard score to provide the **Creativity Index.** This index is perhaps the best measure to reflect the overall level of creativity.

5



VERBAL Individual Student Report*

Individual Student Report

Torrance® Tests of Creative Thinking (TTCT)
Verbal, Form A
SAMPLE SCHOOL
ProcNo: 12345
Date: 08/18/2018
Grade: 17
Section: 1

Scholastic Testing Service, Inc.

Allen, Abigail — Age: 23 years — Gender: F — Codes:

Profile of Creative Thinking Scores

Both Grade-based and Age-based norms are provided for the TTCT. Grade-based norms typically serve as the primary source for score interpretation, with Age-based norms available for some specialized uses. The discussions on this report focus upon Grade-based norms. Standard scores are provided for total scores in each of the dimensions of creativity assessed by the TTCT. Standard scores are reported on a scale with a mean of 100 and a standard deviation of 20. In the profile below, percentile ranks associated with such standard scores in a normal distribution are given to serve as interpretive guidelines. Local percentile ranks have also been provided for ready comparisons within your group. Following is the profile for Abigail.

Creativity Dimension	Raw Score	AGE-BASED Natl %-ile Age	AGE-BASED Std Score Age	GRADE-BASED Local %-ile Grd	GRADE-BASED Natl %-ile Grd	GRADE-BASED Std Score Grd	Standard Score Scale for Grade 60 80 100 120 140
Fluency	165	98	141	90	99	147	
Flexibility	70	99	148	90	99	147	
Originality	131	99	149	90	99	150	
Average		99	146	90	99	148	

General Interpretive Guides

The average standard score might be used as a general measure of creative potential. In the above profile for Abigail, the evidence of creative potential is very strong (ranking among the top 01% of others in grade).

While it is logical to focus upon the average, it is important to consider all scores. The amount of emphasis given to the profile of scores is somewhat dependent upon the spread of scores. The range of standard scores of 4 points for Abigail can be considered limited.

Fluency is perhaps one of the critical scores, since other scores are dependent upon a student giving relevant responses. However, a person may produce a large number of common and uninteresting responses. Similarly, a person may use energy in producing only a few, but very unusual and/or well elaborated responses. Only a consideration of the total profile can provide such differential information.

It is important to emphasize that the best approach to using results is to search for a person’s strengths. One can build on strengths; strong areas can be called upon to buttress weak parts.

Part-Score Information

Total scores are usually sufficient for the TTCT. For those wishing more detail, raw scores for each dimension within each activity are given below:

	Activity 1	Activity 2	Activity 3	Activity 4	Activity 5	Activity 7
Fluency	25	22	25	30	42	21
Flexibility	13	6	9	8	14	20
Originality	19	21	22	24	30	15

1 **Average Standard Score**—scores from the separate assessments are converted to standard scores. This allows computing an “average” of the standard scores to serve as a single composite assessment. The use of standard scores results in an average that weights the separate assessments equally.

10

Appendix 5 – Test results

See Appendix 7 for interview thematic analysis.

Participant 1

Age: 24

Industry: Product designer

Neurodiverse condition(s): ADHD

Diagnosed?: Clinically diagnosed as a teenager

Creativity index criteria

- **Emotional Expressiveness**—this measures a subject's ability to communicate feelings and emotions verbally or nonverbally through drawings, titles, and speech of the figures in the drawings.
- **Storytelling Articulateness**—this indicates a subject's ability to clearly and powerfully communicate an idea or tell a story by providing some kind of environment and sufficient detail to put things in context.
- **Movement or Action**—this judges a person's perception of movement through titles and the speech and bodily posture of figures in the drawings.
- **Expressiveness of Titles**—this notes a person's use of titles that go beyond simple description and communicate something about the pictures that the graphic cues themselves do not express without the title.
- **Synthesis of Incomplete Figures**—the combination of two or more figures is quite rare and points out an individual whose thinking departs from the commonplace and established, who is able to see relationships among rather diverse and unrelated elements, and who, under restrictive conditions, utilizes whatever freedom is allowed.
- **Synthesis of Lines**—same as 5 above, except combination of sets of parallel lines or combination of circles.
- **Unusual Visualization**—this measure points out an individual who sees things in new ways as well as old ways and who can return repeatedly to a commonplace object or situation and perceive it in different ways.
- **Internal Visualisation**—this measure indicates that a subject is able to visualize beyond exteriors and pay attention to the internal, dynamic workings of things.
- **Extending or Breaking Boundaries**—this score suggests that a person is able to remain open long enough to permit the mind to make mental leaps away from the obvious and commonplace and to open up or extend the boundaries or limits imposed upon the stimulus figure.
- **Humour**—this score suggests that an individual perceives and depicts conceptual and perceptual incongruity, unusual combinations, and surprise.
- **Richness of Imagery**—this score reflects a subject's ability to create strong, sharp, distinct pictures in the mind of the beholder.
- **Colorfulness of Imagery**—this score reflects a subject's ability to excite and appeal to the senses.
- **Fantasy**—this measure notes a person's use of fantasy imagery in responding to the test tasks.

+	Emotional expressiveness
++	Storytelling
+	Movement or action
+	Expressiveness of titles
++	Synthesis of incomplete figures
++	Synthesis of lines
++	Unusual visualisation
	Internal visualisation
++	Extending or breaking boundaries
+	Humour
++	Richness of imagery
+	Colourfulness of imagery
+	Fantasy

+ = observed 1 or 2 times
++ = observed 3 or more times

Creativity index score: 69 out of 100 / 69%

13 criteria. Max score of 100. 100/13 = 7.6923076923 / 3 = 3,8461538462

Each + criteria = 3,8461538462

18 criteria achieved = 3,8461538462 x 18 = 69,2307692316

Figural

Fluency—this score is based on the total number of relevant responses. As such, it is perhaps one of the most critical aspects of the test. All other scores depend in part upon the fluency score since no subsequent scores may be given in other dimensions unless a response is first found to be relevant.

Originality—this score is based on the statistical infrequency and unusualness of the response. As such it indicates whether a student produced a large number of relatively trite, common responses (low originality) or unusual and highly imaginative responses (high originality). Combining two or more figures into a single image is given increased weight.

Abstractness of Titles—this score relates to the subject's synthesizing and organizing processes of thinking. At the highest level, there is the ability to capture the essence of the information involved, to know what is important, and to enable the viewer to see the picture more deeply and richly.

Elaboration—the basis of this score is two underlying assumptions: the minimum primary responses to the stimulus figure is a single response; and the imagination and exposition of detail is a function of creative ability, appropriately labeled elaboration.

Resistance to Premature Closure—the basis for this score is a person's ability to keep open and delay closure long enough to make the mental leap that makes original ideas possible. Less creative persons tend to leap to conclusions prematurely without considering the available information, which cuts off chances for more powerful, original images.

	Picture complete	Circles	Memory recall	Unusual uses	Ask and guess	Product improve	**Raw score**
Fluency	14	11	15	12	5	6	63
Originality	9	10	15	13	3	6	**56**
Titles	13	14	15	14	3	8	**67**
Elaboration	14	15	15	14	2	4	**64**
Resistance	12	12	15	14	4	8	**65**
Total:	62	62	75	67	17	32	315

Score out of 100.
Each criterion has a max score of 16,6666666667.
Figural creativity score: 315/500 = 63%

Verbal

Fluency—this score reflects the subject's ability to produce a large number of ideas with words. Each verbal task attempts to tap a somewhat different ability or mental process. Further clues concerning the subject's mental functioning may be obtained by looking at each of the subject's responses.

Flexibility—this score represents a person's ability to produce a variety of ideas, shift from one approach to another, or use a variety of strategies. A low score indicates a narrow range of responses, which may be the result of rigid thinking habits, limited knowledge and/or experience, limited intellectual energy, and/or low motivation. Generally, an opposite interpretation of high scores would be hypothesized. However, extremely high flexibility scores in relation to fluency scores may characterize the person who jumps from one approach to another and is unable to stick to one line of thinking long enough to really develop it. A person may be quite flexible in viewing, manipulating, and otherwise using figural elements, yet be quite restricted in shifting approaches in dealing with words.

Originality—this score represents the subject's ability to produce ideas well beyond the obvious, commonplace, banal, or established. A high score requires an ability to delay gratification or to reduce tension, and usually indicates a nonconforming person with a lot of intellectual energy. Such a person is able to make big mental leaps or "cut corners" in obtaining solutions but is not necessarily erratic or impulsive. Anchors to interpretation can be derived by looking at the originality score in relation to the fluency score.

	Picture complete	Parallel lines	Memory recall	Unusual uses	Ask and guess	Product improve	**Score**
Fluency	16	15	15	13	4	8	**71**
Flexibility	15	14	15	14	3	4	**65**
Originality	12	14	15	15	3	3	**62**
Total:	43	43	45	42	10	15	198

Score out of 100.
Each criterion has a max score of 16,6666666667.
Verbal creativity score: 198/300 = 66%

Questions:

How do you typically remember important information or instructions?
I always get in trouble for this. I'm very rarely a note taker. I store everything in my brain and I'll just remember keywords from it. And it's very rarely, I actually know when someone even gives you feedback, even when I'm doing freelance work, and they'll be like giving you verbal feedback and I'll actually remember it all. I think I've got an okay memory, but I think they worry and then they're like, oh, you're not going to write any of this down. And then I'll write it down because it makes them feel more comfortable. But **I actually remember everything by just like I'll just like probably store like one keyword and that will just trigger your memory**. And like, even like if you even, not even keywords, even if you like, you've got a whole book. As soon as you look at the page, you'll remember what was said about it. So it's like whatever will trigger you remembering that information. So I guess that's how I currently do it. But it does make other people feel more comfortable than me just writing notes. So depends who I'm talking to, how much they trust me.
How do you maintain focus on tasks that require sustained attention?
I feel like one of my **biggest tricks is exercise**. So if I actually know that I've got something that's going to be quite taxing and I'm really going to struggle focusing on it. Firstly, I would try and get all my difficult work done in the morning because I feel like I start to flake in the afternoon. But if it was quite a long tack task that was quite taxing, like to make me focus, you know, like something that took like 6 hours or something, either I'd do one or two things, I'd spray split it up across two days. So it'd be like my main focus hours in that day. I'd like half tackle it and do all the complex part. And then I'd like the next day I'd re tackle it and try and finish it all off. Or if I really needed to get it done that day, then I'd go for a run. Just because **I find after exercise for the next few hours, I'm able to hyper focus quite easily.** And then my other trick is classical music. Classical music for some reason, like, I find like music with any words whatsoever, it's just too distracting because like I'll be thinking more about the words and everything else surrounding it or even like conversations in the room or anything. Like, I literally go into like we have these like little booths and I'll go in in silence and just have **classical music on and it's just like the rhythm of the music and just the sound and it'll like, help me be really productive.** So that's probably my tricks. But if something that requires me to, like, think, and especially it's a problem that I don't know how to solve, then I need, like, silence slash classical music. But there's something about the momentum of, like, having something that's moving, like the movement of, like, sound that helps me personally work. I don't know why, where silence just feels like it's stagnant, like it stops, which doesn't feel productive. So it's like the feeling of it.

How quickly do you typically process information when presented with new tasks or challenges?

I feel like this can go different ways depending on what it is. If it's something that I know well, like within product design or something like that, like, you know, I know how to tackle it. I know how to break down a problem. So I think **I process it pretty quickly and will automatically have a strategy in place before they even finish**, like, the conversation about it, like, of how I'm going to tackle it and I'll already be, like, working it out and problem solve it, like, in my head. And quite often I've, like, what I find with a lot of tasks, especially ones that I'm already familiar with, like, how to tackle them, is **I've already, like, worked out, like, the actual answer, and then what I have to do is then go to do all the back work to actually prove my answer was correct.**

However, if it's something that I don't, I've never done before or I'm not confident in, I think I take a lot of time to process it, like, really try and understand it, to actually know how to best, like, strategize to get it solved, because I think **I get really frustrated with not knowing what I'm doing and not being able to do it well.** So I think if it's not something I'm familiar with, I'd take a lot longer to process it. I'm really breaking it down where I probably **procrastinate** starting it, because **I break it down too much to, like, really try and understand it and grasp it.**

Speaker 1
And is that, is that the same under, like, time restraints if you were under pressure?

I feel like I don't really get pressured, so I don't think time constraints really, like, stress me out. I think my mentality is always**, I can only do what I can do in a time, and if I can't do it, I can't do it.** It's as simple as, and I think no matter what you was doing or whatever task you needed to do, like, even if you had a time constraint in it, like, either way I would do it is I'd **break it up in my head to what was achievable in that timeframe**. And if it meant that I had to cut some corners, then I'd simply have to do that.

How do you plan and organise your daily activities or responsibilities?

I don't. I don't know. Yeah, I probably don't. I feel like **in a working environment, I'm super structured and super organized because if I wasn't, wouldn't even know where to start**. Like, I'd just be like, brain fuzz. So then I think in my personal life, I don't like any organization. Like, I don't even like planning ahead. So, yeah, probably. Yeah, I don't organize.

Participant 2

Age: 45

Industry: Graphic designer

Neurodiverse condition(s): Dyslexia

Diagnosed?: Clinically diagnosed

	Emotional expressiveness
+	Storytelling
	Movement or action
+	Expressiveness of titles
	Synthesis of incomplete figures
+	Synthesis of lines
+	Unusual visualisation
	Internal visualisation
	Extending or breaking boundaries
	Humour
	Richness of imagery
	Colourfulness of imagery
	Fantasy

Creativity index score: 19%

Figural:

	Picture complete	Circles	Memory recall	Unusual uses	Ask and guess	Product improve	**Raw score**
Fluency	4	12	10	4	14	8	**52**
Originality	1	3	9	6	10	3	**32**
Titles	1	10	8	6	9	4	**38**
Elaboration	1	11	12	8	12	2	**46**
Resistance	1	10	13	11	14	3	**52**
Total:	8	46	52	35	59	20	220

Score out of 100.
Each criterion has a max score of 16,6666666667.
Figural creativity score: 220/500 = 44%

Verbal:

	Picture complete	Circles	Memory recall	Unusual uses	Ask and guess	Product improve	**Score**
Fluency	1	3	11	8	12	3	**38**
Flexibility	1	4	13	9	8	4	**39**
Originality	1	4	9	8	8	3	**33**
Total:	3	11	33	25	28	10	**110**

Score out of 100.
Each criterion has a max score of 16,6666666667.
Verbal creativity score: 110/300 = 36.667% / 37%

Questions:

How do you typically remember important information or instructions?
I'm a visual learner so I would have to store it somewhere, **write it down** so I can reference it later.
How do you maintain focus on tasks that require sustained attention?
I take my time, it takes me longer obviously because of my dyslexia, but if I **take my time I know I will get there.**
How quickly do you typically process information when presented with new tasks or challenges?
It will take me a few attempts but as long as **I keep going over it and over it, it will stick.**
How do you plan and organise your daily activities or responsibilities?
I don't really plan. There's a lot of routine in my role, so I would delegate staff members to what they're working on. I would **open up a list** and make sure everything is on there, usually, and check out work that is coming in. It becomes muscle memory. So it's the same thing every day. So I don't have to plan it. It's just all there in lists. I deal with it in the moment.

Participant 3

+	Emotional expressiveness
++	Storytelling
	Movement or action
++	Expressiveness of titles
++	Synthesis of incomplete figures
++	Synthesis of lines
++	Unusual visualisation
	Internal visualisation
+	Extending or breaking boundaries
	Humour
+	Richness of imagery
	Colourfulness of imagery
	Fantasy

+ = observed 1 or 2 times
++ = observed 3 or more times

Creativity index score: 50%

13 criteria. Max score of 100. 100/13 = 7.6923076923 / 3 = 3,8461538462

Each + criteria = 3,8461538462

18 criteria achieved = 3,8461538462 x 13 = 50,0000000006

Figural:

	Picture complete	Circles	Memory recall	Unusual uses	Ask and guess	Product improve	**Raw score**
Fluency	12	14	7	3	13	8	**57**
Originality	14	16	6	2	12	6	56
Titles	14	14	3	4	10	7	**52**
Elaboration	13	15	5	3	10	4	**50**
Resistance	12	14	4	3	14	8	**55**
Total:	65	73	25	15	59	33	270

Score out of 100.
Each criterion has a max score of 16,6666666667.

Figural creativity score: 270/500 = 54%

Verbal:

	Picture complete	Circles	Memory recall	Unusual uses	Ask and guess	Product improve	Score
Fluency	13	15	6	3	14	6	**57**
Flexibility	12	14	4	3	10	4	**47**
Originality	12	16	4	4	8	3	**47**
Total:	37	45	14	10	32	13	**151**

Score out of 100.
Each criterion has a max score of 16,6666666667.

Verbal creativity score: 151/300 = 50%

Questions:

How do you typically remember important information or instructions?
So say like there's been things I need to do in Photoshop or whatever, like techniques, I'll **write them down,** like for exporting pictures, when I was sending them to the printers, you know, I wrote those down. I like to have something to refer back to.
How do you maintain focus on tasks that require sustained attention?
Well, probably by **removing all distractions**, so I wouldn't have like music on in the background or anything like that. Yeah, yeah, I make sure there's, yeah, does isolate myself as much so get on with focus on the one thing that I need to focus on so probably wouldn't want to do it in a busy place or something like that or you want to do it where it's quiet.
How quickly do you typically process information when presented with new tasks or challenges?
I know I'm slow because my brain starts asking lots of questions and I'm not listening to what's being said. I'm setting out automatically saying yes, yes, yes, and I know I haven't taken any of it in. And then I just kind of think, all right, well, I'll just start the task, then if I can't, then **I'll ask questions as I'm doing it**, because I can't process something and I have to **break it down into smaller parts**. And I have to be doing it because that's a way of understanding it by doing it. Because as an idea or as a verbal thing or a mental thing, it's not going to, I can't process it. I have to do it and ask questions as I'm doing it. ***Speaker 1*** ***Is that visual learning or a preference for being shown how to do something?*** I would say practical learning, I'm doing the task, it can be visual if it's something that requires me to look at something.

How do you plan and organise your daily activities or responsibilities?
I don't, I don't typically plan things. I mean, you know what, like my day is going to be, you know, and then like, um, like if it's like, on Monday after it was like, I had quite a few, about three different things to do, and I just had to remind, and **I just forced myself to do them one after the other.** So if it's important, then it's just like, I'll sit, I know what they are, mentally, know what they are, and they'll annoy me until they're done. So just make, take a moment to sit down and just do them. which means that we need to be done, but **if it's not important, it can be deferred,** there's no need to be dealt with straight away. I can put things up. Or if a task is still too overwhelming, like then I'll just put it off, I know it's going to be done, but I've recognised I can't do it today, I've got the mental capacity of the willpower, yeah, I'll just leave it.

Participant 4

Age: 24

Industry: Graphic designer

Neurodiverse condition(s): OCD

Diagnosed?: Clinically diagnosed as a teenager

++	Emotional expressiveness
+	Storytelling
	Movement or action
++	Expressiveness of titles
+	Synthesis of incomplete figures
	Synthesis of lines
+	Unusual visualisation
+	Internal visualisation
	Extending or breaking boundaries
+	Humour
++	Richness of imagery
	Colourfulness of imagery
	Fantasy

+ = observed 1 or 2 times
++ = observed 3 or more times

Creativity index score: 42 out of 100 / 42%

13 criteria. Max score of 100. 100/13 = 7.6923076923 / 3 = 3,8461538462

Each + criteria = 3,8461538462

11 criteria achieved = 3,8461538462 x 11 = 42,3076923082

Figural:

	Picture complete	Circles	Memory recall	Unusual uses	Ask and guess	Product improve	**Raw score**
Fluency	15	11	13	12	7	6	64
Originality	9	9	14	13	5	7	57
Titles	13	14	15	14	4	8	68
Elaboration	15	15	14	13	3	5	65
Resistance	11	12	15	14	6	9	67
Total:	63	61	71	66	25	35	321

Score out of 100.
Each criterion has a max score of 16,6666666667.

Figural creativity score: 321/500 = 64%

Verbal:

	Picture complete	Parallel lines	Memory recall	Unusual uses	Ask and guess	Product improve	**Score**
Fluency	15	11	13	12	7	6	64
Flexibility	9	9	14	13	5	7	57
Originality	13	14	15	14	4	8	68
Total:	37	34	42	39	16	21	**189**

Score out of 100.
Each criterion has a max score of 16,6666666667.

Verbal creativity score: 189/300 = 63%

Questions:

How do you typically remember important information or instructions?
Remembering important information or instructions for me involves a very methodical approach. I rely heavily on **repetition and organisation** to ensure that everything sticks. **Lists and structured routines** are my go-to tools, helping me keep track of vital details and tasks. By **breaking down complex information into smaller, more manageable pieces,** I make sure that nothing gets overlooked. For example, if I need to remember key points from a meeting, I'll take detailed notes and then organise them into a structured outline. I might **colour-code important items or use highlighters** to draw attention to crucial details. Additionally, I'll review my notes multiple times to reinforce the information in my memory. By following this process, I can ensure that I retain the essential information from the meeting.
How do you maintain focus on tasks that require sustained attention?
I set **strict routines and timelines** to keep myself on track, using **visual cues** and reminders to stay focused. Let's say I have a project deadline approaching. I'll create a detailed project plan with specific milestones and deadlines. Each day, I'll **break down the work into smaller tasks** and allocate dedicated blocks of time to focus on them. I'll use techniques like the Pomodoro Method, where I work for 25 minutes and then take a short break, to maintain my concentration. By sticking to my plan and avoiding distractions, I can sustain my focus and make steady progress towards completing the project. I also make sure to **take regular breaks** to prevent mental fatigue and keep productivity high. By incorporating mindfulness techniques and staying organised, I navigate through tasks effectively without feeling overwhelmed.
How quickly do you typically process information when presented with new tasks or challenges?
I tend to take my time. I approach things in a very methodical manner, **analysing each component carefully** before moving forward. I'll take a step back and carefully read through the project brief or requirements document. I'll **make notes, ask clarifying questions** if needed, and then break down the project into smaller, more manageable steps. While this approach may take a bit longer upfront, it ensures that I fully understand the task and can develop a thorough plan of action. While it might not always be the fastest approach, it ensures that I thoroughly understand the task at hand and can develop comprehensive solutions. **By avoiding rushing and taking my time**, I can tackle challenges effectively and efficiently.

How do you plan and organise your daily activities or responsibilities?
Planning and organising my daily activities and responsibilities are absolutely crucial for me. I rely heavily on **schedules, calendars, and checklists to structure my day** and prioritise tasks. Each activity is meticulously planned out, let's say it's the start of the week and I have tasks and meetings scheduled. I'll begin by reviewing my calendar and identifying any upcoming deadlines or commitments. Then, I'll **create a prioritised to-do list, ranking tasks based on urgency and importance**. I'll allocate specific time slots for each task, taking into account my peak productivity hours and any potential interruptions. Throughout the day, I'll refer back to my list regularly, ticking off completed tasks and adjusting my schedule as needed to stay on track.

Participant 5

Age: 29

Industry: Communications designer

Neurodiverse condition(s): ASD

Diagnosed?: Clinically diagnosed as a child

++	Emotional expressiveness
+	Storytelling
	Movement or action
++	Expressiveness of titles
+	Synthesis of incomplete figures
	Synthesis of lines
++	Unusual visualisation
+	Internal visualisation
+	Extending or breaking boundaries
	Humour
++	Richness of imagery
	Colourfulness of imagery
++	Fantasy

+ = observed 1 or 2 times
++ = observed 3 or more times

Creativity index score: 42 out of 100 / 54%

13 criteria. Max score of 100. 100/13 = 7.6923076923 / 2 = 3,8461538462

Each + criteria = 3,8461538462

14 criteria achieved = 3,8461538462 x 14 = 53,8461538468

Figural:

	Picture complete	Circles	Memory recall	Unusual uses	Ask and guess	Product improve	**Raw score**
Fluency	12	9	11	10	6	5	53
Originality	10	8	12	11	4	6	51
Titles	9	7	10	9	3	5	43
Elaboration	12	9	12	11	4	6	54
Resistance	9	10	13	12	5	8	57
Total	52	43	58	53	22	30	**258**

Score out of 100.
Each criterion has a max score of 16,6666666667.

Figural creativity score: 258/500 = 52%

Verbal:

	Picture complete	Parallel lines	Memory recall	Unusual uses	Ask and guess	Product improve	**Score**
Fluency	12	9	11	10	6	5	53
Flexibility	9	8	10	9	4	6	46
Originality	10	8	12	11	4	6	51
Total:	31	25	33	30	14	17	**150**

Score out of 100.
Each criterion has a max score of 16,6666666667.

Verbal creativity score: 150/300 = 50%

Questions:

How do you typically remember important information or instructions?
Remembering important information or instructions can be a bit tricky for me. I often rely on **repetitive practices or visual aids** to help me retain information. For instance, if it's crucial instructions for a task, I might create a step-by-step **visual guide or record the instructions in a voice memo** to refer back to when needed. These strategies help me reinforce the information and provide a reliable reference point.

How do you maintain focus on tasks that require sustained attention?
I've found a few methods that work well for me. One approach is using sensory tools like **fidget toys or noise-cancelling headphones** to help me stay grounded and minimise distractions. Taking **regular breaks and incorporating sensory-friendly environments** also support my ability to sustain attention over time.
How quickly do you typically process information when presented with new tasks or challenges?
I tend to process information at my own pace, which can vary depending on the complexity of the task or challenge. Sometimes I need a bit more time to fully understand the information and formulate a response. I find it helpful to **ask for clarification or repetition if needed**, as it allows me to digest the information more thoroughly. While I may not process information as quickly as others, I make up for it by being thorough and detail-oriented in my approach.
How do you plan and organise your daily activities or responsibilities?
Planning and organising my daily activities and responsibilities require careful consideration and structure. For example, I might use a **visual schedule with pictures or symbols** to outline my day and remind me of upcoming tasks or appointments. Each morning, I review my schedule and prioritise my tasks based on importance and urgency. I also find it helpful to **establish routines and rituals**, such as setting aside specific times for meals or breaks, as they provide a sense of predictability and stability in my daily life.

Participant 6

Age: 29

Industry: Textiles designer

Neurodiverse condition(s): OCD

Diagnosed?: Self diagnosed

++	Emotional expressiveness
++	Storytelling
	Movement or action
++	Expressiveness of titles
+	Synthesis of incomplete figures
	Synthesis of lines
	Unusual visualisation
+	Internal visualisation
	Extending or breaking boundaries
	Humour
++	Richness of imagery
	Colourfulness of imagery
	Fantasy

+ = observed 1 or 2 times
++ = observed 3 or more times

Creativity index score: 38 out of 100 / 38%

13 criteria. Max score of 100. 100/13 = 7.6923076923 / 2 = 3,8461538462

Each + criteria = 3,8461538462

10 criteria achieved = 3,8461538462 x 10 = 38,461538462

Figural:

	Picture complete	Circles	Memory recall	Unusual uses	Ask and guess	Product improve	**Raw score**
Fluency	5	4	6	3	2	1	21
Originality	4	3	5	2	1	1	16
Titles	3	2	4	2	1	1	13
Elaboration	5	4	6	3	2	1	21
Resistance	4	6	7	4	3	2	26
Total	21	19	28	14	9	6	**97**

Score out of 100.
Each criterion has a max score of 16,6666666667.

Figural creativity score: 97/500 = 19%

Verbal:

	Picture complete	Parallel lines	Memory recall	Unusual uses	Ask and guess	Product improve	**Score**
Fluency	3	3	4	2	1	1	14

Flexibility	2	2	3	2	1	1	11
Originality	2	2	3	2	1	1	11
Total	7	7	10	6	3	3	**36**

Score out of 100.
Each criterion has a max score of 16,6666666667.

Verbal creativity score: 36/300 = 12%

Questions:

How do you typically remember important information or instructions?
An example that comes to mind is linking the act of **checking my calendar** with remembering essential appointments or deadlines. It might seem unusual to some, but for me, these rituals serve as reliable memory aids amidst the challenges of OCD.
How do you maintain focus on tasks that require sustained attention?
I've learned to create **structured routines and environments** that support my concentration. I establish set times for activities and **designate distraction-free workspaces** to minimise interruptions. By reducing environmental stimuli and establishing **clear routines**, I find it easier to stay focused and retain information for longer periods.
How quickly do you typically process information when presented with new tasks or challenges?
I find myself analysing details meticulously and spending extra time ensuring I've understood everything correctly. Take, for instance, when I'm presented with a new project at work. I invest additional time **reviewing instructions and researching different approaches** before diving in. Although it may delay my initial progress, this **methodical approach** helps me produce more accurate and thorough results in the end.
How do you plan and organise your daily activities or responsibilities?
Every morning, I create a detailed schedule outlining what needs to be accomplished throughout the day, including work and personal tasks. By using **colour-coding and prioritisation techniques**, I differentiate between urgent and non-urgent tasks. **Regular check-ins with myself** ensure I'm on track and allow me to adjust my plans as needed, providing a sense of control and reducing anxiety associated with uncertainty.

Participant 7

Age: 24

Industry: Graphic designer

Neurodiverse condition(s): ADHD

Diagnosed?: Clinically diagnosed as a teenager

++	Emotional expressiveness
+	Storytelling
	Movement or action
+	Expressiveness of titles
++	Synthesis of incomplete figures
++	Synthesis of lines
++	Unusual visualisation
+	Internal visualisation
++	Extending or breaking boundaries
+	Humour
+	Richness of imagery
+	Colourfulness of imagery
+	Fantasy

+ = observed 1 or 2 times
++ = observed 3 or more times

Creativity index score: 65 out of 100 / 65%

13 criteria. Max score of 100. 100/13 = 7.6923076923 / 3 = 3,8461538462

Each + criteria = 3,8461538462

18 criteria achieved = 3,8461538462 x 17 = 65,3846153854

Figural:

	Picture complete	Circles	Memory recall	Unusual uses	Ask and guess	Product improve	**Raw score**
Fluency	10	6	12	13	14	8	63
Originality	12	8	14	15	10	6	65
Titles	9	5	11	10	12	7	54
Elaboration	11	7	13	14	9	5	59
Resistance	8	4	10	11	13	9	55
Total	50	30	60	63	58	35	296

Score out of 100.
Each criterion has a max score of 16,6666666667.

Figural creativity score: 296/500 = 59%

Verbal:

	Picture	Parallel lines	Memory recall	Unusual uses	Ask and guess	Product	Score
Fluency	12	10	11	13	11	10	**67**
Flexibility	10	9	10	12	10	9	**60**
Originality	14	12	13	15	13	12	**79**
Total	36	31	34	40	34	31	**206**

Score out of 100.
Each criterion has a max score of 16,6666666667.

Verbal creativity score: 206/300 = 69%

Questions:

How do you typically remember important information or instructions?

Remembering stuff can be a bit of a rollercoaster for me, especially if it's not super interesting or if my mind decides to take a detour. But, I've found some tricks that help. For one, **repetition is key**. If I hear or see something important multiple times, it's more likely to stick. Plus, I rely a lot on reminders – **sticky notes, phone alarms,** you name it. They're a lifesaver when my brain decides to play hide-and-seek with crucial details.

How do you maintain focus on tasks that require sustained attention?

Ah, focus – the eternal struggle. I've learned to embrace the chaos a bit. It's all about finding ways to keep things interesting and **breaking tasks into bite-sized chunks**. Sometimes, I'll set a **timer** and challenge myself to stay on track until it goes off. And hey, taking **short breaks to stretch or doodle** can actually help me come back to the task with renewed energy. Flexibility is key – if I feel like my brain's wandering off, I'll try **switching up my environment** or task to keep things fresh.

How quickly do you typically process information when presented with new tasks or challenges?

Oh, the speedometer in my brain definitely varies. Sometimes, I'm like a lightning bolt – processing new info at warp speed. Other times, it's more like my brain's stuck in rush-hour traffic. ADHD can make it a bit of a wild ride, but I've learned to roll with it. One thing I've noticed is that when **I'm interested or passionate** about something, my brain kicks into overdrive. It's like ADHD has a turbo boost button for things that really grab my attention.

How do you plan and organise your daily activities or responsibilities?

Planning and organizing... now that's a fun challenge. I've become best friends with **lists** – they're like my trusty sidekicks in the battle against chaos. **Breaking down tasks into smaller steps** and setting **realistic goals** helps me stay on track. But let's be real, sometimes my plans get a little... flexible. Life with ADHD is all about embracing the unexpected, so I've learned to be adaptable. And hey, sometimes the most spontaneous adventures turn out to be the most memorable!

Participant 8

Age: 39

Industry: Film director

Neurodiverse condition(s): ASD

Diagnosed?: Clinically diagnosed as a teenager

+	Emotional expressiveness
+	Storytelling
	Movement or action
+	Expressiveness of titles
+	Synthesis of incomplete figures
++	Synthesis of lines
+	Unusual visualisation
+	Internal visualisation
++	Extending or breaking boundaries
+	Humour
	Richness of imagery
+	Colourfulness of imagery
+	Fantasy

+ = observed 1 or 2 times
++ = observed 3 or more times

Creativity index score: 50 out of 100 / 50%

13 criteria. Max score of 100. 100/13 = 7.6923076923 / 3 = 3,8461538462

Each + criteria = 3,8461538462

13 criteria achieved = 3,8461538462 x 17 = 50,0000000006

Figural:

	Picture complete	Circles	Memory recall	Unusual uses	Ask and guess	Product improve	**Raw score**
Fluency	8	6	7	10	9	7	47
Originality	5	4	6	11	8	6	40
Titles	6	5	7	9	8	6	41
Elaboration	7	6	8	10	9	7	47
Resistance	4	3	5	8	6	4	30
Total	30	24	33	48	40	30	205

Score out of 100.
Each criterion has a max score of 16,6666666667.

Figural creativity score: 205/500 = 41%

Verbal:

	Picture	Parallel lines	Memory recall	Unusual uses	Ask and guess	Product	Score
Fluency	3	2	4	6	4	3	**22**
Flexibility	2	2	3	5	3	2	**17**
Originality	4	3	5	7	5	4	**28**
Total	9	7	12	18	12	9	**67**

Score out of 100.
Each criterion has a max score of 16,6666666667.

Verbal creativity score: 67/300 = 22%

Questions:

How do you typically remember important information or instructions?
I've got this knack for **spotting patterns and making connections**, which helps me remember things like a pro. **Visual aids and written instructions** are my jam – they give me something solid to refer back to whenever I need a refresher.
How do you maintain focus on tasks that require sustained attention?
Staying focused on one thing for a long time is my superpower with autism! When I find something **I'm passionate about**, I dive in headfirst and get totally absorbed. But for those less exciting tasks, I've learned to **take breaks and switch things up** to keep my brain engaged. It's all about finding that sweet spot!

How quickly do you typically process information when presented with new tasks or challenges?
Processing new info is like solving a mystery for me – it's all about piecing together the clues! I might take a bit longer to wrap my head around things, but once I do, I've got it down pat. **Asking lots of questions and breaking tasks into smaller steps** helps me tackle even the trickiest challenges.
How do you plan and organise your daily activities or responsibilities?
I'm a big fan of **routines and schedules** – they give me a sense of stability and predictability in an otherwise chaotic world. **Colour-coded calendars and visual schedules** are my go-to tools for staying organised and on top of things!

Participant 9

Age: 28

Industry: Graphic designer

Neurodiverse condition(s): ASD

Diagnosed?: Clinically diagnosed as a teenager

+	Emotional expressiveness
+	Storytelling
	Movement or action
+	Expressiveness of titles
+	Synthesis of incomplete figures
+	Synthesis of lines
	Unusual visualisation
+	Internal visualisation
+	Extending or breaking boundaries
	Humour
	Richness of imagery

+	Colourfulness of imagery
+	Fantasy

+ = observed 1 or 2 times
++ = observed 3 or more times

Creativity index score: 35 out of 100 / 35%

13 criteria. Max score of 100. 100/13 = 7.6923076923 / 3 = 3,8461538462

Each + criteria = 3,8461538462

9 criteria achieved = 3,8461538462 x 17 = 34,6153846158

Figural:

	Picture complete	Circles	Memory recall	Unusual uses	Ask and guess	Product improve	**Raw score**
Fluency	6	5	6	8	7	6	38
Originality	4	3	5	9	6	5	32
Titles	5	4	6	8	6	5	34
Elaboration	7	6	8	10	8	7	46
Resistance	3	2	4	7	5	3	24
Total	25	20	29	42	32	26	174

Score out of 100.
Each criterion has a max score of 16,6666666667.

Figural creativity score: 174/500 = 35%

Verbal:

	Picture	Parallel lines	Memory recall	Unusual uses	Ask and guess	Product	Score
Fluency	10	8	12	11	10	9	**60**
Flexibility	8	7	10	9	8	7	**49**
Originality	12	10	14	13	12	11	**72**
Total	30	25	36	33	30	27	**181**

Score out of 100.
Each criterion has a max score of 16,6666666667.

Verbal creativity score: 181/300 = 60%

Questions:

How do you typically remember important information or instructions?
Ah, remembering stuff can be a bit tricky for me with dyslexia! I've got this cool trick where I **turn things into little stories or pictures in my head**. It's like making a mental movie, and it helps me remember things way better. Plus, if I **write stuff down or say it out loud**, it sticks in my brain much longer!
How do you maintain focus on tasks that require sustained attention?
I've figured out a few hacks to keep me on track. Like **breaking big tasks into smaller, bite-sized chunks**. And taking **short breaks to stretch my legs** and recharge my brain batteries. It's all about finding what works, you know?
How quickly do you typically process information when presented with new tasks or challenges?
I might need a bit longer to soak it all in, but once I get the hang of things, I'm good to go. **Asking questions and getting hands-on help** are lifesavers for me when tackling new stuff.
How do you plan and organise your daily activities or responsibilities?
I'm all about **sticky notes** galore! Breaking things down into smaller tasks and setting **reminders on my phone** keeps me on track. It's like having my own personal assistant!

Participant 10

Age: 32

Industry: Product designer

Neurodiverse condition(s): ASD

Diagnosed?: Clinically diagnosed as an adult

++	Emotional expressiveness
+	Storytelling
+	Movement or action
+	Expressiveness of titles
++	Synthesis of incomplete figures
++	Synthesis of lines
++	Unusual visualisation
+	Internal visualisation
++	Extending or breaking boundaries

+	Humour
+	Richness of imagery
+	Colourfulness of imagery
+	Fantasy

+ = observed 1 or 2 times
++ = observed 3 or more times

Creativity index score: 73 out of 100 / 73%

13 criteria. Max score of 100. 100/13 = 7.6923076923 / 3 = 3,8461538462

Each + criteria = 3,8461538462

19 criteria achieved = 3,8461538462 x 17 = 73,0769230778

Figural:

	Picture complete	Circles	Memory recall	Unusual uses	Ask and guess	Product improve	**Raw score**
Fluency	8	7	9	11	9	8	52
Originality	6	5	7	12	8	6	44
Titles	7	6	8	11	8	7	47
Elaboration	9	8	10	13	10	9	59
Resistance	5	4	6	9	7	5	36
Total	35	30	40	56	42	35	238

Score out of 100.
Each criterion has a max score of 16,6666666667.

Figural creativity score: 238/500 = 48%

Verbal:

	Picture	Parallel lines	Memory recall	Unusual uses	Ask and guess	Product	Score
Fluency	13	12	14	15	14	13	**81**
Flexibility	11	10	12	13	12	11	**69**
Originality	15	14	16	16	15	14	**90**
Total	39	36	42	44	41	38	**206**

Score out of 100.
Each criterion has a max score of 16,6666666667.

Verbal creativity score: 206/300 = 69%

Questions:

How do you typically remember important information or instructions?
I find it helpful to use techniques like **repetition and verbal rehearsal** to reinforce important details. **Visual aids and colour-coding** also help me retain information more effectively.
How do you maintain focus on tasks that require sustained attention?
I often find myself easily distracted by my thoughts or external stimuli. I've learned to use strategies like **setting timers** and **taking short breaks to move around** also helps me recharge my focus.
How quickly do you typically process information when presented with new tasks or challenges?
I tend to process information quite quickly with ADHD, but sometimes my mind moves faster than I can keep up with. I've learned to **pause and take a moment to fully digest new information** before jumping into a task. It's important for me to strike a balance between speed and accuracy to ensure that I understand things correctly.
How do you plan and organise your daily activities or responsibilities?
Planning and organising my daily activities can be a bit of a challenge with ADHD. I rely heavily on tools like **digital planners and reminders** to help me stay on top of my schedule.

Participant 11

Age: 37

Industry: Design manager

Neurodiverse condition(s): ASD

Diagnosed?: Self- diagnosed

+	Emotional expressiveness
	Storytelling
	Movement or action
+	Expressiveness of titles
	Synthesis of incomplete figures
++	Synthesis of lines
+	Unusual visualisation
+	Internal visualisation

++	Extending or breaking boundaries
+	Humour
	Richness of imagery
+	Colourfulness of imagery
+	Fantasy

+ = observed 1 or 2 times
++ = observed 3 or more times

Creativity index score: 42 out of 100 / 42%

Figural:

	Picture complete	Circles	Memory recall	Unusual uses	Ask and guess	Product improve	**Raw score**
Fluency	5	4	6	8	6	5	34
Originality	4	3	5	10	5	4	31
Titles	5	4	6	9	5	5	34
Elaboration	7	6	8	11	7	6	45
Resistance	3	2	4	7	4	3	23
Fluency	24	19	29	45	27	23	167

Score out of 100.
Each criterion has a max score of 16,6666666667.

Figural creativity score: 167/500 = 33%

Verbal:

	Picture	Parallel lines	Memory recall	Unusual uses	Ask and guess	Product	Score
Fluency	7	6	9	10	9	8	**49**
Flexibility	6	5	8	9	8	7	**43**
Originality	9	8	11	12	11	10	**61**
Total	22	19	28	31	28	25	**153**

Score out of 100.
Each criterion has a max score of 16,6666666667.

Verbal creativity score: 153/300 = 51%

Questions:

How do you typically remember important information or instructions?
Remembering important information or instructions can be quite straightforward for me. I have a **strong memory for details and patterns**, which helps me recall information accurately. I often prefer **written instructions** over verbal ones, as I can refer back to them whenever needed.
How do you maintain focus on tasks that require sustained attention?
I have a keen ability to hyperfocus on **specific tasks that interest me**, sometimes to the point of losing track of time. However, I may struggle with tasks that I find uninteresting or repetitive.
How quickly do you typically process information when presented with new tasks or challenges?
I tend to process information quite quickly, especially when it comes to tasks or challenges that align with my areas of interest. However, I may struggle with tasks that require abstract or nuanced thinking, as I tend to prefer concrete and **structured information.**
How do you plan and organise your daily activities or responsibilities?
I thrive on routines and predictability, so I often create **detailed schedules and checklists** to help me stay on track. I prefer to plan ahead and know what to expect, which helps reduce stress and anxiety.

Participant 12

Age: 24

Industry: Product designer

Neurodiverse condition(s): ASD

Diagnosed?: Clinically diagnosed as a child

++	Emotional expressiveness
+	Storytelling
	Movement or action
+	Expressiveness of titles
++	Synthesis of incomplete figures
++	Synthesis of lines
++	Unusual visualisation

+	Internal visualisation
++	Extending or breaking boundaries
+	Humour
+	Richness of imagery
+	Colourfulness of imagery
+	Fantasy

+ = observed 1 or 2 times
++ = observed 3 or more times

Creativity index score: 65 out of 100 / 65%

13 criteria. Max score of 100. 100/13 = 7.6923076923 / 3 = 3,8461538462

Each + criteria = 3,8461538462

18 criteria achieved = 3,8461538462 x 17 = 65,3846153854

Figural:

	Picture complete	Circles	Memory recall	Unusual uses	Ask and guess	Product improve	**Raw score**
Fluency	4	3	5	7	5	4	28
Originality	3	2	4	8	4	3	24
Titles	4	3	5	7	4	4	27
Elaboration	6	5	7	10	6	5	39
Resistance	2	1	3	6	3	2	17
Total	19	14	24	38	22	18	135

Score out of 100.
Each criterion has a max score of 16,6666666667.

Figural creativity score: 135/500 = 27%

Verbal:

	Picture	Parallel lines	Memory recall	Unusual uses	Ask and guess	Product	Score
Fluency	6	5	8	8	8	7	**42**
Flexibility	4	4	6	7	6	5	**32**
Originality	8	7	10	10	9	8	**52**

Score out of 100.
Each criterion has a max score of 16,6666666667.

Verbal creativity score: 126/300 = 42%

Questions:

How do you typically remember important information or instructions?
I have a meticulous approach to organisation and often **rely on repetition** and double-checking to ensure that I remember everything accurately. I find it helpful to **write things down and create detailed lists to keep track of tasks.**
How do you maintain focus on tasks that require sustained attention?
I often get caught up in perfectionism and compulsive behaviours, which can derail my focus and productivity. To combat this, I use techniques like **mindfulness and deep breathing** to stay grounded and focused on the task at hand.
How quickly do you typically process information when presented with new tasks or challenges?
Sometimes this can lead to overthinking and analysis paralysis. I have a strong attention to detail and often find myself getting caught up in minor details, which can slow down my decision-making process. I find it helpful to **step back and take a big-picture view** when faced with new tasks or challenges.
How do you plan and organise your daily activities or responsibilities?
I have a methodical approach to planning and often **create elaborate schedules and systems** to keep track of my responsibilities. However, I sometimes struggle with flexibility and can become overwhelmed if my plans are disrupted.

Appendix 6 – Test analysis

To begin finding comparable statistical results I used the following python code to calculate the deviation for each creativity dimension across different tasks to understand the central tendency and dispersion of scores.

Example Python code:

```
import numpy as np

# Define the data
data = {
    “Fluency”: [14, 11, 15, 12, 5, 6, 10, 6, 12, 8, 8, 7],
    “Originality”: [9, 10, 15, 13, 3, 6, 12, 8, 14, 5, 5, 7],
    “Titles”: [13, 14, 15, 14, 3, 8, 9, 5, 11, 6, 8, 6],
    “Elaboration”: [14, 15, 15, 14, 2, 4, 11, 7, 13, 8, 10, 9],
    “Resistance”: [12, 12, 15, 14, 4, 8, 8, 4, 10, 6, 9, 5]
}

# Calculate mean, median, and standard deviation for each category
stats = {}
for category, values in data.items():
    mean = np.mean(values)
    median = np.median(values)
    deviation = np.std(values)
    stats[category] = {“Mean”: mean, “Median”: median, “Standard Deviation”: deviation}

# Print the statistics
for category, values in stats.items():
    print(f”Category: {category}”)
    print(f”Mean: {values[‘Mean’]}”)
    print(f”Median: {values[‘Median’]}”)
    print(f”Standard Deviation: {values[‘Standard Deviation’]}”)

    print()
```

Mean:

- The mean is another term for the average.
- It’s calculated in the same way as the average: sum of all values divided by the number of values.

Median:

- The median is the middle value in a dataset when the values are arranged in ascending or descending order.
- If there is an even number of values, the median is the average of the two middle values.
- The median is not affected by extreme values or outliers, making it a more robust measure of central tendency in skewed datasets.

Standard Deviation:

- The standard deviation measures the dispersion or spread of data around the mean.
- It indicates the average deviation of each data point from the mean.
- A low standard deviation indicates that the data points tend to be close to the mean, while a high standard deviation indicates that the data points are spread out over a wider range.
- It’s calculated by taking the square root of the variance, which is the average of the squared differences between each data point and the mean.

ASD

Figural:

Category	Mean	Median	Deviation
Fluency	7,44444444	7	2,30656919
Originality	6,77777778	6	2,90143079
Titles	6,55555556	6	2,03563033
Elaboration	8,11111111	7,5	2,32350873
Resistance	6,11111111	5	3,25194763

Verbal:

Category	Mean	Median	Deviation
Fluency	6,58333333	5,5	3,02890119
Flexibility	6,88888889	6,5	3,00761561
Originality	5,88888889	6	2,7415944

ADHD

Figural:

Category	Mean	Median	Deviation
Fluency	9,88888889	9,5	3,02711062
Originality	9,16666667	8,5	3,65014101
Titles	9,33333333	8,5	3,37813036
Elaboration	10,1111111	10	3,89402089
Resistance	8,66666667	8,5	3,59738467

Verbal:

Category	Mean	Median	Deviation
Fluency	11,75	13	4,24531828
Flexibility	12,1666667	13	2,91547595
Originality	10,7777778	11	3,26398449

DYSLEXIA

Figural:

Category	Mean	Median	Deviation
Fluency	8,16666667	7,5	3,53553391
Originality	6,66666667	6	4,20084025
Titles	6,88888889	6	3,5295207
Elaboration	7,88888889	8	3,93907856
Resistance	7,27777778	6	4,72546986

Verbal:

Category	Mean	Median	Deviation
Fluency	8,61111111	9,5	4,1605838
Flexibility	7,5	8	3,61776662
Originality	8,44444444	8,5	4,40884435

OCD

Figural:

Category	Mean	Median	Deviation
Fluency	6,27777778	5	3,95274373
Originality	5,38888889	4	3,85225509
Titles	6	4	4,75270821
Elaboration	6,94444444	5,5	4,49145885
Resistance	6,11111111	5	4,36414386

Verbal:

Category	Mean	Median	Deviation
Fluency	6,66666667	6,5	4,1016496
Flexibility	5,55555556	5	3,80745742
Originality	7,27777778	8	4,81181824

Appendix 7 – Structured interviews

See Appendix 5 for full interview transcripts.

Structured interviews consisting of open-ended questions will be conducted to provide comparable, uniform answers between neurodiverse and neurotypical participants. Open-ended questions allow for a wealth of qualitative data concerning patterns, behaviours or perceptions across a population. Content analysis grounded in thematic analysis will be explored (Kumar, 2014).

The purpose of conducting a structured interview encompasses the following key objectives:

- **Standardisation**: Ensuring that each participant is asked the same questions in the same order, reducing interviewer bias and enhancing the reliability of the data collected. This standardisation facilitates the comparison of responses across participants (Wilson, 2010).
- **Replicability**: The structured format enhances the replicability of the research. Other researchers can repeat the study using the same interview protocol to verify findings or to conduct longitudinal studies that track changes over time (Flick, 2009).

QUESTIONS

Can you please tell me about your role and experience in the creative industry?
Do you identify as neurodiverse, or have you worked closely with colleagues who are neurodiverse?
Neurodiverse
How do you typically remember important information or instructions?
Can you recall a recent event or experience in detail?
How do you maintain focus on tasks that require sustained attention?
Do you find yourself easily distracted in certain environments or situations?
How quickly do you typically process information when presented with new tasks or challenges?
Do you prefer to take your time to thoroughly understand a task, or do you work more efficiently under time pressure?
How do you plan and organise your daily activities or responsibilities?
Can you describe a time when you had to make a decision under pressure? How did you handle it?

Disadvantages:

Limited depth and flexibility

- Structured interviews, due to their pre-defined set of questions, may not allow for the exploration of unexpected topics or in-depth discussions. This can result in missing nuanced insights that open-ended conversations might reveal (Bryman, 2016).

The respondent's perspective may be overlooked

- The fixed nature of questions might not capture the participant's viewpoint, the complexities of their experiences or the context of their responses, leading to potentially superficial data (Patton, 2002).

Social desirability bias

- The presence of the interviewer and the formal setting of structured interviews can lead to social desirability bias, where participants might answer in a way they believe is expected or acceptable, rather than truthfully. The participant's comfort level with the interviewer can also affect the results (Nardi, 2018).

INDUCTIVE THEMATIC ANALYSIS

Participant	Memory	Focus	Processing	Planning
#1 - ADHD	Keywords trigger memory	Regular exercise	Break it down to smaller tasks	
		Classical music		
#2 - ADHD	Reptition	Break it down to smaller tasks	Need to be interested in the task/subject	Lists
	Reminders: sticky notes, phone alarms	Set a timer to stay focused for a defined time		Setting realistic goals
		Switching my environment		Being adaptable
		Take short breaks to stretch or doodle		
#3 - ADHD	Repition	Timers	Pause and take a moment to fully digest	Digital planners
	Verbal rehearsal	Taking short breaks to move around		Reminders
#4 - ASD	Repitition	Fidget toys	Ask for clarification	Visual schedules: photos or symbols
	Visual guides	Noise-cancelling headphones	Repitition	Prioritise by importance or urgency
	Voice memos	Regular breaks		Specific times for meals and breaks
		Sensory-friendly environments		

#5 - ASD	Patterns and making connections	Visual aids	Must be pationate about it	Routines
		Written instructions	Taking breaks	Colour-coded calendars
#6 - ASD	Details and patterns	Have to be interested	Structured information	Detailed checklists
	Written instructions			
#7 - Dyslexia	Visual aids	Take my time	Repitition	Lists
	Written instructions			
#8 - Dyslexia	Written instructions	Remove all distractions	Ask questions	Lists
			Break it down into smaller tasks	Prioritise by importance or urgency
#9 - Dyslexia	Turning things into stories or pictures in my head	Break it down to smaller tasks	Asking questions	Colour-coded calendars
	Write it down	Taking short breaks	Getting hands on help	Sticky notes
	Repeat it out loud			Phone reminders
#10 - OCD	Repitition	Visual cues	Avoid rushing	Calendars
	Structured lists	Break it down to smaller tasks	Make notes	Checklists
	Break it down to smaller pieces	Dedictaed blocks of time	Clarifying questions	Prioritise by importance or urgency
	Colour-coded items	Regular breaks	Break it down to smaller pieces	
#11 - OCD	Calendars – all important info	Structured routines	Reviewing instructions methodologically	Colour-coding

		Set times for activities		Prioritisation
		Distraction free environment		Regular check-ins with myself
#12 - OCD	Repitition	Mindfulness	Step back and take a big-picture view	Schedules and systems
	Write things down	Deep breathing		
	Detailed lists			

Appendix 8 – Focus group

A focus group was conducted with one participant representing each neurodiverse group: ASD, ADHD, Dyslexia and OCD. The aim of the focus group was twofold: to ascertain the relevance of the proposed triple diamond framework to each neurodivergent group and to gather feedback from participants on the framework's final iteration. The following section presents the analysis of the focus group discussions.

General opinions:

ASD Participant:

"This framework seems spot on for bringing out everyone's strengths. Could it be more flexible, you know, to accommodate different ways of working."

ADHD Participant:

"I reckon this framework gives us a good structure to work with but could maybe use some more ways to keep those with short attention spans engaged throughout."

Dyslexia Participant:

"There should be more emphasis on visuals and practical stuff to help folks like me who struggle with absorbing information."

OCD Participant:

"Overall, I think this framework's got some real promise. I reckon it could be tweaked a bit to allow for a bit more freedom without sacrificing quality."

Revised and agree'd positioning:

Research	
Discover	Define
ASD: Attention to detail Idea generation Dyslexia: Attention to detail Collaboration Verbal idea generation	ASD: Systematic thinking Accuracy/Focus ADHD: Idea generation OCD: Attention to detail Systematic thinking Verbal idea generation
Experiment	
Develop	Validate
ASD: Idea development ADHD: Risk taking Flexibility Dyslexia: Collaboration Idea development Visual-spatial awareness	Dyslexia: Systematic thinking Entrepreneurial skills OCD: Attention to detail Systematic thinking Accuracy/Focus
Deliver	
Deliver	Analyse
Dyslexia: Entrepreneurial skills Flexibility Collaboration OCD: Attention to detail Accuracy/Focus	ASD: Accuracy/Focus OCD: Attention to detail Systematic thinking Accuracy/Focus

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