Neurodiversity and Human Resource Development: A Systematic Literature Review

Simran Afsar

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School of Business

Auckland University of Technology

Abstract

This Systematic Literature Review (SLR) examines the significance of implementing tailored training programmes to support neurodivergent individuals in the workplace. The review explores how Humanistic Learning Theory (HLT) and Digital Transformation (DT) can aid neurodivergent individuals by reducing cognitive load and minimising biases within teams. It further investigates how Human Resource Development (HRD) initiatives can be designed to assess and enhance the well-being of neurodivergent individuals.

Following the PRISMA protocol, a standardised and transparent review process was conducted, encompassing a search across four databases: EBSCO, Google Scholar, ProQuest, and NZ Research. The inclusion and exclusion criteria were strictly developed based on thematic analysis, timeframe, language, article quality, and methodology. Initially, 440 articles were gathered across four databases, out of which 16 relevant peer-reviewed studies and 12 grey literature sources from global organisations were identified.

The findings highlight the importance of incorporating HRD initiatives that promote neuroinclusive well-being and how integrating a humanistic approach with DT can create effective, personalised training programmes. These approaches help reduce stigma and provide organisations with search strategies to foster inclusivity.

This review contributes to existing literature by identifying gaps and proposing directions for future research. Additionally, it offers practical recommendations for organisations to implement neurodiversity-focused programmes that improve workplace inclusivity and well-being. This study emphasises the critical role of individualised support and inclusive practices in creating equitable opportunities for neurodivergent individuals.

Attestation of Authorship

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor used artificial intelligence tools or generative artificial intelligence tools (unless it is clearly stated, and referenced, along with the purpose of use), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

Simran Afsar

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Chapter 1: Introduction

Neurodiversity refers to the natural variations in neurological functions among individuals, encompassing conditions such as Autistic Spectrum Disorder (ASD), dyslexia, dyspraxia and Tourette syndrome (Doyle & McDowall, 2022). The concept of neurodiversity, or being neurodivergent, refers to the changes in an individual's brain function, influenced by genetic factors and shaped over time by personal experiences (Patton et al., 2023). This concept highlights differences in cognitive processing, sensory perception, and behavioural traits that are normal or considered ‘easy coping’ for neurotypical individuals. Neurodivergent individuals often exhibit unique challenges like heightened sensitivity to sensory input or difficulties in social interactions (Kirby & Smith, 2021). Recognising and valuing these differences is essential in fostering inclusive environments where neurodivergent individuals can thrive and contribute meaningfully.

Within organisational settings, neurodiversity presents a unique opportunity to foster innovation, creativity and diverse problem-solving approaches. However, to successfully integrate neurodivergent individuals into the workplace, organisations must adopt inclusive Human Resource Development (HRD) practices that prioritise tailored training, accessible accommodations for learning, and supportive workplace environments (O’Dwyer & Thorpe, 2013). Organisations worldwide are developing frameworks to create inclusive Human Resource (HR) practices that support neurodivergent employees in their roles and contributions (Ru & Jamil, 2024). With growing efforts to embrace diversity and inclusion, many businesses are incorporating neurodiversity into their policies and training programmes as part of modern workplace practices. For example, HRD initiatives now include tailored onboarding and recruitment processes that accommodate various sensory and learning preferences of neurodivergent individuals (Bruyère & Colella, 2024). Training programmes

increasingly focus on educating managers and employees about neurodiversity to foster understanding and acceptance (McDowall et al., 2024). Adapting to flexible work arrangements and creating a diverse and sensory-friendly environment has become a priority within organisations (Morgan, 2019). These initiatives aim to recognise and utilise the unique strengths of neurodivergent individuals, such as innovative thinking and specialised problem-solving abilities, which can boost organisational performance and creativity (Eze et al., 2021).

By fostering an environment that values diverse perspectives, organisations can support the well-being of neurodivergent employees, as well as build a competitive advantage (Bewley & George, 2016). In this context, competitive advantage refers to the unique benefits that arise when organisations leverage the strengths of a neurodiverse workforce. For example, autistic individuals excel in attention to detail, while those with Attention Deficit Hyperactivity Disorder (ADHD) may bring creative problem-solving towards dynamic tasks (Hall et al., 2024). Such an approach aligns with the broader goal of creating a workplace culture where everyone can thrive, including neurodivergent and neurotypical. Specific adjustments are made to the workplace through targeted human resource development, managerial support, and tailored accommodations to ensure neurodivergent employees can perform to their full potential (Makupa et al., 2023). These accommodations may include redesigning tasks to align with individual strengths or creating a quiet space for focused work (Lindsay et al., 2021). Companies can empower neurodivergent employees to succeed while promoting inclusivity as a core organisational value.

1.1 Research Purpose and Questions

This study undertakes a systematic literature review to explore HRD for neurodivergent learners in organisations. It examines three key areas: neuro-inclusive training programmes,

Humanistic Learning Theory (HLT), and Digital Transformation (DT). This review integrates academic literature, theoretical insights and grey literature to highlight how HLT and digital tools can reduce cognitive burdens for neurodivergent individuals. It emphasises strategies such as sensory stimuli introduced by Aron, Elaine and Aurthur in 1997 and Behavioural Skill Training (BST) explained by Ward-Horner and Sturmey in 2012 for neurodiversity, all of which contribute to fostering a more inclusive workplace (Ward-Horner & Sturmey, 2012).

Sensory stimuli techniques use specific sensory inputs, such as visual aids and auditory tools, to help individuals thrive professionally (Masataka, 2017). For example, visual schedules or colour-coded tasks can help autistic employees organise work, whereas white noise machines can reduce distractions to enhance focus (Dinishak, 2019). Inclusive programmes to support neurodivergent learners in organisations integrate BST to transform sensory strengths into actionable, strength-based workplace strategies. BST is a training package comprising instructions, modelling, rehearsal and feedback (Ward-Horner & Sturmey, 2012). Instructions showcase clear and concise verbal or written explanations of the goal and expectations of training. Modelling demonstrates the desired behaviour or skill in a way that the employees can observe and replicate. Rehearsal provides an opportunity to practice the skill. Rehearsal is essential for reinforcing learning and allowing individuals to build confidence in their abilities. Feedback refers to constructive and immediate feedback provided to learners on their performance (Creem et al., 2022).

Three research questions guide this study, enabling the use of secondary data to understand and implement neuro-inclusive training, humanistic approaches, and DT that support HRD for neurodivergent learners at work. By addressing these domains, the study sheds light on how organisations can create inclusive environments that benefit all employees.

RQ1. What is known from the academic literature on neurodiversity and human resource development for the workplace?

RQ2. What is known from the academic literature on using humanistic learning theory and/or digital transformation to support neurodiversity in workplace learning?

RQ3. What are the features of organisational training initiatives offered for neuroinclusion?

1.2 Importance of Recruiting and Training Neurodivergent Individuals

The first question focuses on existing literature on neurodiversity and HRD. Leveraging a neurodiverse workforce emphasises the advantages of inclusive practices refined for individuals with diverse neurological conditions (Adeniran, 2023). Although management, human resource and organisational behaviour literature have historically underrepresented neurodiversity, researchers increasingly recognise its individual, managerial, and potential benefits (Donaldson et al., 2017).

Increased understanding of neurodiversity at work has encouraged organisations to increase efforts to recruit neurodivergent individuals (Khan et al., 2022). Requirements for implementing neurodivergent individuals into the workplace include designing the job interview processes to minimise implicit biases and establish fairer hiring practices. Traditional interview methods often rely on nonverbal and verbal cues, presentation, engagement, and self-promotional skills that may not accurately reflect a candidate's potential and job performance (Giannantonio et al., 2022). This disconnect highlights the need for more equitable hiring practices that move beyond a narrow focus on conventional evaluation criteria.

Recent studies have also explored traditional and modern screening methods, emphasising the risks of relying on predictive selections that may not correlate with future performance

(Doyle et al., 2022). The screening methods utilised are either contemporary, traditional or modern. These screening methods include personality tests and pre-employment screeners to understand personalities (Wiggleton-Little & Callender, 2023). Traditional personality tests may not precisely capture the unique traits of neurodivergent individuals, which can lead to exclusion from job opportunities (Wiggleton-Little & Callender, 2023). Modern approaches recognise the limitations of these traditional methods and explore more inclusive evaluation techniques (Savickaite, 2024). Companies have adopted innovative screening methods such as practical problem-solving questions rather than verbal communication and technical skills assessment instead of standardised tests, allowing neurodivergent candidates to showcase their abilities more effectively (Doyle & Waseem, 2022).

Integrating neurodiversity into Diversity, Equity, and Inclusion (DEI) by adopting the Biopsychosocial Model (BPS) in training programmes shows a significant development towards HRD. Engel initially formulated the BPS model in 1977 to help healthcare and business organisations assess the requirements of employees at every level. Organisations promote this model as a person-centred approach that enhances neuroinclusive training (Whelpley et al., 2023). HRD focuses on improving workplace capabilities and aligning organisational strategies with employee development (Meacham et al., 2017). Incorporating the BPS model allows HR professionals to design training programmes that address biological, psychological and social factors. Companies and programmes can implement these three factors. For example, biological factors include sensory-friendly training spaces, as each neurodivergent individual has their own mechanism of functioning (Doyle, 2020). Psychological factors include training materials such as visual aids and written instructions instead of verbal. Social factors involve educating neurotypical individuals about the needs of neurodivergent employees to reduce stigma (Fung, 2024). The BPS model focuses on several key elements, including behavioural education, redesigning hiring practices, training

managers to understand and accommodate neurodiverse needs, and making physical and environmental adaptations to workplaces (Blackburn, 2023).

The second question explains the importance of HLT and DT when integrated into training programmes (i.e., the benefits of adding neuro-friendly practices). Neurodiversity encompasses a range of spectrums, each presenting unique strengths and challenges. To effectively support neurodivergent individuals in a workplace, it is essential to identify and implement best practices tailored to each condition (Nicholson, 2022). Recognising the specific needs of these spectrums allows organisations to create supportive environments that promote inclusion and productivity.

HLT, introduced by Carl Rogers in the 1960s, focuses on recognising the value of everyone, aiming to help them grow till they reach their full potential and achieve goals within professional settings (Arnold & Foncubierta, 2021). The idea of HLT fits well with supporting neurodivergent employees in the workplace, as it emphasises understanding each person's abilities, needs and ways of learning. By promoting empathy and teamwork, HLT helps create a workplace where neurodivergent individuals can feel more confident (Bolton, 2023). For instance, training programmes can be flexible by using HLT that suits the needs of ADHD, ASD and dyslexic individuals.

DT integrates digital tools within neuroinclusive training programmes to reduce cognitive load rather than increase it (Walkowiak, 2021). Digital transformation offers support towards neurodivergent employees by including assistive digital tools and personalised software to help them with specific challenges, such as difficulty with organisation and communication (Walkowiak, 2021). For example, apps designed for time and meeting management and task prioritisation can help employees with ADHD, while text-to-speech software can help dyslexic individuals. Moreover, employers can provide flexible work arrangements for

neurodivergent employees, such as hybrid or remote working choices (Spoor & Walkowiak, 2024).

The third question focuses on neuro-inclusive practices within organisational training initiatives. Training programmes can facilitate integration by equipping neurodivergent employees with the tools and strategies to thrive professionally (Kersten et al., 2024). These programmes aim to enhance skill development, improve self-confidence, and address specific workplace challenges, such as communication barriers or task prioritisation. Moreover, training initiatives often include customised approaches that align with the unique abilities and preferences of neurodivergent individuals, enabling them to leverage their strengths effectively (Weber et al., 2024).

Kaaria and Karemu (2024) emphasise the importance of designing programmes to support neurodivergent individuals by focusing on two key management principles: understanding organisational behaviour and fostering psychological well-being. These principles are critical for promoting inclusive strategies that recognise the unique strengths and challenges neurodivergent individuals face within the workplace (Kaaria & Karemu, 2024). By developing leadership skills such as empathy, adaptability, and clear communication, leaders can create a supportive environment where neurodivergent employees feel valued and empowered. This approach not only enables neurodivergent individuals to contribute their full potential but also improves overall organisational productivity and innovation (Kluge, 2024). Doyle (2020) further highlights that when leaders prioritise inclusivity and understand the distinct needs of neurodivergent employees, they foster a culture of acceptance and collaboration. Such initiatives not only benefit neurodivergent individuals but also strengthen organisations by leveraging diverse perspectives to drive creativity and problem-solving abilities.

1.3 Dissertation Outline

This dissertation organises the content into six chapters. Chapter One introduces the study, and Chapter Two presents the research design, focusing on the Preferred Reporting Items for Systematic Review (PRISMA) framework and thematic analysis, which was used to guide the data collection and analysis for this review. Chapter Three presents the thematic analysis and PRISMA framework findings, highlighting the key themes, codes and patterns. Chapter Four discusses the conclusions of the literature search about the research questions. Chapter Five concludes the dissertation by summarising the research contributions, identifying limitations and outlining a future research agenda.

Chapter 2: Research Design

This study used a Systematic Literature Review (SLR) to analyse existing research on HRD and neurodiversity comprehensively. Researchers design SLRs to summarise and assess existing research on specific topics using a structured and transparent approach. Such reviews aim to identify, evaluate, and synthesise relevant studies to provide a comprehensive overview of the current literature, which can highlight gaps and inconsistencies in knowledge. An SLR can support researchers in making evidence-based conclusions and inform further research or practices.

This chapter describes the methodology for conducting the SLR on neurodiversity and HRD. PRISMA approach was used to ensure transparency and clear outcomes, followed by a thematic analysis (Pati & Lorusso, 2018). PRISMA and thematic analysis provide a structured approach, helping to standardise identifying, selecting, and synthesising relevant studies (Moher et al., 2010).

The structure of the chapter comprises of information sources used. Followed by an explanation of the search strategy employed. Next is a description of the data extraction process, which includes predefined inclusion and exclusion criteria. Lastly, as the section outlines, the thematic analysis approach is used to determine the theme across works of literature.

2.1 Search Strategy

The academic material for the systematic review was obtained from databases including EBSCO information services, Pro Quest, Google Scholar and NZ research which consisted of peer-reviewed journal articles. These databases resulted in 16 journal articles, which are included in the findings chapter, detailing the effects of neuroinclusive training.

Organisational practices to support neurodivergent learners were identified through a Google and LinkedIn search conducted as part of the PRISMA framework for grey literature. This search captured 12 organisations: Auticon, University of Auckland, Australian Spatial Analytics (ASA), ANZ, Westpac, International Business Machines Corporation (IBM), Google Cloud, Deloitte, Dell, Microsoft, System Applications and Products in Data Processing (SAP), and Ernst & Young (EY). These resources were selected as a part of grey literature.

The search strategies focused on neurodiversity, training programmes and human resource development, incorporating language pertinent to neurodiversity, such as neurotypical, neurodivergent and neuro minority. Related conditions, as articulated by Clouder, Karakus, Cinotti, Ferreyra, Fierros and Rojo (2020), encompass ADHD, ASD, dyslexia, dyspraxia, dyscalculia, and Tourette syndrome. Data collected for this research focuses primarily on studies published from 2000-2024, given that the studies related to neurodivergent individuals generated a range of findings in this review (Clouder et al., 2020).

The selection criteria were established based on keywords listed in the table below.

Table 1: Keyword search based on research questions

	Research questions	**Keyword search**
1.	What is known from the literature on neurodiversity and human resource development?	Human resource development, workplace accommodations, autism, autism spectrum disorder, dyslexia, dyscalculia, dyspraxia, ADHD, tourette's syndrome, individualised accommodation, personalised training programmes.

2.	What is known from the literature on using humanistic learning theory and/or digital transformation to support neurodiversity in workplace learning?	Humanistic learning theory, humanistic approach, humanism, digitalisation, digital transformation, technological change, cognitive load, digital accommodations and requirements, enhancing neurodivergent training, humanistic learning.
3.	What are the features of organisational training initiatives offered for neuroinclusion?	Diversity and inclusion, inclusivity, neurodivergent training programmes, biopsychosocial training, neuro inclusion, motivation, stigma, unconscious bias.

Short keywords listed in the review

- **NDIS:** National Disability Insurance Scheme
- **ABS:** Australian Bureau of Statistics
- **BPS:** Biopsychosocial Model
- **ASD:** Autism Spectrum Disorder
- **ADHD:** Attention Deficit Hyperactivity Disorder
- **HLT:** Humanistic Learning Theory
- **HRD:** Human Resource Development
- **IBM:** International Business Machines
- **SAP:** System Applications and Products in Data Processing
- **HRNZ:** Human Resources Institute of New Zealand
- **NZDS:** New Zealand Disability Strategy

Searches using the listed keywords helped determine academic articles relevant to neurodiversity and the research questions. The search also canvased organisations that use

behavioural training and sensory analysis to create customised training programmes that support neurodivergent individuals. The research framework adapted within this review uses behavioural training (BT) and sensory analysis as key approaches to supporting neurodivergent individuals and creating environments that meet diverse needs. This review examines research that effectively supports neurodivergent employees, assessing them to foster a more inclusive and productive workplace.

2.2 Data Collection and Extraction Process

The data extraction process comprised of specific search filters as stated below:

- Articles, books, thesis and dissertations relevant to neurodiversity training and updated organisational policies.
- Demographic indicators guided the search for relevant literature on neuroinclusive training (e.g., educational levels and various organisational adjustments within Australia and New Zealand).
- This systematic literature review also includes grey literature, collecting information from other sources, such as company websites, rather than relying solely on databases and registers. (Elaborated in Figure 1. PRISMA flowchart).
- The analysis of neurodiversity initiatives used grey literature for organisational websites that prioritise tailored training and personalised assistance for neurodivergent employees.
- After accumulating academic and grey literature, the study organised the data based on criteria that assess competencies, prerequisites, advancements, and practical implementations.

This study derives its findings from secondary data focused on neurodivergent individuals' development to support their learning and performance in the workplace. The relevant articles

also shed light on the important role of managers in accommodating the needs of neurodivergent employees.

Risk of bias assessment

This study's bias risk assessment employs Cochrane's Risk of Bias Tool to determine the appropriate classification for this review (Armijo-Olivo et al., 2012). The Cochrane Risk of Bias Tool was used to identify and reduce bias in the reviewed literature on neurodiversity-focused training and development. This tool helps to assess how different types of bias, such as selection bias, performance bias, detection bias, attrition bias and reporting bias may affect the reliability of findings (Lundh & Gøtzsche, 2008).

- Selection bias was minimised by setting clear criteria and ensuring that included studies and articles within the research had clear participant or objective selection.
- Performance bias was mitigated by ensuring whether the studies had techniques to prevent expectations from influencing any results.
- Detection bias was reduced by assessing if the outcomes were not precise or if standardised measurement tools were used.
- Attrition bias was considered by reviewing how missing data was reported and whether initial dropout rates affected the overall conclusion of the studies.
- Reporting bias was managed by including studies that transparently reported all outcomes, not just the favourable ones.

To enhance the reliability of these articles, the review followed PRISMA guidelines to systematically select and evaluate studies. PRISMA helped ensure that studies were screened for bias in a structured way, making the findings on neurodiversity-focused training more objective and evidence-based (Page et al., 2021).

A significant degree of unconscious bias has been observed against individuals diagnosed with Tourette's syndrome and Attention Deficit Hyperactivity Disorder (ADHD), with 32% of surveyed businesses expressing discomfort in the prospect of hiring and managing individuals with these conditions. Statistics from Cimlearning reveal that 26% of employers exhibit bias against individuals with dyscalculia and autism, 19% against those with dyspraxia, and 10% against individuals with dyslexia (Cimlearning, n.d.).

2.3 Inclusion and Exclusion Criteria

Table 2. Inclusion and Exclusion Procedures

Criteria	**Inclusion**	**Exclusion**
Keywords and subject relevance	Articles related to neurodiversity, HLT and training	Studies relating to music or other industries (such as sports) instead of corporate or organisational
Time frame	Studies published between 2000-2024	Out of the time frame
Language used	Articles written in the English language only	Non-English-based language studies and publications
Article Quality	Academic studies that have been peer-reviewed and relevant. Grey literature derived from websites.	Work-in-progress papers, book reviews, short reports, non-relevant websites, unreliable publications
Methodology	Academic: Theoretical and practical studies Grey literature: Organisational websites	Data that is non-relevant (e.g. blogs, magazines, opinion pieces)

To ensure unambiguous interpretation, the PRISMA guidelines require researchers to conduct a systematic literature review to specify the eligibility criteria for report characteristics, including a time frame, language, and article quality. To determine what articles are eligible

to be included or excluded, the reader must understand the scope of the review and verify inclusion and exclusion decisions (Moher et al., 2010).

The main eligibility criteria for inclusion and exclusion are as follows:

Keywords and subject relevance

The preceding Table 2 indicates that research relevance and alignment with the framework of the systematic literature review primarily guide the procedure for data extraction. Table 1 shows the principal keyword search. This table encompasses the specific keywords employed to interpret each research question. Highlighting relevant keywords beforehand enables the formulation of clear criteria, thus guaranteeing that the search results include either the exact terms or the synonyms of the identified keywords.

Time frame

The main concepts of the research questions guided the establishment of a clear time frame for search inclusion. The study intended to include articles that have a relationship with at least two main components out of three. For example, topics such as neurodiversity and personalised training programmes, neurodiversity with humanistic approaches and neurodiversity in digital inclusion help determine the most suitable time frames for implementation. The time frame suitable for neurodiversity and humanistic approaches is from 2000 to 2024. Digitalisation implementation focused on the years from 2019-2024 to capture the recent digitalisation advances within companies, also largely accommodated since the COVID wave. Thus, literature from these three areas spanned 2000-2024.

Language

This study includes English-language articles and grey literature. The main reason for setting this criterion is that the selection, translation, and screening of articles that are not English-

based is beyond the available language proficiency, time constraints and resources of the study.

Article quality

The study incorporated peer-reviewed, academically recognised articles. It also draws on grey literature, primarily sourced from organisational websites. The selected articles prioritise critical aspects of neuroinclusive training programmes, including the use of HLT and digitalisation within these programmes.

Methodology

This study aimed to review qualitative and quantitative data focusing on the primary key concepts within this review: neurodivergent, neurotypical, HLT, DT, humanistic approach, and personalised training programmes. This study applied the thematic analysis approach, initially developed by Braun and Clark in 2012, as discussed in the section below.

The exclusion criteria comprise the following sources excluded from the study:

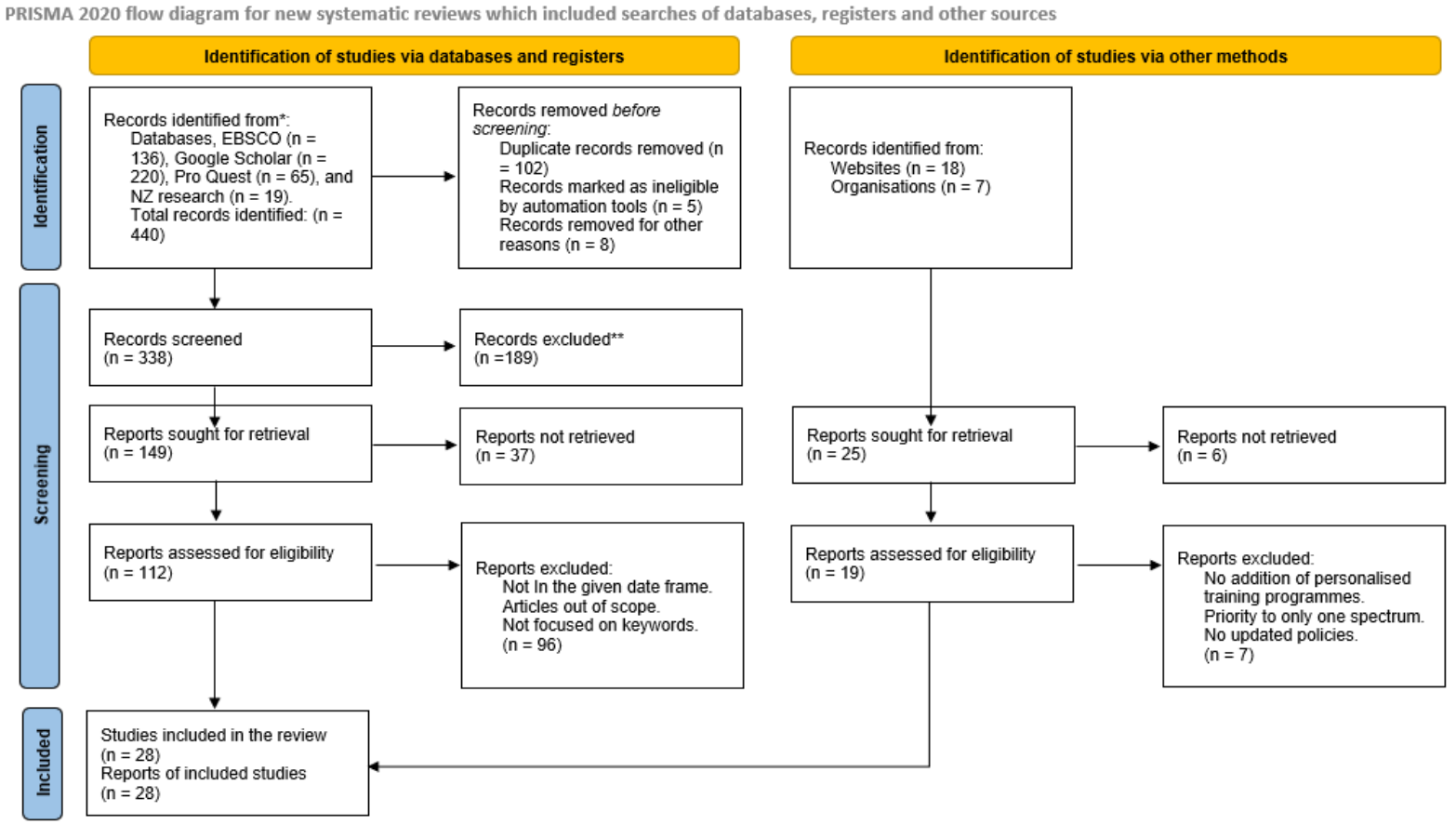
- Book reviews and short articles.
- Studies from practice guidelines.
- Non-relevant articles.
- Articles older than the time frame.
- Studies that examine other sectors instead of corporate.
- Organisations with non-updated policies to support neurodivergent workers on websites.

The PRISMA flowchart (Figure 1) identifies studies and registers implemented within this review. It consists of three main stages: identification process, screening, eligibility

assessment, inclusion and exclusion of studies, and the results obtained after the screening process, including the final studies showcased within the review.

The secondary data was downloaded as search results using RIS format, exported to Endnote, and then copied and screened using the Covidence website. The website helped assess which articles to include, exclude or identify as duplicates or relevant. Records excluded (n=102) duplicated studies and, after screening (n=189) for non-English language, and non-relevant articles.

Figure 1: PRISMA Flowchart



*Consider, if feasible to do so, reporting the number of records identified from each database or register searched (rather than the total number across all databases/registers).
**If automation tools were used, indicate how many records were excluded by a human and how many were excluded by automation tools.

From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71. For more information, visit: http://www.prisma-statement.org/

2.3 Thematic Analysis

Thematic analysis involves collecting and studying large amounts of data, which researchers break down into codes or smaller segments to interpret and gain new insights into the topic of investigation (Creswell, 1998). It represents a qualitative approach beyond simple data descriptions, focusing on the interpretations of meanings while concurrently recognising patterns and the importance of themes that embody the fundamental elements of data (Braun & Clarke, 2012). This systematic review used thematic analysis to analyse academic literature and neurodiversity programmes and initiatives incorporated within organisations. This review includes the most recent and relevant literature on neurodiversity training and development as per the selection criteria developed.

The study conducted the analysis using the methods suggested by (Attride-Stirling, 2001; Braun & Clarke, 2006). The analysis comprises two stages initially gathering codes from themes and sub-themes, then categorising them based on the authors, origin of research and year (country where information was collected), sample size, research findings, methodology used and type of neurodiversity. The initial phase of thematic analysis involved the creation of codes. The manual process generated these codes by highlighting the most significant sentences to the identified themes and classifying each code under the most suitable corresponding theme. The codes were highlighted using different highlighters to avoid any confusion in the future.

By systematically categorising codes into sub-themes (see Figure 2 below), the analysis facilitated the examination of articles as contemporary and relevant to this review. These are also called 'basic themes', a fundamental theme that represents the foundational hierarchical level or primary theme and encompasses a collection of several related codes (Braun &

Clarke, 2006). The sub-themes provide a detailed understanding by including multiple codes associated with the overarching themes; the analysis organised these codes under themes based on their mutual characteristics. The analysis allocated codes that did not fit within any theme or sub-theme to a separate folder for future use. Consequently, the analysis utilised these codes to conduct a comparative assessment, determining the highest compatibility with the defined themes and sub-themes.

The analysis categorised the sub-themes into a higher level called ‘themes’. Themes are more covered and have a broader range of comprised codes and sub-themes (Attride-Stirling, 2001). The analysis uses sub-themes to break down themes and generate codes, whereas themes encompass sub-themes and codes. Themes represent the principal domains where all other elements are recognised and emphasised.

The five key themes generated from the systematic literature review are:

1. Neurodiversity stereotypes.
2. Stigma and challenges encountered by neurodivergent employees.
3. Inclusion of a humanistic approach to neurodivergent HRD initiatives.
4. Training managers to support the needs of neurodivergent individuals.
5. Supporting the development of neurodivergent employees using digital tools.

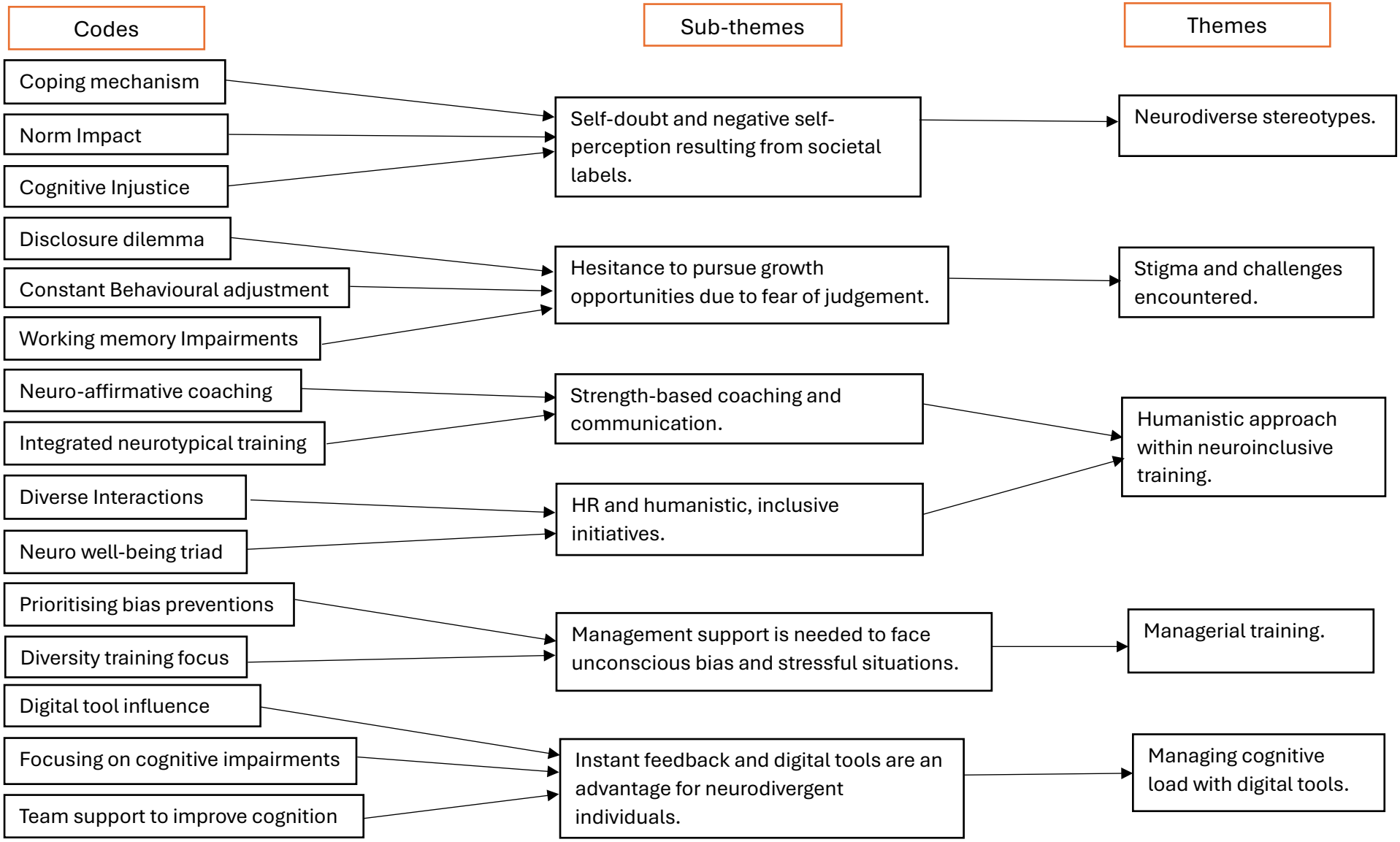
These five thematic areas align with the study’s overarching research questions, which explore how workplace training and development integrate neurodiversity, identify associated challenges, and determine the most effective support mechanism. Although broader society recognises the importance of neurodiversity, these themes highlight essential measures organisations can implement to reduce bias and improve support for neurodevelopment.

The thematic analysis follows a constructivist epistemological approach, recognising that knowledge is shaped by interpretations rather than objective facts (Braun & Clarke, 2006).

The study also adopts relativist ontology, acknowledging multiple realities shaped by social and cultural contexts (Wiltshire & Ronkainen, 2021). For example, neurodiversity training and development has been understood through varied organisational perspectives rather than being a single interpretation (Houdek, 2022). This approach ensures that analysis goes beyond the description of the study, capturing how workplace policies, cultural attributes, employee experiences and coping mechanisms influence neuroinclusive HRD initiatives.

Figure 2. Illustrates how thematic analysis was conducted to derive codes, sub-themes and themes.

Figure 2. Thematic Analysis



Chapter 3: Findings

This chapter starts by defining the key terms related to neurodiversity relevant to the SLR, providing an understanding of the characteristics of 16 studies from peer-reviewed databases. The review findings show the characteristics of 16 studies from peer-reviewed databases. Table 3.2.1 summarises relevant, peer-reviewed studies included in the review.

Table 3.2.2 outlines the theories and frameworks found in the SLR. Table 3.3.1 presents the findings from the 12 organisational websites. The combination of sources provides a comprehensive view of both empirical and theoretical practices of neurodiversity, HR practices, and training outcomes in various companies around the globe. This findings chapter integrates the five key themes identified from the thematic analysis.

3.1 Definitions of Neurodiversity and Important Terms Used in SLR

The review of articles across various databases identified four key terms central to this study, Table 3.2.1 and Table 3.1.1 define terms focusing on neurodiversity and other primary concepts and integrate them within this SLR.

Table 3.1.1 Definitions

Neurodiversity	
Singer (2017)	• The term "neurodiversity" was first adopted by Judy Singer in 1998, aiming to promote a different perspective on ASD. • In her academic publication titled "NeuroDiversity: The Birth of an Idea," Singer in 2017 elaborates on her experiences growing up with a mother diagnosed with ASD and rearing a daughter who demonstrated atypical development trajectories during her early years (Singer, 2017) . • She also expresses her narrative of considering herself as "within the spectrum."
Walker (2014)	• Neurodiversity, sometimes called ND, describes a cognitive framework that behaves in manners that distinctly differ from the commonly accepted societal norms of 'normal'. The term neurodivergent encompasses a wide range of interpretations. • Autism and dyslexia illustrate fundamental types of neurodivergence. In contrast, alterations in brain activity brought about by factors such as trauma, prolonged medication, or significant use of psychedelic substances exemplify neurodivergence stemming from experiential circumstances (Walker, 2014).
Humanistic Learning Theory (HLT)	
Rogers (1986) Maslow (1943)	• HLT comprises humanistic psychology, a perspective that prioritises a thorough assessment of the individual and acknowledges the individuality within each person (Rogers, 1986). • Existential theories base the principles of human psychology on the idea that individuals have free will and are intrinsically motivated to fulfil their potential and achieve self-actualisation (Taormina & Gao, 2013).

Johnson (2014)	• HLT acts as a pedagogical structure that illuminates the fundamental aspects of learning through a human-centred lens. We can identify its foundations in the ancient Greek understanding of idea recollection, medieval insights into cognitive enhancement, and modern frameworks regarding organic growth. • Prominent exponents of this theory include Abraham Maslow and Carl Rogers. This theoretical paradigm encompasses perspectives on pedagogy, learners, educators, and related entities (Johnson, 2014).
Neurotypical	
Walker (2014)	• Neurotypical, often described as NT, represents a style of neurocognitive functioning that corresponds with the established societal expectations of what is perceived as 'normal.' • Neurotypicality stands in contrast to neurodivergence. Neurotypicality provides the normative basis from which neurodivergent individuals differentiate themselves.
Digital Transformation	
Hess, Matt, Benlian, Wiesböck (2016)	• Hess and colleagues introduced the digital transformation framework in 2016, which companies now adopt to implement digital transformation. • The framework helps managers manage the opportunities and risks of digital transformation (Hess et al., 2016).
Cheng Gong, Vincent Ribiere (2021)	• Digital Transformation, frequently denoted as (DT), is classified into three key concepts: 'digital transformation,' 'digitalisation,' and 'digitisation.'
	• DT is defined as the changes occurring within organisations by deploying digital technologies that support management in achieving a more comprehensive understanding of employees. • DT uses visual aids and artificial intelligence to uplift their morale and enhance employee performance to diminish perceptions of bias or stigma (Gong & Ribiere, 2021).

All articles were thoroughly reviewed by full-text reading and divided into seven categories based on (1) author information and context, (2) purpose of study, (3) research methodology,

(4) sample size, (5) theoretical frameworks, (6) neurodiversity types, (7) key findings. The extracted data were then entered into a table.

Beyond the 16 academic studies reviewed, 12 additional sources were reviewed from a search of grey literature to examine New Zealand and International organisations. The 12 grey sources showcase the importance of introducing customised training programmes and including humanistic approaches and digital transformation within organisations. Neurodiversity training programmes, such as HLT and DT, show positive results when considered for creating initiatives supporting neurodiversity within the workplace.

Academic studies showcase a connection between neurodiversity and training programmes, neurodiversity and humanistic approach, training programmes and digitalisation. The PRISMA framework (Figure 1) narrowed these studies, and thematic analysis (Figure 2) coded them. Table 3.2.1 showcases the studies.

Table 3.2.2 outlines all the theories and frameworks used in this review that demonstrate a positive correlation and how they can be implemented within companies and training programmes.

Table 3.3.1 includes the 12 organisational websites, which the review considers grey literature. The grey literature shows relevant and current changes implemented to enhance neuroinclusive training and incorporate policies and requirements within companies to assess neurodivergent counterparts.

3.2 Study Characteristics

Table 3.2.1 provides information about the 16 academic studies, including the title, author, date, frequency of year, frequency of the country where the study was conducted, and the research methods used. The articles included in the literature review were published

between 2013-2024, falling within the predetermined time frame of (2000-2024). Most studies used surveys or interviews with managers or neurodivergent individuals as the primary data collection method (8 studies). One mixed method study and a few articles were theoretically based or had a narrative view (7 studies). The review captures studies conducted in many localities, not just Australia and New Zealand.

The 12 websites showcased as grey literature in Table 3.2.1 consist of introduced initiatives, the organisation's name and purpose, and changes made within training programmes towards neurodivergent individuals since the initiatives were introduced.

Table 3.2.1 Studies included in PRISMA

No.	Title	Author surnames, year and country	Purpose of study	Neurodiversity types	Sample size	Research Methodology	Theoretical frameworks	Key findings
1.	A transdiagnostic approach to neurodiversity in a representative population sample: The N+4 model	Apperly, Lee, Kleij, Devine (2023) United Kingdom	Investigate the N-factor and four additional factors affecting neurodiversity	General ND	995 adults	Representative population sample survey	N+4 model	N-factor and four other factors influence ND attributes, suggesting a shared underlying factor across neurodiverse conditions. The paper suggests neurodiversity is more complex and interconnected than previously understood.
2.	Innovation through neurodiversity: Diversity is beneficial	Axbey, Beckmann, Flecher-Watson, Tullo, Crompton (2023) United Kingdom	Assess creativity in neurodivergent pairs	Autism	Not specified	Paired groups of autistic and non-autistic individuals	Neurodiversity as a catalyst for innovation	The ND pairs demonstrated more creativity and innovation compared to homogeneous pairs.

3.	Neurodiversity and work-employment, Identity, and support for neuro minorities	Patton, Santuzzi, Doyle, Comer, Hayward, Stokes, Bury, Hedley, Giannantonio, Hurley-Hanson, Griffiths, Sergest, Spoor, Walkowiak (2023) United Kingdom United States and Australia	Explored organisational preparedness for neurodivergent individuals	Autism, ADHD, Dyslexia	Not applicable	No specific data collection methods were used	Historical and socio-cultural context.	Most organisations must prepare to integrate neurodivergent individuals, indicating a gap between policies and practices.
4.	Evaluating bimodality on the autism spectrum and in neurodiversity	Ekblad (2024) Brazil, Italy, China, Russia	Investigate bimodality in autism and neurodiversity	Autism	117 items from various countries	The study utilised Aspie Quiz version 4 data, collecting information such as birth year, month, sex, country of living, and ancestry.	Bimodal distribution	The autism spectrum is bimodal, not a single continuum, suggesting two distinct neurological patterns. This spectrum challenges the traditional classification of autism and indicates a need

								for more nuanced diagnostic approaches.
5.	From neurodiversity to neurodivergence: the role of epistemic and cognitive marginalisation	Legault, Bourdon, Poirier (2021) Canada, France	Extend neurodiversity to include socio-political marginalisation	General neurodiversity, Autism	Not applicable	A theoretical exploration of concepts like neurodiversity and neurodivergence.	4E Cognition	ND is a natural phenomenon, while neurodivergence results from socio-political marginalisation. This distinction helps broaden our understanding of how societal factors shape the experiences of neurodivergent individuals.
6.	Neurodiversity positively predicts perceived extraneous load in online learning: A quantitative research study	Cnuff, Giampietro, Dommett (2024) London	Examine the impact of ND on cognitive load in online learning	ADHD, ASD, Dyslexia	231 students	A survey to gather data from participants. The research employed parametric tests to analyse the data collected from the survey.	Cognitive load theory	Neurodivergent students experience a higher cognitive load in online learning compared to neurotypical peers, with ADHD being a significant predictor.

7.	Human capital neurodiversity: an examination of stereotype threat anticipation	Prescott & Allen (2021) United Kingdom	Investigate stereotype threat in neurodivergent employees	Autism, ADHD	53 (study 1), 44 (study 2)	Study 1 used learning sets to test organisational cues and exercises. Study 2 comprised structured interviews.	Stereotype threat theory	Neurodivergent individuals face stereotype threats like those based on race or gender, but exposure to other neurodivergent individuals reduces these threats.
8.	Neurodiversity and Inclusivity in the workplace: biopsychosocial Interventions for promoting competitive advantage	Hutson & Hutson (2023)	Evaluate biopsychosocial strategies to support neurodivergent employees	Autism, ADHD, Dyslexia	Not applicable	The study adopted a biopsychosocial model to assess the psychological and social factors of neurodivergent individuals	Biopsychosocial Model	Neurodivergent teams demonstrate better performance, creativity, and lower attrition rates when implementing biopsychosocial strategies.
9.	Neurodiversity studies: Mapping out possibilities of the new critical paradigm	Stenning & Rosqvist (2021)	Critique existing neurodevelopmental classification	General ND	Not applicable	Examines how ND is conceptualised as a collective property of brains.	Neurodevelopmental classifications	The paper likely concludes that ND should be viewed as a dynamic and inclusive concept rather than being confined to existing clinical categories like autism.
10.	16 Reframing management of organisational neurodiversity in	Khan, Ali, Grabarski, Moore	Address stigma and discrimination faced by	Autism, ADHD, Tourette syndrome	Not applicable	A review of existing empirical research. Considered the	Contextual HRM framework	Stigma and discrimination remain significant barriers for neurodivergent individuals. Utilising contextual HRM

	Australia: a contextual approach	(2023) Australia	neurodivergent employees			lived experiences of neurodivergent workers.		frameworks will help mitigate stigma and address challenges within companies. Implementing workplace accommodations can further benefit neurodivergent employees.
11.	A strength-based approach towards coaching in a multicultural environment	Zyl & Stander, (2013)	Develop a strengths-based coaching model	Autism, ADHD	Not applicable	A meta-theoretical literature review.	Strength-based coaching	The model integrates psycho-existential, positive psychology, and person-centred approaches to support neurodivergent individuals in diverse environments.
12.	Empowering neurodiversity: A neuro-affirmative approach to workplace coaching	Antony, Ramnath, Ellikkal (2024)	Explore neuro-affirmative coaching strategies	Autism, ADHD, Dyslexia	Not applicable	Employs a narrative review as its primary approach. Reviewed literature to gather insights, challenges and opportunities related to neuro-affirmative coaching strategies.	Neuro-affirmative coaching	Personalised coaching strategies are essential for promoting self-awareness, advocacy, and belonging among neurodivergent employees.

13.	From corporate social responsibility (CSR) to corporate humanistic responsibility (CHR): the conceptualisation and operationalisation of perceived CHR	Koon & Fujimoto (2023) Malaysia	Develop and validate the CHR scale	General ND	Not applicable	This research utilised a mixed-method approach to confirm the psychometric properties of the CHR scale.	Corporate Humanistic Responsibility (CHR)	The CHR scale was validated as a reliable tool to assess how organisations foster socially responsible, humanistic workplaces. This tool provides ways to measure ethical responsibility within the neurodiverse workforce.
14.	Listening to neurodivergent voices in the workplace	Burton, Crass, Twumasi (2022) United Kingdom	Investigate the lived experiences of neurodivergent individuals	Autism, ADHD, Dyslexia	21 interviews	Data was collected through semi-structured interviews and phenomenological analysis	The theoretical framework produced by lived experiences	Inflexible work environments and standardised processes hinder neurodivergent employees' productivity

15.	Evaluating the effectiveness of an autism-specific workplace tool	Scott (2018) Australia, New Zealand	Evaluate the effectiveness of the IEST tool	Autism	84 employers	The research was conducted as a randomised controlled trial. The Integrated Employment Success Tool (IEST) was used against a control group receiving usual support.	Integrated Employment Success Tool (IEST)	Employers using the IEST tool showed significant improvements in supporting autistic employees, highlighting the tool's efficacy in fostering an inclusive work environment.
16.	In an attempt to study the interrelationships among enablers of the Inclusion of neurodivergent Individuals at educational and professional workplaces	Banerjee, Aggarwal, Aggarwal (2020) India	Identify success factors for neuroinclusive workplaces	Autism, ADHD, Dyslexia	Not applicable	ISM is a well-known methodology used to develop a hierarchical structure of complex relationships among variables. It identifies the direct and indirect relationships among the factors.	ISM framework	Managers and educators need to focus on identified factors to enhance inclusion, leading to environments that better utilise the talents of neurodivergent individuals.

Table 3.2.1 elaborates on all the theories and frameworks utilised within the articles captured in the SLR. This review demonstrates the positive impacts of implementing humanistic approaches and DT, which companies and training frameworks can introduce.

Table 3.2.2 Models, Theories and Frameworks Utilised.

No.	Authors	Models, Theories and Frameworks
8.	Hutson & Hutson	Biopsychosocial Model (BPS)
12.	Antony, Ramnath, Ellikkal	Humanistic Learning Theory (HLT)
5.	Legault, Bourdon, Poirier	HE Cognition Framework
10.	Khan, Ali, Grabarski, Moore	Contextual HRM Framework
11.	Zyl & Stander	Ten-phase strength-based coaching model.
13.	Koon & Fujimoto	Corporate Humanistic Responsibility Scale (CHR)
16.	Banerjee, Aggarwal, Aggarwal	ISM Framework
15.	Scott	Integrated Employment Success Tool (IEST)
4.	Ekblad	Aspie Quiz Version 4. (Test)
1.	Apperly, Lee, Kleij, Devine	N+4 Factor Structure

This review identifies the frameworks as neuro-affirmative coaching strategies, which organisations like ANCAL use. These coaching models promote a shift in organisational attitudes towards neurodiversity, working to address stigma and integrate the medical and social paradigms of disability (McVilly et al., 2023). Integrating HLT within corporate and organisational structures and HRD initiatives is instrumental in fostering a work environment that is empowering, inclusive, and conducive towards productivity (Asdlori, 2023). The outcomes emphasise acknowledging human principles and distinct personal attributes within the organisational environment. Implementing a people-focused approach allows organisations to cater to the psychological welfare of their staff, leading to less stress and encouraging their advancement in all aspects of life (Antony et al., 2024).

3.3 Thematic Analysis Results

Thematic analysis (showcased in Figure 2) formed the five themes presented below, drawing from 16 academic articles that highlight unique insights into neurodiversity in workplace training. By analysing the articles, patterns emerged, highlighting the specific challenges and needs of neurodivergent employees. The five themes are as follows.

1. Neurodiversity stereotypes
2. Stigma and challenges encountered by neurodiverse spectrums in the workplace
3. A humanistic approach within neuroinclusive training initiatives
4. Managerial training to comprehend the needs of neurodivergent individuals
5. The role of digital tools to support neurodivergent employees in managing cognitive load

The first two themes ‘neurodiverse stereotypes’ and ‘stigma and challenges’ were evident as many articles discussed the various hurdles neurodivergent individuals face, from misconceptions about their capabilities to workplace exclusion. Additionally, Theme 3: ‘humanistic approach within neuroinclusive training initiatives’ surfaced as a prominent theme, emphasising creating more empathetic and individualised training programmes designed to value neurodiverse strengths.

Theme 4, ‘managerial training to comprehend neurodiverse needs’ is also important, as many sources stressed the need for leaders to better understand and support neurodivergent employees effectively. Theme 5: ‘The role of digital tools’ highlighted the potential of such tools to help neurodivergent individuals manage cognitive load, making the work environment more accessible.

Theme 1: Neurodiversity stereotypes

Seven articles presented in Table 3.2.1 identify stereotypes. Being subjected to stereotypes represents one of the most significant challenges neurodivergent individuals encounter. The initial thematic categorisation is subdivided into a sub-theme called 'self-doubt and negative self-perception resulting from societal labels'. The empirical evidence indicates that many organisations have refrained from hiring neurodivergent individuals owing to the bias linked to such stereotypes. The significant codes derived from the research include 'coping mechanism', 'norm impact', and 'cognitive injustice', reflecting the ongoing obstacles neurodivergent individuals face in the workplace.

Neurodivergent individuals often develop coping mechanisms to manage the social and professional challenges stemming from stereotypes and biases in the workplace (Burton et al., 2022). These mechanisms may include masking behaviours, over-preparation of tasks and practising scripted responses in social interactions (Antony et al., 2024). Workplace norms often implicitly favour neurotypical behaviour, making it challenging for neurodivergent individuals to feel included. These norms can determine how employees should communicate, socialise, or approach problem-solving, which may not align with the strengths or styles of neurodivergent individuals (Van Zyl & Stander, 2013). The third code of cognitive justice occurs when neurodivergent perspectives are undervalued or overlooked due to dominant assumptions about valid or 'normal' thinking and problem-solving (Priscott & Allen, 2021).

Theme 2: Stigma and challenges encountered by neurodiverse spectrums in the workplace

The complexities of stigma and the corresponding challenges are clearly articulated in six peer-reviewed articles detailed in the preceding table (Table. 3.2.1), Stigma is fundamentally

associated with unconscious biases and various difficulties that neurodivergent individuals confront regularly, particularly in workplace environments. The primary theme is classified as ‘stigma and challenges faced,’ while the sub-theme is defined as ‘hesitance to pursue growth opportunities due to fear of judgement’. Stigma is also perceived as a variant of stereotype, though with subtle distinctions. The definition of stereotype relies on established societal categorisation, while stigma focuses chiefly on the anxiety of facing judgment (Khan et al., 2023).

Three principal codes are identified and frequently referenced within the articles. The first is the ‘disclosure dilemma’, which restricts neurodivergent individuals from expressing their neurological differences due to expected negative feedback (Apperly et al., 2023). Next is ‘constant behavioural adjustments,' which suggests neurodivergent individuals face notable difficulties adjusting their behaviours to different contexts, unlike neurotypical individuals (Axbey et al., 2023). Finally, 'working memory impairments' typically underscore that every neurodivergent individual has specific cognitive traits that diverge from neurotypical individuals. These can result in stigma or hurdles as neurodivergent individuals frequently face examination, which means scrutiny or judgment within the workplace (Patton et al., 2023). This challenge is closely related to theme working memory impairments, as these impairments may hinder the ability to retain and process information, complete tasks under pressure, or respond quickly to changing demands.

Theme 3: A Humanistic approach within neuroinclusive training initiatives

The humanistic paradigm has been addressed ten times within the 16 academic articles reviewed. HLT articulates this approach and humanism, which was developed initially based on Maslow’s hierarchy of needs. The humanistic paradigm positively impacts neurodivergent and neurotypical individuals in their environment (Koon & Fujimoto, 2024). The humanistic

paradigm helps managers understand how to support neurodivergent individuals for integration within an organisational environment effectively. HLT involves behavioural evaluations, biopsychosocial frameworks, the identification of educational strengths and weaknesses, and implementing strategies that are notably personalised to satisfy the distinct requirements of these individuals (Hutson & Hutson, 2023).

The theme ‘humanistic approach within neuroinclusive training initiatives’ focuses on four principal codes categorised into two sub-themes. The sub-theme 'strength-based coaching and communication', categorises neuro-affirmative coaching and integrates neurotypical training which highlights the unique skills of neurodivergent individuals and helps their neurotypical counterparts collaborate empathetically with them. ‘Diverse interactions’ and ‘neuro well-being triad’ are showcased for the 'HR and humanistic inclusive initiatives' sub-theme to encourage adaptive communication and understanding across all employees (Priscott & Allen, 2021). The well-being triad prioritises physical, emotional and cognitive support, ensuring neurodivergent employees work comfortably.

A humanistic approach increased training effectiveness and helped employers and colleagues identify the strengths of neurodivergent individuals more proficiently. Furthermore, through strength-based techniques, enhance the morale of neurodivergent individuals, fostering a more integrated and efficient organisational environment (Scott, 2018).

Theme 4: Managerial training to comprehend the needs of neurodivergent individuals

Eight of the 16 studies reviewed accentuated the relevance of training managerial personnel. The studies emphasised that training managerial staff is as crucial as training neurodivergent individuals (Hutson & Hutson, 2023). Two key codes that have arisen from these investigations, particularly 'prioritising bias preventions,' reveal the unfortunate truth that neurodivergent individuals are often unwitting victims of bias. Managers must recognise

when such biases manifest and develop strategies to train employees to understand how neurodivergent people communicate by encouraging open conversations where neurodivergent individuals can share how they prefer to communicate. This process will promote an environment where neurodivergent individuals feel at ease while addressing their biases (Banerjee et al., 2020). The second most frequently identified code is 'diversity training focus,' which emphasises the importance for managers to be thoroughly acquainted with modern diversity policy implementations and how they can strategically prioritise diversity in an organisational context to ensure that both neurodivergent and neurotypical individuals feel esteemed (Legault et al., 2021).

The identified codes are categorised under the sub-theme of 'management support towards facing unconscious bias and stressful situations'. Managers who oversee diverse teams must be attentive to their employees' stress experiences and how they cope with and handle these situations (Van Zyl & Stander, 2013). Enhancing these competencies is vital for managers and employees to collaborate effectively and establish a more durable foundation in the organisational environment. These codes, alongside the relevant sub-theme, fall under the scope of managerial training (Priscott & Allen, 2021).

Theme 5: The role of digital tools to support neurodivergent employees in managing cognitive load

Eight out of 16 academic studies in this review emphasise the relevance and negative consequences associated with cognitive load. Cognitive load has recently attained heightened visibility, particularly with the surge of digitalisation that has progressed since the commencement of the COVID-19 pandemic (Le Cunff et al., 2024). Three pivotal codes emerged as crucial within the reviews: ‘digital tool impact’, the incorporation of multiple tools within organisational structures, and the necessity for digital tools to be easily

accessible while promoting optimal performance for neurodivergent individuals in workplace environments. Organisations must tailor the tools they implement to support neurodivergent and neurotypical individuals, aiming to minimise cognitive load and avoid amplifying adverse outcomes (Le Cunff et al., 2024).

The second code, 'examining cognitive impairments,' emphasises the importance of understanding the cognitive challenges faced by neurodivergent individuals and addressing these challenges through the implementation of digital technologies (Scott, 2018).

The third code, 'team support to improve cognition', accentuates the crucial function of team support within organisations, especially regarding the cognitive load, which entails significant risks for burnout (Ekblad, 2024). Organisations can implement continuous feedback and support mechanisms to enhance individual strengths. These codes are organised under the sub-theme ‘Instant feedback and digital tools as an advantage for neurodivergent individuals,’ which is further encompassed by the overarching theme ‘managing cognitive load with digital tools’ (Stenning & Rosqvist, 2021).

Methodologies used in Finding Grey Literature

The grey literature was identified and procured using eight steps, which include ‘defining search objectives’ The primary objective was to find grey literature sources that focus mainly on neuroinclusive HRD practices. The focus was on training, employment, workplace wellbeing and support for neurodivergent individuals within various industries. Step two was ‘selecting reliable sources’, priority was given to reputable organisational websites, including businesses, universities and professional networks known for their practices towards neurodiversity. Companies that have been practising neurodiversity inclusion and initiatives within their companies were considered.

Step three was formulated using ‘database and website search’ after step two was identified and requirements were set. The database and website search were combined with Google and LinkedIn search techniques using specific keywords such as “neurodiversity hiring programme”, “neurodiversity training and development initiatives”, and “autism at work”. This process helped search through official organisational recruitment pages, websites and published HR policies. Step four involved a ‘keyword search and terms used’ different combinations of keywords were used to locate grey literature, which includes “neurodiversity employment policies”, “neurodivergent workplace training”, “autism-friendly hiring initiatives”, “inclusive and workplace accommodations for neurodivergent employees”.

Step five was ‘screening and selection of sources’ , each source was evaluated based on relevance to neurodiversity, training and HRD practices, and availability of concrete data or initiatives supporting neurodivergent employees. The authenticity and credibility of the organisations and whether the sources provided were recent or documented information. Step six consisted of ‘organising the data into the table’. Each selected organisation was listed in Table 3.3.1, briefly describing their neurodiversity-supportive HRD practices. The practices were summarised based on the type of initiatives and present changes made within companies be neuroinclusive. Step seven depicts ‘ensuring accuracy and consistency’. The details of each source were cross-verified through statistical statements on their websites. If the company had multiple neurodiversity initiatives, only the most relevant and impactful ones were included. Formatting was applied across the table for clarity.

Step eight was ‘final review and refinement’, the table was reviewed to ensure a diverse representation of industries, from technology to education. Any outdated and redundant information was removed to keep the content precise. Sources were checked for accessibility to confirm current policies and procedures.

Grey Literature Review Findings: Organisational Initiatives

Table 3.3.1 presents the findings from the 12 organisational websites, reviewed for this study. The findings show organisational efforts to enhance neuroinclusive training and offer further HRD and other support for ND employees.

Table 3.3.1 Grey Literature

No.	Organisational website	Neuroinclusive HRD practices
1.	Auticon Auticon is a well-established company that partners with neurodivergent individuals to enhance their skills in data services.	• Auticon implemented neurodiversity training to create a neuro-confident workforce. • Through neuro-inclusive training, auticon promotes neurodivergent talent, and provides tailored and flexible accommodations. Supports employees' comfort in disclosing their conditions through promoting Inclusivity and removing negative bias or stigma (auticon, n.d.).
2.	University of Auckland The University of Auckland is one of the top universities in New Zealand.	• UOA introduced the “neurodivergence at work” initiative within their organisation. • This initiative explains working alongside staff with disabilities and impairments. • UOA also specifies strategies for managers of staff who are neurodivergent and how to tackle their requirements better (University of Auckland, n.d.).
3.	Australian Spatial Analytics ASA signifies a company with expertise in data analytics dedicated to advancing inclusive settings for neurodivergent people.	• ASA offers career pathways in the geospatial and engineering domains for individuals with neurodiverse conditions; over 80% of its personnel comprises neurodivergent individuals (Australian Spatial Analytics, n.d.). • Following the implementation of customised strength-based programmes, ASA has successfully onboarded more than 120 neurodivergent employees (Australian Spatial Analytics, n.d.).
4.	Australia and New Zealand Banking Group Ltd.	• On 18th March 2024, ANZ launched a new disability access and inclusion plan during the neurodiversity celebration week (ANZ, n.d.).

	ANZ is a leading organisation within New Zealand's banking and financial services domain.	• This approach was created to help people with neurological disabilities erase the stigma and boost their morale by improving their strengths and providing directions to their skills (ANZ, n.d.).
5.	Westpac Westpac Banking Corporation, commonly referred to as Westpac, is an Australian multinational bank and financial services provider.	• Westpac group suggests that the unemployment rate for autistic individuals is 32%, which is three times higher than that of people with disabilities and six times higher than for neurotypical individuals (Westpac, n.d.). • In 2017, Westpac Group launched a tailored hiring programme for people with autism, aiming to rethink the usual recruitment process (Westpac, n.d.).
6.	International Business Machines Corporation International Business Machines Corporation, known as IBM or "Big Blue", is in the U.S. and New York and operates in over 175 countries.	• IBM launched a global neurodiversity programme in 2021 on five continents and eight different countries (IBM, n.d.). • IBM has provided training to 30+ countries, enabling neurodivergent and neurotypical employees to work efficiently. • Over 1,500 IBMers have completed neurodiversity101 acceptance courses to understand neurodivergent individuals and mitigate unconscious bias (IBM, n.d.).
7.	Google Google Cloud Platform (GCP) is a collection of cloud services from Google that offers tools for data storage, analytics, and management.	• Google introduced ‘Google Cloud’s Autism Career Program’ in 2021 to strengthen and further grow Google’s existing autistic community by hiring and supporting talented autistic individuals (Google, n.d.). • The key milestone is to train 500 Google Cloud managers involved in hiring processes to understand the needs of neurodivergent individuals rather than just training them (Google, n.d.).
8.	Deloitte Deloitte Touche Tohmatsu Limited, widely known as Deloitte, is a UK-based multinational professional services network.	• Deloitte introduced neurodiversity advantages and how neuro-inclusion can unleash innovation and create a competitive edge in 2024 (Deloitte, n.d.). • This initiative focuses on creating training programmes to identify workplace and self-identification challenges and to fully leverage their unique strengths through these initiatives (Deloitte, n.d.).

9.	Dell Dell Inc. is a U.S. tech company specialising in developing, selling, repairing, and supporting computers and related products and services.	• Dell introduced an autistic hiring programme designed in partnership with neurodiversity in the workplace to ensure that any limitations should be removed towards an individual so that they can access their full potential. • Dell offers full-time career opportunities for neurodivergent job seekers, and neurodivergent programme participants are offered skill-based interviews and various support (Dell, n.d.).
10.	Microsoft Microsoft is a U.S.-based multinational tech company with headquarters In Redmond, Washington.	• Microsoft introduced inclusive hiring for people with disabilities, which included neurodiversity programmes and supported employment for the neurodivergent and disability hiring. • This initiative was introduced in 2020 (Microsoft, n.d.).
11.	System Applications and Products in Data Processing SAP creates enterprise software for managing business operations and customer relationships.	• One of the first companies to begin seeking out autistic workers, German IT and software firm SAP, is known industry-wide for its neurodivergent recruitment initiatives, which began in 2013. • The company's autism at-work programme is both about hiring neurodivergent individuals and also creating a comfortable workspace for them (SAP, n.d.).
12.	Ernst & Young Ernst & Young Global Limited is a British multinational professional service company.	• Big Four consulting firm EY launched its neurodiversity programme in 2016. • The programme includes a personalised neuroinclusive onboarding process and a 'trained office buddy' system to support new hires. • EY applies the unique talents of neurodivergent individuals to meet clients' business needs (EY, n.d.).

Each of the 12 organisations reviewed highlights the critical role of personalised training programmes and managerial training designed to create supportive, inclusive environments. A few organisations included in Table 3.3.1 are New Zealand and Australian based while others are globally recognised companies that actively implement neuroinclusive initiatives to make workplaces more accommodating for neurodiverse talent. Such initiatives not only provide

neurodivergent employees with the confidence to navigate the workplace but also empower them to leverage their unique abilities to contribute effectively towards organizational goals.

Through a systematic classification and clarification of the data found using PRISMA, this chapter presented the findings from existing academic literature. This leads to the next Discussion chapter and future research directions and limitations are presented in the Conclusion chapter.

Chapter 4: Discussion

This chapter examines how HLT and DT can improve HRD initiatives to create more inclusive workplaces for neurodivergent employees. Companies like ANZ, IBM, and EY have introduced specialised training programmes and neurodiversity policies, leading to better recruitment outcomes, increased innovation, and improved employee well-being (McVilly et al., 2023). Such examples show how valuing diverse perspectives benefits organisations.

This chapter highlights the importance of using a humanistic approach focusing on individual strengths and needs alongside digital tools that simplify tasks and reduce cognitive challenges (Patton et al., 2023). By offering tailored support, organisations build trust, strategies and regular updates, which are key to meeting changing employee needs, improving productivity, and achieving long-term success.

This chapter synthesises the key findings from the previous chapter and connects them to the three research questions to provide a clear and comprehensive understanding of the research focus.

4.1 Research Question 1

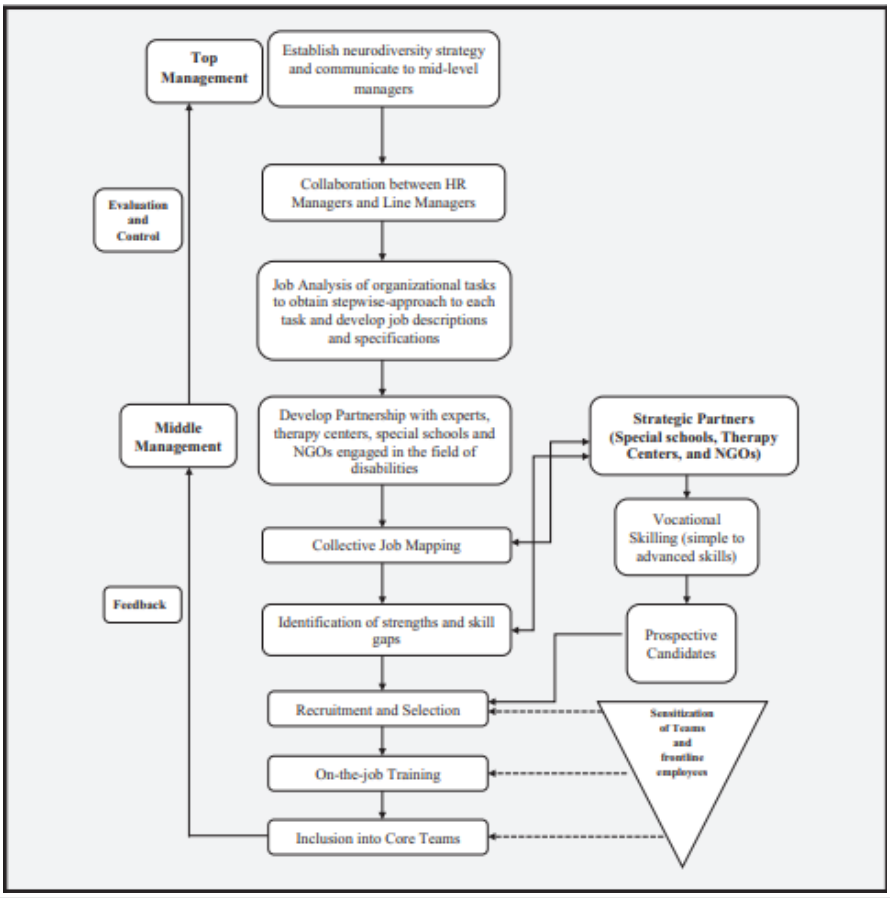
What is known from the literature on neurodiversity and human resource development in the workplace?

The 16 academic studies previously outlined highlight the critical role of neurodiversity in the workplace. They also demonstrate various methods, including strategies, approaches and techniques, that organisations can adopt within corporate frameworks by drawing on empirical and theoretical findings. Organisations have advanced and established conceptual frameworks such as Universal Design for Learning (UDL), which helps promote flexible

learning and working environments to accommodate diverse employee needs (Molett, 2022). The other frameworks are customised employment frameworks and the implementation of DT tools to facilitate HRD to support neurodiversity in employment and engagement (Ru & Jamil, 2024). With an increasing commitment to promoting diversity and inclusion, organisations are integrating neurodiversity accommodations into policies and training as a contemporary practice. Organisations aim to harness the distinctive talents of neurodivergent individuals, thereby enhancing organisational effectiveness and creativity (Eze et al., 2021). Neurodiversity is significant because it encompasses various neurocognitive variances amongst individuals, integrating diverse perspectives and experiences (Johnston-Tayler & Analla, 2015).

The neurodiversity spectrum highlighted by authors Prescott & Allen (2021) in the findings chapter elaborates on the exceptional capabilities and expertise that neurodivergent individuals bring to the workforce. By integrating neurodiversity into workplace planning, organisations can create inclusive environments that accommodate individuals with various sensory sensitivities by adjusting lighting, noise levels, and temperature (Kapp et al., 2013). A Neurodiversity-Smart HR framework was established to effectively organise individuals with distinct needs and actively involve them in every stage of the inclusion process (Rao & Polepeddi, 2019). By understanding the importance of meeting the needs and requirements of neurodivergent people within the workplace, this framework is a promising method for tackling various organisational barriers, including fostering creativity, enhancing employment participation, and reducing employment turnover.

Figure 3. Neurodiversity-smart HR framework



Note. This framework was produced by Rao & Polepeddi in 2019, summarising the strategic process for onboarding and training neurodiverse individuals. "Neurodiverse workforce: inclusive employment as an HR strategy," by B. Rao and J. Polepeddi, *Strategic HR Review, 18(5) p. 208.* Copyright 2019 by the University of Hyderabad.

Several authors, such as Apperly, Lee, Kleji, and Devine (2023) and Legault, Bourdon, and Poirier (2021), explain that understanding brain sciences is imperative, as "neuro" pertains to the brain's functionality. At the same time, "diversity" elucidates the various mechanisms through which the brain operates or adapts to information (Patton, 2019, p. 916). A profound understanding of neurosciences is crucial for effectively managing an organisation's diverse workforce, facilitating the navigation of complexities associated with various neurological conditions such as Autism, dyslexia, and ADHD (Nelson, 2021).

The findings chapter includes a few studies investigating strength and deficit approaches elaborated by Zyl and Stander (2013). Various enterprises have implemented a factor matrix wherein managers strive to comprehend areas of weakness and fortify them by utilising either a Strength-centric or Deficit-centric approach (O'Dwyer & Thorpe, 2013). The Strength-centric approach helps in prioritising skills that contribute positively to the organisation. In contrast, the Deficit-centric approach concentrates on converting challenges into strengths to enhance organisational performance (Singh, 2022). The development of a factor matrix aids in enhancing organisational comprehension of the diverse facets of neurodiversity by deconstructing various neurological conditions and their individualistic attributes, facilitating the identification of specific requirements and strengths of neurodivergent staff (Axbey, 2023). Companies can customise programmes and engagement strategies to make the most of the unique strengths of neurodivergent employees (Hall et al., 2024).

Another critical factor that deserves focus is organisational climate, which numerous organisations and educational industries adopt as an essential aspect of human resource development. Climate theory defined by Schneider, Ehrhart, and Macey (2011) states that organisational climate refers to the significance employees attribute to their interconnected work experiences. Organisational culture, on the other hand, reflects the underlying assumptions about the world and the guiding values that influence organisational life (Schneider et al., 2011).

In their scholarly work on shaping organisational climates to develop and leverage workplace neurodiversity, Volpone, Avery, and Wayne (2022) propose a transformative perspective. This perspective stresses that instead of placing the burden of adaptation on neurodivergent individuals, organisations should adjust their environments to enable the effective deployment of strengths by all employees. Moreover, the authors emphasise the need for a comprehensive review of current HRD strategies, as traditional approaches were developed

using neurotypical standards. They suggest that establishing progressive norms more effectively supports neurodivergent employees (Volpone et al., 2022).

The incorporation of organisational climate theory into training frameworks is considered essential within organisations as it examines various aspects of organisational settings, such as the individual (micro), dyadic (pair), group (meso), and the organisation as a whole (macro), which can assess the influence of neurodiversity on HRD initiatives (Schneider et al., 2013). The application of organisational climate theory allows organisations to extend their insights into neurodiversity throughout all levels, which refers to the hierarchical layer, including employees, managers and executives, and various departments within organisations (Volpone et al., 2022). By applying climate theory, organisations can create a cohesive understanding of neurodiversity, ensuring that inclusive practices are embedded throughout the structure. Applying organisational climate theory helps facilitate the design of more successful training programmes and HRD approaches (Lively, 2023).

The integration of organisational climate theory within organisational structures highlights the promotion of workplace inclusivity by recognising the fundamental differences in human neurocognitive functioning. This theory underscores the importance of creating workplace environments that harness the skills of all employees, especially those who identify as neurodivergent (Parke & Seo, 2017). Furthermore, climate theory includes investigating how psychological climates could foster and enhance an inclusive environment for individuals with neurodiversity.

4.2 Research Question 2

What is known from the literature on using humanistic learning theory and/or digital transformation to support neurodiversity in workplace learning?

This research question aims to determine the understanding of integrating HLT and/or DT for workplace training and learning initiatives. HLT centres around humanistic psychology, a branch of psychology that focuses on studying each individual and their unique characteristics; it explores how these attributes can influence socioeconomic factors and internal environments (Goldberg, 2023). This process provides support to neurodivergent individuals and examines strategies implemented to promote humanistic values that advance DEI within their training initiatives and to mitigate societal stigma.

A humanistic approach supports the personalisation of training modules for neurodivergent individuals for effective HRD in corporate settings (Cockain, 2023). While organisations such as Telstra, NAB and IBM are actively hiring more neurodivergent staff, they are also importantly taking a humanistic approach to cater to individual needs and implement humanistic learning within their workplaces (Enoka, 2022).

The humanistic approach gives significant importance to the internal world of learners, emphasising that their cognitions, sentiments, and emotions are crucial to their development within the organisation (Kapp et al., 2013). Humanism as an approach brought about a significant change when integrated within organisational settings concerning employees and organisational interactions. Unlike preceding behaviouristic-oriented techniques, the humanistic approach is more inclined towards mental processes, emphasising humanistic training and education that highlights the learner's emotional and psychological aspects (Boxall et al., 2007). Such aspects can be disregarded in conventional training methods and implementation. HLT fosters a more holistic approach to neurodivergent and neurotypical individuals as it emphasises creating supportive learning and work environments that cater to diverse needs (McGreevy et al., 2024). HLT promotes respect, autonomy, and self-actualisation, enabling individuals to develop their strengths and overcome challenges.

Several studies on managers and neurodiversity in the workplace show psychological impacts and benefits within the organisation after utilising humanistic approaches (Richards et al., 2019). Workers who perceive appreciation and respect for their distinctive abilities and viewpoints by their managers encounter elevated self-esteem (Sharma & Makhija, 2024).

Stigmatisation is considered one of the primary challenges faced within organisational environments and was a theme identified by thematic analysis of the SLR findings for this study. The presence of stigma in corporate settings is primarily a result of the dominance of neurotypical norms within human resource management practices (Boyd, 2023). Challenges such as stigma and bias highlight a shortfall in current literature that overlooks the potential for reforming these standards to more suitably support neurodivergent employees in professional contexts. Utilising HLT and incorporating it within neurodivergent and neurotypical training can help mitigate stigmatisation (Sumner & Brown, 2015).

Employing HLT enables companies to address everyone's fundamental needs by comprehending their strengths, weaknesses, constraints, and specifications (Bury et al., 2022). Following the commencement of the New Zealand Disability Strategy (NZDS) in 2016, multiple companies like Westpac, Auticon, and Enrich+ developed initiatives and educational programmes customised for individuals with neurodiversity (Davy et al., 2018). Since individuals with neurodiversity may require various workplace adjustments to boost their productivity, organisations are committed to supplying them with the essential resources tailored to their distinct requirements (Brown & Brown, 2020). This approach, called behavioural analysis, is integrated within the corporate framework. HLT assists managers and employers in recognising the fundamental requirements to enable neurodivergent employees to acknowledge their challenges. For example, individuals with dyslexia encounter obstacles regarding lengthy sentences or deciphering them, resulting in significant difficulties (Johnson et al., 2020). Dyslexia and Autism are commonly seen as the primary types of Specific

Learning Disability (SLD) and influence phonological and related orthographic processing abilities (Wissell et al., 2022).

DT can also significantly impact the promotion of diversity and inclusion within corporate settings. Organisations have sought to incorporate DT or digitalism into their operational frameworks to promote improved management practices. This shift towards digital technologies transforms the methods of organisations engage with diversity and inclusion, particularly in automated decision-making, where biases and standardised thinking may present unprecedented challenges (Wille & Sajous-Brady, 2018). Initiatives introduced to reduce cognitive load prioritising neurodiversity well-being are recruiting individuals with various neurological variations, such as Autism, ADHD, and dyslexia, which are key for improving diversity and inclusion in organisational frameworks (Brinzea, 2019).

Neurodivergent employees encounter challenges related to a concept known as 'executive functioning', which encompasses organisation, task management, and time management. 'Emotional regulation' encompasses challenges in adapting to change, addressing criticism, and prioritising tasks. Moreover, these individuals experience 'attention-related difficulties' and 'sensory modulation' challenges, which involve either an overabundance or a lack of concentration and increased sensitivity to environmental stimuli (Johnston-Tayler & Analla, 2024).

Empirical research indicates that neurodivergent workers frequently encounter stigma and discrimination, particularly when they disclose their conditions or seek accommodations, which constitutes significant impediments to their sustainable employment (Johnson, 2024). Some companies in New Zealand and Australia have integrated HR smart-driven initiatives and biophilic designs within organisational frameworks to enhance and mitigate obstacles that come with workplace learning (Rigden, 2017). Combining biophilic design and extended

reality (XR) technology, including virtual reality, can support neurodivergent individuals feeling more comfortable in unfamiliar environments. This is achieved by conducting self-assessments and adjusting their environment to achieve better self-regulation (Barbiero, 2024).

4.3 Research Question 3

What are the features of organisational training initiatives offered for neuroinclusion?

Research question three sought to explore how personalised training initiatives can support neuroinclusion by addressing the unique needs of neurodivergent individuals in the workplace. Examining key organisational training initiatives that promote inclusivity, enhance skill development, and reduce workplace bias.

Neuroinclusion involves applying neuroscience principles within business organisations to improve management practices and increase productivity for the organisations and neurodivergent employees (Medina-Vicent, 2019). Training initiatives that accommodate neuro-inclusion focus on productivity by involving neurodivergent employees in decision-making, attention, motivation, and emotional intelligence (Antony et al., 2024). McDowall and Doyle (2023) published 'Neurodiverse Coaching', which highlights the distinct workplace experiences of neurodivergent individuals, including those with ADHD, ASD, dyslexia, dyspraxia, and Tourette syndrome. The book emphasises the need for personalised coaching methods to maximise neurodivergent employees' strengths by aligning with their specific workplace needs, urging managers to refine coaching strategies for neurodivergent colleagues.

This SLR highlights the importance of personalised and tailored training programmes, thus recognising this aspect as a significant research void. Research by Silver, Nittrouer, and Hebl (2023), situated within the industrial and organisational psychology field, emphasises the

limitations that arise from a singular focus on the business case for neurodiversity. These limitations reveal a need for more understanding regarding the broader consequences of executing inclusion strategies that lack personalisation, which may extend beyond simple performance metrics. The study argues that managers and organisational leaders should explore universally accessible and comprehensible business design strategies, as there is a deficiency in existing frameworks that primarily serve neurotypical individuals (Silver et al., 2023). It is vital to bridge this gap within organisations to establish policies that benefit neurodivergent and neurotypical employees (Blackburn, 2023).

Workplace accessibility and customised accommodations play a vital role in fostering diversity and inclusion, helping to prevent stigmatisation (Krzeminska et al., 2019). Training programmes include talent management and socialisation coaching as inclusive practices to help neurodivergent individuals get comfortable within organisational settings. A ‘talent management’ approach focuses on three main areas to support neurodivergent talents: providing workplace accommodations, encouraging self-awareness, and promoting a sense of belonging (Russo et al., 2022). Socialisation coaching, designed for managers and employees, is flexible, individualised, informal, and non-sequential, treating neurodivergent individuals as interconnected members of the organisation (Khakwani et al., 2012). This coaching method reduces bias and feelings of exclusion, supporting faster and easier integration for neurodivergent employees. Neuroaffirmative coaching strategies empower neurodivergent employees in workplace settings. The strategies used by this coaching are workplace approaches that support neurodivergent employees by valuing their unique strengths and needs (Rismiller, 2024). These strategies foster inclusion through a strength-based approach, personalised support, and a psychologically safe environment. By tailoring coaching to individual preferences and collaboratively setting meaningful goals, organisations can

empower neurodivergent employees to thrive while enhancing overall team productivity (Hartman et al., 2023).

Featured within HRD initiatives that can pay dividends include accommodative communication methods, eliminating psychological bias, and fostering inclusive environments. Challenges in implementing these features involve shifting organisational perspectives and tackling stigma (Kersten et al., 2024).

Organisational ethics are essential for advancing neuro-inclusion and guiding employees towards inclusive moral judgment (Houdek, 2022). Over the past three decades, neuro-ethics, neuro-education, and organisational neuroscience have provided more profound insights into the neurological basis of moral decisions, helping organisations support diverse cognitive needs (Mcdowall & Doyle, 2023). IBM and EY, for example, have established participatory spaces that promote neuroinclusive moral character by offering physical and emotional accommodations, enabling neurodivergent employees to thrive and contribute fully to the workplace (Boyd, 2024).

Global organisations, such as Dell and JP Morgan, highlight the significance of customised, individualised coaching methods to accommodate neuro-minority individuals' distinctive strengths and challenges (Hume, 2022). Organisations' three most effective accommodation strategies include clear communication practices, offering membership opportunities and fostering inclusive environments (Shaw et al., 2022).

Neurodiversity can be perceived as 'invisible' which presents limitations for organisations that are not truly inclusive (Ott et al., 2022). Given these challenges, organisations must acknowledge the need for clear guidance for international human resource management leaders to address these complexities and effectively promote neurodiversity initiatives proficiently (Brinzea, 2019).

Neuro-affirmative coaching within organisations incorporates tools such as the factor matrix and BST to enhance inclusion efforts. The factor matrix emphasises individuals' vast potential while recognising the need to distinguish among different neurological conditions, as Autism, dyslexia, and ADHD have unique ways of processing, coping, and functioning (Miltenberger et al., 2017). By identifying these differences, organisations can tailor their support to fit each neurodivergent employee's needs, helping them access the required resources to succeed. BST, often used for ADHD, integrates Cognitive Behavioural Therapy (CBT) to address the specific and varied needs of these employees (Szulc et al., 2021). As ADHD does not present a fixed set of criteria, BST enables employers and managers to build adaptive, flexible training programmes that accommodate individual skills and expectations. This training benefits neurodivergent individuals by equipping them with skills to overcome organisational challenges, integrate effectively within teams, and achieve shared goals in fostering an inclusive environment that values and nurtures diverse perspectives (Miltenberger et al., 2017).

Neuroinclusive training strategies incorporate feedback loops that give neurodivergent employees an active role in shaping their workplace experiences. Through structured feedback sessions and ongoing check-ins, neurodivergent employees can openly share their challenges, preferences and successes in response to current training initiatives (Motti, 2019). These insights are crucial, as feedback provides direct information on how effectively training can meet the unique requirements of neurodivergent individuals and highlight the areas in which they may need adjustments. For example, feedback may consist of or reveal preferences for alternate communication methods such as highlighting sensory adjustments needed in training materials, feedback could also indicate any shifts in support requirements as employees grow within their roles (Otaye-Ebede et al., 2023).

The findings chapter presented the initiatives that 12 organisations have designed and implemented to support neurodiversity in the workplace, as outlined in Table 3.3.1. Such initiatives included an emphasis on the importance of implementing coaching strategies to recruit and train neurodivergent individuals. SAP was the first to launch an 'Autism at Work' programme to diversify its workforce in 2013 (SAP, n.d.).

Companies such as Microsoft, Dell, Google, and EY adopt human-centred approaches by incorporating personalised training, tailored onboarding processes, and specific accommodations to address potential barriers for neurodiversity programmes this helps to provide personalised training and tools designed to reduce cognitive load during the training process (Otaye-Ebede et al., 2023). Across all 12 organisations, there is a strong emphasis on equipping recruitment and HR managers with the skills to respond empathetically and eliminate unconscious bias and stigma associated with neurodivergence. The 12 organisations also tend to prioritise ASD over other neurodiverse conditions, highlighting the need for a more balanced approach that gives attention to all spectrums of neurodiversity.

Prominent Australian companies, including Telstra, NAB, DXC, SAP, and New Zealand organisations such as ANZ, Enrich+, Spectrum Care, and Auckland Council, have mainly executed programmes designed to aid individuals with ASD. According to research, 38% of Australian companies employ individuals on the autism spectrum (Cockain, 2023).

The World Health Organization categorises Autism, also referred to as Autism Spectrum Disorder, as a condition defined by varying degrees of challenges in social interaction and communication (WHO, n.d.). Autism depicts irregular patterns of behaviour and activities, which include the ability to shift attention between various tasks, an intensified focus on minute details, and atypical responses to sensory experiences (Martin & Lanovaz, 2021). The significant gap that necessitates attention is the focus on expanding neurodiverse categories

beyond Autism, even as it recognises that autistic individuals often demonstrate notable skills that can be harnessed as strengths through tailored training programmes (Wehman et al., 2016). Corporations should also prioritise conditions such as dyslexia, dyscalculia, ADHD, and Tourette syndrome.

Utilising the key features of these organisations and prioritising other neurodiverse spectrums can ensure that these training techniques remain dynamic and constructive to the evolving needs of neurodivergent employees. These mechanisms enhance the inclusivity of training and strengthen the organisational culture's overall inclusiveness.

Considering that organisational performance is fundamentally connected to employee satisfaction, the research sheds light on the deficiencies within organisations that inadequately incorporate and nurture neurodivergent human capital. The significant lack of non-reliant neuroinclusive strategies has led to substantial difficulties for organisations that need to pay more attention to neurodiversity in their management frameworks (Szulc et al., 2024). Furthermore, it is crucial to emphasise other aspects of neurodiversity that create barriers towards employment opportunities across the spectrum. The formulation of personalised training programmes for neurodivergent individuals is essential for enabling their effective participation in workplace environments tailored to meet their specific needs.

Chapter 5: Conclusion

This chapter offers a detailed summary of the SLR on neurodiversity and HRD in the workplace. The review concludes with three main parts: first, an assessment of the study's limitations; next, contributions followed by suggestions for future research; and concluding the systematic review with final remarks.

5.1 Limitations

Five key limitations have been identified that affect the scope and comprehensiveness of its findings. First, the search results have been restricted to three databases: EBSCO, Google Scholar, and NZ research, excluding significant repositories like SCOPUS. As a result, studies only available in the excluded databases may have yet to be captured, limiting the scope of the review.

A second limitation is that the review focused solely on English-language studies and limited its context to neurodiversity in organisational training and HR settings. Other fields such as music, and sports, were excluded along with other areas where neurodiversity challenges and training strategies might also be relevant. This narrow scope may limit insights that could otherwise offer valuable perspectives across broader applications of neurodiversity.

Thirdly, the research timeframe was limited to studies published between 2000 and 2024. While this search highlights more recent and directly applicable research, it excludes earlier foundational studies, which may have contributed significant insights into the evolution of neurodiversity-related practices in organisations.

Fourth, the limitation was that the review included studies where neurodiversity was the central subject within organisational settings. This approach excluded research that addressed broader workplace dynamics or diversity models without focusing on neurodiversity. The

review may only partially capture studies where neurodiversity intersects indirectly with general organisational or HR strategies.

The final limitation is that this review relies on readily available secondary data rather than newly collected primary data. This approach limits the study, as it may not capture the most recent findings in the field (Snyder, 2019).

5.2 Contributions

This systematic literature review contributes substantially to advancing neurodiversity training and development within organisations. Applying thematic analysis and PRISMA synthesises relevant studies to provide a thorough understanding of neuro-inclusive HRD initiatives, human-centred approaches, and DT strategies that support neurodivergent employees. These three components combine to support neurodivergent individuals to learn and to feel understood and valued, ultimately fostering an inclusive and supportive work environment (Ardaillon et al., 2024). While previous research has primarily addressed academic studies on neurodiversity and organisational initiatives separately, this study uniquely integrates these domains to offer insights into how they can jointly enhance the professional lives of neurodivergent employees (Meacham et al., 2017). Furthermore, it enriches the existing literature by addressing gaps in the focus on inclusive practices and proposing a future research agenda. This approach lays a foundation for a more futuristic understanding of neurodiversity at work, aiming to bridge the gaps and extend the body of literature.

This review offers practical insights by underlining the importance of inclusive training that addresses the needs of neurodivergent employees and the managers who support them. Various studies show that initiatives require an organisational culture where managers and

neurotypical colleagues are trained to understand neuroinclusive perspectives, fostering a sense of belonging and respect (Bury et al., 2022). Additionally, this review discusses DT to support neurodivergent employees by reducing their cognitive load (Spoor & Walkowiak, 2024). Supported by approaches including visual learning tools, simplified feedback loops, and adaptable work arrangements, such as remote work options. These measures support productivity and create a more inclusive environment by accommodating different processing styles and needs (Blackburn, 2023). Moreover, neurodiversity has the potential to benefit and challenge organisational structures that provide a valuable research direction for future studies. By recognising these challenges, researchers can develop strategies that enhance the positive impacts while mitigating potential drawbacks within organisational contexts.

5.3 Suggestions for Future Research

Understanding disability is essential, particularly in workplaces. Future research is needed to explore how organisations can address the diverse needs of individuals with neurological disabilities while promoting equity and inclusion.

Disability is a comprehensive concept that includes impairments, activity limitations, and participation restrictions. Impairments pertain to a disturbance in bodily function or structure, while activity limitations signify challenges when attempting a specific task (Mellifont, 2019). Participation restriction, on the other hand, denotes difficulties experienced in similar situations. Figures reveal that close to 15% of the global population is dealing with some form of disability (Ramirez et al., 2024).

Neurodivergent individuals face challenges across multiple organisational dimensions; they encounter cognitive-communication and social interaction obstacles, often exacerbated by workplace environments (Morris et al., 2024). Due to the societal stigma, many neurodivergent individuals pursue accommodations such as private offices or flexible work

arrangements to reduce distractions, mitigate unconscious biases, and capitalise on their strengths (Parke & Seo, 2017).

Giannantonio and colleagues (2022) in the Academy of Management journal classify the concept of motivational asymmetry as a sociocultural barrier, wherein the differing motivations present between neurodivergent and neurotypical individuals may lead to misunderstandings and interpersonal conflicts. Moreover, this contribution examines the widespread misconceptions associated with stereotypes that lead to the underemployment of individuals diagnosed with neurodevelopmental disorders. The everyday realities navigated by neurodivergent individuals within professional environments are frequently accompanied by notable frustration, primarily stemming from the requirements dictated by a 'neurotypical' workplace. The dynamics of marginalisation and exclusion are also apparent between neurodivergent and neurotypical individuals in organisations predominantly structured by neurotypical frameworks (Nash, 2022). Organisations should acknowledge a need to move beyond neurotypical paradigms and support neurodivergent individuals seeking practical assistance (Ezerins et al., 2023).

As represented in the thematic analysis (Figure 2.), the disclosure dilemma serves as a vital element of the challenges and stigma experienced by neurodivergent individuals. This challenge highlights the necessity for a thorough assessment of disclosure's potential costs and benefits, considering its significant impact on their professional landscape and interpersonal relationships with colleagues. Modern workplace practices often adhere to traditional disability frameworks, which may insufficiently meet the unique needs of neurodivergent individuals (Santuzzi & Keating, 2022).

Future research initiatives should prioritise the practical implementation of the recommendations articulated for leaders or managers to promote more inclusive practices.

These recommendations include the enhancement of leadership competencies, such as empathy, adaptability, and practical communication skills, which are vital for cultivating a more inclusive workplace (Kaaria & Karemu, 2024). By recognising the connection between psychology and management, future research should focus on cross-disciplinary analysis that integrates management, organisational behaviour, psychology, and other fields (Jerotic et al., 2024).

Furthermore, subsequent research may explore the various types of work environments that foster inclusivity across different spectrums, thereby increasing understanding of organisational cultures and their effects on the effectiveness of leadership practices that support neurodiversity. Future research could include studies on additional spectrums and their unique strengths, such as dyslexia and dyscalculia, for the workplace context (Gujar, 2024).

Organisations could also evaluate the formation of support networks in their workplaces to ensure adequate assistance for neurodivergent employees, highlighting another significant domain of investigation. Ways to do this include thoroughly assessing the roles played by peer support groups and external organisations in fostering an inclusive work environment.

The current body of research primarily focuses on short-term surveys or interviews; therefore, future studies should consider a longitudinal approach spanning three to five years to evaluate the impacts of implementing innovative strategies related to neurodiversity within organisations. The longitudinal approach provides a deeper understanding of how these strategies evolve and their long-term effects on organisational culture, employee engagement, and productivity.

Future scholarly investigations should explore the potential benefits of digital transformation for individuals with neurodiversity, extending beyond simple improvements to their morale.

Research efforts may focus on developing and deploying a sensory accommodation framework for technology, synthesising clinical methodologies and user-centred paradigms to support the neurodivergent community (Tomczak & Ziemiański, 2023). Such inquiries could assess in detail how various aspects of human processing can be appropriately supported by technology to advance user experience and accessibility. Furthermore, examining celebratory technology's role in neurodiversity presents a fresh perspective aimed at diminishing stigma. Celebratory technology refers to technological tools, systems, or innovations that highlight and celebrate individuals' strengths and contributions (Boyd, 2024).

There is a critical need for research to assess the effectiveness of neuro-inclusive job designs and adaptable work arrangements on employee outcomes, particularly for neurodivergent individuals. An academic inquiry could explore the consequences of such designs on employee satisfaction, productivity, and holistic well-being, thereby enhancing the understanding of organisational equity and inclusion (Szulc & Tomczak, 2023).

Suggestions for future systematic literature reviews

The above-mentioned limitations also present valuable opportunities for future research to conduct a more comprehensive and nuanced systematic review. Since this study used a limited selection of databases, future research could incorporate additional databases like JSTOR, SCOPUS, and PsycINFO. Expanding the range of databases would allow researchers to consider a broader scope of literature, offering a more extensive understanding of the field. Additionally, expanding keyword searches beyond terms like 'neurodiversity,' 'humanistic approach,' and 'digital transformation' to include 'inclusion strategies,' ‘neurotypical training programmes,’ ‘neuro affirmative,’ and ‘neuro recruitment’ could reveal various dimensions of neurodiversity, providing richer insights into how organisations approach training and assessment for neurodivergent employees (Hall et al., 2024).

Moreover, extending the timeframe of the reviewed articles to include studies from the early 2000s would provide earlier information alongside more recent research, giving the review a comprehensive view of the field's evolution by integrating HRD and neurodivergent studies. Such an approach would allow a comparative analysis of older and current practices and examine developments in theory and practice over time. Future researchers could also consider primary data collection to include the latest perspectives, addressing another limitation of this review and potentially enhancing the accuracy and applicability of findings for practitioners and academics alike.

5.4 Conclusion

This systematic review set out to clarify the insights of prior studies and outline future research directions related to the objectives, underlying factors, and outcomes of neurodiversity in workplace settings. Based on a structured analysis of 16 academic articles and 22 pieces of grey literature from 2000 to 2024, sourced from various databases. The review highlighted several key findings: (1) Prioritising neurodiversity in training and recruitment efforts is essential for fostering inclusivity; (2) Adopting a humanistic approach is crucial for training both managers and employees to support neurodivergent individuals effectively; and (3) Leveraging digital transformation offers ways to alleviate cognitive burdens, thereby enhancing neurodivergent employees problem-solving and adaptability. Organisations could incorporate programmes or initiatives that pair neurodivergent individuals with neurodivergent colleagues to foster mutual understanding, skill sharing, and career development. Such programmes can leverage cognitive strengths and provide various insights to mentors and mentees. By utilising such practical implementations, organisations can harness the benefits of neurodiversity while contributing to a more innovative work environment.

References

Alesani, D., Nasi, G., & Manni, S. (2023). Digital transformation in IOs – toward a human-centered approach. In (pp. 406-431). https://doi.org/10.4324/9781003289852-16

Ali, M., Grabarski, M. K., & Baker, M. (2024). An exploratory study of benefits and challenges of neurodivergent employees: roles of knowing neurodivergents and neurodiversity practices. *Equality, Diversity and Inclusion: An International Journal*, *43*(2), 243-267. https://doi.org/https://doi.org/10.1108/EDI-03-2023-0092

Antony, S., Ramnath, R., & Ellikkal, A. (2024). Empowering neuro-diversity: A neuroaffirmative approach to workplace coaching. *International coaching psychology review.*, *19*(1), 49-59. https://doi.org/http://dx.doi.org/10.53841/bpsicpr.2024.19.1.49

ANZ. (n.d.). *Disability access and Inclusion plan.* https://www.bandt.com.au/publicis-groupe-anz-announces-disability-access-inclusion-plan-marking-neurodiversity-celebration-week/

Apperly, I. A., Lee, R. J., Kleij, S. W. v. d., & Devine, R. T. (2023). Preprint_a_transdiagnostic_approach_to_neurodiversity_in_a_representative_population_sample_the_N+4_model. https://doi.org/10.31234/osf.io/75unh

Ardaillon, H., Ribault, S., Herault, C., Pisella, L., Lechopier, N., Reilly, K. T., & Rode, G. (2024). Striking the Balance: Embracing Technology While Upholding Humanistic Principles in Neurorehabilitation. *Neurorehabilitation and Neural Repair*, *38*(9), 705-710. https://doi.org/10.1177/15459683241265887

Armijo-Olivo, S., Stiles, C. R., Hagen, N. A., Biondo, P. D., & Cummings, G. G. (2012). Assessment of study quality for systematic reviews: a comparison of the Cochrane Collaboration Risk of Bias Tool and the Effective Public Health Practice Project Quality Assessment Tool: methodological research. *Journal of evaluation in clinical practice*, *18*(1), 12-18.

Arnold, J., & Foncubierta, J. M. (2021). The humanistic approach. *The Routledge handbook of the psychology of language learning and teaching*, 36-47.

Asdlori, A. (2023). The Importance of Humanistic Approach in Human Resource Management Education. *Indo-MathEdu Intellectuals Journal*. https://doi.org/10.54373/imeij.v4i2.218

ASA. (n.d.). *Unearthing potential with neurodiversity.* https://miningmagazine.com.au/unearthing-potential-with-neurodiversity/

Attride-Stirling, J. (2001). Thematic networks: an analytic tool for qualitative research. *Qualitative Research*, *1*(3), 385-405. https://doi.org/10.1177/146879410100100307

Auticon. (n.d.). *Neurodiversity training for your workforce.* https://auticon.com/nz/neuroinclusion-services/neurodiversity-training/

Axbey, H. (2023). 'Normal People'? An Autistic analysis into neurodiverse communication, and innovation through diversity. https://doi.org/https://doi.org/10.1016/j.rasd.2021.101741

Axbey, H., Beckmann, N., Fletcher-Watson, S., Tullo, A., & Crompton, C. J. (2023). Innovation through neurodiversity: Diversity is beneficial. *Autism*, *27*(7), 2193-2198. https://doi.org/10.1177/13623613231158685

Banerjee, R., Aggarwal, L., & Aggarwal, R. (2020). On an Attempt to Study the Inter-relationships amongst Enablers of Inclusion of Neuro Diverse Individuals at Educational and Professional Workplaces. *International Journal of Computer Applications*, *177*(45), 27-33. https://doi.org/10.5120/IJCA2020919944

Barbiero, G. (2024). Biophilic design reframed. The theoretical basis for experimental research. *Ri-Vista. Research for landscape architecture*, *21*(2), 80-91. https://doi.org/10.36253/rv-15678
Bewley, H., & George, A. (2016). Neurodiversity at work. *London: National Institute of Social and Economic Research*, 1-68.
Blackburn, B. (2023). Managing neurodiversity in workplaces. *Occupational Medicine*, *73*(2), 57-58. https://doi.org/10.1093/occmed/kqac142
Bolton, M. J. (2023). De-centering Neuronormativity is an Imperative in Humanistic Psychotherapy: Towards a Neurodiversity-Informed, Person-Centered Approach. https://psyarxiv.com/q2t8h/download?format=pdf
Boxall, P. F., Purcell, J., & Wright, P. M. (2007). *The Oxford handbook of human resource management*. Oxford university press, USA.
Boyd, L. (2023). *Conceptualizing Celebratory Technologies for Neurodiversity to Reduce Social Stigma* Proceedings of the 25th International ACM SIGACCESS Conference on Computers and Accessibility, New York, NY, USA. https://doi.org/10.1145/3597638.3614478
Boyd, L. (2024). Neuro-Inclusive Design Considerations for Assistive and Accessible Technologies and Beyond. In L. Boyd (Ed.), *The Sensory Accommodation Framework for Technology: Bridging Sensory Processing to Social Cognition* (pp. 113-124). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-48843-6_8
Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, *3*(2), 77-101.
Braun, V., & Clarke, V. (2012). *Thematic analysis*. American Psychological Association. https://doi.org/https://psycnet.apa.org/doi/10.1037/13620-004
Brinzea, V.-M. (2019). Encouraging neurodiversity in the evolving workforce – the next frontier to a diverse workplace. *Scientific Bulletin – Economic Sciences*, *18*(3), 13-25.
Brown, M., & Brown, R. S. (2020). *Emancipatory perspectives on madness: psychological, social, and spiritual dimensions*. Routledge.
Bruyère, S. M., & Colella, A. (2024). Workplace Accommodations and Neurodiversity. In *Neurodiversity and Work: Employment, Identity, and Support Networks for Neurominorities* (pp. 181-205). Springer.
Burton, L., Carss, V., & Twumasi, R. (2022). Listening to Neurodiverse Voices in the Workplace. *3*(2). https://doi.org/10.9707/2833-1508.1087
Bury, S. M., Spoor, J. R., Hayward, S. M., & Hedley, D. (2022). Supporting the mental health and well-being of autistic and other neurodivergent employees in the work environment. In *Neurodiversity in the Workplace* (pp. 241-266). Routledge. https://www.taylorfrancis.com/chapters/edit/10.4324/9781003023616-10/supporting-mental-health-well-being-autistic-neurodivergent-employees-work-environment-simon-bury-jennifer-spoor-susan-hayward-darren-hedley
Cimlearning. (n.d.). *Neuroscience-based online learning.* https://cimlearning.com/
Clouder, L., Karakus, M., Cinotti, A., Ferreyra, M. V., Fierros, G. A., & Rojo, P. (2020). Neurodiversity in higher education: a narrative synthesis. *Higher Education*, *80*(4), 757-778. https://doi.org/https://doi.org/10.1007/s10734-020-00513-6
Cockain, A. (2023). Commentary on "Diversity and inclusion policies in publicly traded New Zealand companies: inclusion of people with intellectual disabilities". *Tizard Learning Disability Review*, *28*(1/2), 27-32. https://doi.org/https://doi.org/10.1108/TLDR-02-2023-0007
Creem, A. N., Shaw, S. K. G., Plattner, C., & Posey, J. (2022). Using the Teaching Interaction Procedure and Behavioral Skills Training to Develop Skills for Individuals with Autism: An Evidence-Based Approach. In J. B. Leaf, J. H. Cihon, J. L. Ferguson, &

M. J. Weiss (Eds.), *Handbook of Applied Behavior Analysis Interventions for Autism: Integrating Research into Practice* (pp. 251-265). Springer International Publishing. https://doi.org/10.1007/978-3-030-96478-8_14

Creswell, J. W. (1998). Qualitative Inquiry and Research Design. *Choosing Among Five Traditions*. https://cir.nii.ac.jp/crid/1571980074750071040

Davy, L., Fisher, K. R., Wehbe, A., Purcal, C., Robinson, S., Kayess, R., & Santos, D. (2018). Review of implementation of the National Disability Strategy 2010-2020. *prepared for the Department of Social Services, p35*. https://www.dss.gov.au/sites/default/files/documents/03_2019/review-implementation-national-disability-strategy-2010-2020-final-report.pdf

Deloitte. (n.d.). *Neurodiversity at Deloitte.* https://www.deloitte.com/ce/en/about/people/social-responsibility/neurodiversity-at-deloitte.html

Dell. (n.d.). *Neurodiversity at Dell Technologies.* https://jobs.dell.com/en/neurodiversity

Dinishak, J. (2019). Autism, aspect-perception, and neurodiversity. *Philosophical Psychology*, *32*(6), 874-897.

Donaldson, A. L., Krejcha, K., & McMillin, A. (2017). A strengths-based approach to autism: Neurodiversity and partnering with the autism community. *Perspectives of the ASHA Special Interest Groups*, *2*(1), 56-68.

Doyle, N. (2020). Neurodiversity at work: a biopsychosocial model and the impact on working adults. *British medical bulletin*, *135*(1), 108-125. https://doi.org/10.1093/bmb/ldaa021

Doyle, N., Hough, L., Thorne, K., & Banfield, T. (2022). Neurodiversity. In *Challenging Bias in Forensic Psychological Assessment and Testing* (pp. 329-357). Routledge.

Doyle, N., & McDowall, A. (2022). Diamond in the rough? An "empty review" of research into "neurodiversity" and a road map for developing the inclusion agenda. *Equality, Diversity and Inclusion: An International Journal*, *41*(3), 352-382. https://doi.org/10.1108/EDI-06-2020-0172

Doyle, N., & Waseem, U. (2022). Using clean language interviewing to explore the lived experience of neurodifferent job applicants. In *Clean Language Interviewing* (pp. 101-115). Emerald Publishing Limited.

Ernst & Young. (2024, March 22). *Neurodivergence at* EY.https://www.bbc.com/worklife/article/20240320-ey-karyn-twaronite-neurodiversity-bbc-executive-interview

Ekblad, L. (2024). Evaluating bimodality on the autism spectrum and in neurodiversity. https://doi.org/https://www.doi.org/10.31219/osf.io/9htdy

Enoka, K. (2022). An early career music therapist's reflections on the neurodiversity paradigm and implications for advocating for neurodivergent participants through reporting for NDIS: Small steps in an agonistic journey. *Australian Journal of Music Therapy*, *33*(2), 37-46. https://scholar.google.com/scholar?output=instlink&q=info:UVk2gOA92roJ:scholar.google.com/&hl=en&as_sdt=0,5&scilib=1038&scillfp=12284932883349707448&oi=lle

Eze, I. E., Shukla, V. K., & Verma, A. (2021). Diversity and inclusion through technological trends. *Creating a Culture of Diversity and Inclusiveness in India Inc. Practitioners Speak*, 135-156. https://link.springer.com/chapter/10.1007/978-981-16-4237-1_11

Ezerins, M. E., Vogus, T. J., Gabriel, A. S., Simon, L. S., Calderwood, C., & Rosen, C. C. (2023). From environmental niches to unique contributions: Reconsidering fit to foster inclusion across neurotypes. *Industrial and Organizational Psychology*, *16*(1), 41-44. https://doi.org/10.1017/iop.2022.98

Fung, L. (2024). Strengths-Based Models and Neurodiversity. In *Neurodiversity and Work: Employment, Identity, and Support Networks for Neurominorities* (pp. 39-59). Springer.
Giannantonio, C. M., Hurley-Hanson, A., Follmer, E., Auschra, C., Ezerins, M. E., Moeller, M., Williams, N., Bragger, J., Calderwood, C. C., Ott, D. L., Rosen, C. C., Russo, E., Simon, L., & Vogus, T. J. (2022). Neurodiversity at Work: New Insights on Inclusion and Potential. *Academy of Management Proceedings*, *2022*(1), 13337. https://doi.org/10.5465/AMBPP.2022.13337symposium
Goldberg, H. (2023). Unraveling neurodiversity: Insights from neuroscientific perspectives. *Encyclopedia*, *3*(3), 972-980. https://www.mdpi.com/2673-8392/3/3/70
Gong, C., & Ribiere, V. (2021). Developing a unified definition of digital transformation. *Technovation*, *102*, 102217.
Google Cloud. (n.d.). *Strengthening our workplace with neurodiverse talent.* https://cloud.google.com/blog/topics/inside-google-cloud/google-cloud-launches-a-career-program-for-people-with-autism
Gujar, H. (2024). Unlocking Potential: The Strategic Advantage of Neurodiversity in the Workplace. *Journal of business and strategic management*, *9*(2), 1-7. https://doi.org/10.47941/jbsm.1798
Hall, K., Arora, P., Lowy, R., & Kim, J. G. (2024). *Designing for Strengths: Opportunities to Support Neurodiversity in the Workplace* Proceedings of the CHI Conference on Human Factors in Computing Systems, Honolulu, HI, USA. https://doi.org/10.1145/3613904.3642424
Hartman, D., O'Donnell-Killen, T., Doyle, J. K., Kavanagh, M., Day, A., & Azevedo, J. (2023). *The adult autism assessment handbook: A neurodiversity affirmative approach*. Jessica Kingsley Publishers.
Hess, T., Matt, C., Benlian, A., & Wiesböck, F. (2016). Options for formulating a digital transformation strategy. *MIS Quarterly Executive*, *15*(2).
Houdek, P. (2022). Neurodiversity in (Not Only) Public Organizations: An Untapped Opportunity? *Administration & Society*, *54*(9), 1848-1871. https://doi.org/10.1177/00953997211069915
Hume, R. (2022). *Show me the real you: Therapeutic relationship-building with autistic adults* ResearchSpace@ Auckland]. https://researchspace.auckland.ac.nz/handle/2292/61869
Hutson, P., & Hutson, J. (2023). Neurodiversity and Inclusivity in the Workplace: Biopsychosocial Interventions for Promoting Competitive Advantage. *Journal of Organizational Psychology*, *23*(2). https://doi.org/10.33423/jop.v23i2.6159
IBM. (n.d.). *Neurodiversity @ IBM.* https://newsroom.ibm.com/Neurodiversity-IBM?item=32865
Jerotic, S., Ignjatovic, N., Maric, N. P., Nesic, J., Jovandic, Z., Latas, M., Nestorovic, M., Jevtovic, M., & Aftab, A. (2024). A Comparative Study on Mental Disorder Conceptualization: A Cross-Disciplinary Analysis. *Community Mental Health Journal*, *60*(4), 813-825.
Johnson, A. P. (2014). Humanistic learning theory. *Education psychology: Theories of learning and human development*, 1-10.
Johnson, K. R., Ennis-Cole, D., & Bonhamgregory, M. (2020). Workplace success strategies for employees with autism spectrum disorder: A new frontier for human resource development. *Human Resource Development Review*, *19*(2), 122-151. https://doi.org/https://doi.org/10.1177/1534484320905910
Johnson, T. D. (2024). The BRIDGE Framework: How Stigma Research Informs Everyday Practices Toward Neurodiversity and Neuroinclusion in the Workplace. In E. Patton &

A. M. Santuzzi (Eds.), *Neurodiversity and Work: Employment, Identity, and Support Networks for Neurominorities* (pp. 83-106). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-55072-0_5

Johnston-Tayler, J., & Analla, Y. (2015). ADDRESSING NEURODIVERSE EMPLOYMENT NEEDS: Working with Autism Spectrum Disorder I, NVLD, ADHD, Learning and Mood Disordered Clients. *The Career Planning and Adult Development Journal*, *31*(4).

Kaaria, A. G., & Karemu, G. K. (2024). Cultivating Neurodiverse Connections Through Competent Leadership: Integrative Literature Review. *International journal of advanced research*. https://doi.org/10.37284/ijar.7.1.1814

Kapp, S. K., Gillespie-Lynch, K., Sherman, L. E., & Hutman, T. (2013). Deficit, difference, or both? Autism and neurodiversity. *Developmental psychology*, *49*(1), 59. https://doi.org/https://psycnet.apa.org/doi/10.1037/a0028353

Kersten, A., Scholz, F., van, M., Krabbenborg, M., & Smeets, L. (2024). A Strengths-Based Human Resource Management Approach to Neurodiversity: A Multi-Actor Qualitative Study. *Human Resource Management*.

Khakwani, S., Aslam, H. D., Azhar, M. S., & Mateen, M. M. (2012). Coaching and Mentoring For Enhanced Learning of Human Resources in Organizations: (Rapid Multiplication of Workplace Learning to Improve Individual Performance. *Journal of Educational and Social Research.*, *2*(1), 257-257.

Khan, M. H., Ali, M., Grabarski, M. K., & Moore, K. (2023). 16 Reframing Management of Organisational Neurodiversity in Australia: A Contextual Approach. In B. Joy, H. Sophie, & K. Mukta (Eds.), *De Gruyter Handbook of Disability and Management* (pp. 267-286). De Gruyter. https://doi.org/doi:10.1515/9783110743647-017

Khan, M. H., Grabarski, M. K., Ali, M., & Buckmaster, S. (2022). Insights into Creating and Managing an Inclusive Neurodiverse Workplace for Positive Outcomes: A Multistaged Theoretical Framework. *Group & Organization Management*, *48*(5), 1339-1386. https://doi.org/10.1177/10596011221133583

Kirby, A., & Smith, T. (2021). *Neurodiversity at work: Drive innovation, performance and productivity with a neurodiverse workforce*. Kogan Page Publishers. https://books.google.com/books?hl=en&lr=&id=nYo5EAAAQBAJ&oi=fnd&pg=PR1&ots=KK5ut0rekp&sig=sFP53rWCGt-3x9l0x2-EDaZqZ8E

Kluge, I. (2024). Disability in Education from a Neurodiversity Standpoint: A Multi-Article Dissertation.

Koon, V.-Y., & Fujimoto, Y. (2024). From corporate social responsibility (CSR) to corporate humanistic responsibility (CHR): the conceptualization and operationalization of perceived CHR. *Personnel Review*, *53*(4), 877-899. https://doi.org/10.1108/PR-07-2022-0491

Krzeminska, A., Austin, R. D., Bruyère, S. M., & Hedley, D. (2019). The advantages and challenges of neurodiversity employment in organizations. *Journal of Management & Organization*, *25*(4), 453-463. https://doi.org/10.1017/jmo.2019.58

Le Cunff, A.-L., Giampietro, V., & Dommett, E. (2024). Neurodiversity Positively Predicts Perceived Extraneous Load in Online Learning: A Quantitative Research Study. *Education Sciences*, *14*(5), 516. https://www.mdpi.com/2227-7102/14/5/516

Legault, M., Bourdon, J.-N., & Poirier, P. (2021). From neurodiversity to neurodivergence: the role of epistemic and cognitive marginalization. *Synthese*, *199*(5), 12843-12868. https://doi.org/10.1007/s11229-021-03356-5

Lindsay, S., Osten, V., Rezai, M., & Bui, S. (2021). Disclosure and workplace accommodations for people with autism: A systematic review. *Disability and rehabilitation*, *43*(5), 597-610.

Lively. (2023). Neurodiverse Perceptions of Inclusivity in the Workplace.
Lundh, A., & Gøtzsche, P. C. (2008). Recommendations by Cochrane Review Groups for assessment of the risk of bias in studies. *BMC medical research methodology*, *8*, 1-9.
Makupa, S. A. K., Cristofaro, M., & Giardino, P. L. (2023). Workplace inclusivity from a Strategy-as-Practice perspective: A systematic literature review. *Corporate Governance and Research & Development Studies*, *2023*(1), 61-85.
Martin, V., & Lanovaz, M. J. (2021). Program evaluation of a community organization offering supported employment services for adults with autism. *Research in Autism Spectrum Disorders*, *82*, 101741. https://doi.org/https://doi.org/10.1016/j.rasd.2021.101741
Masataka, N. (2017). Implications of the idea of neurodiversity for understanding the origins of developmental disorders. *Physics of Life Reviews*, *20*, 85-108.
Mcdowall, A., & Doyle, N. (2023). *Neurodiversity coaching: a psychological approach to supporting neurodivergent talent and career potential*. Routledge. https://www.taylorfrancis.com/books/mono/10.4324/9781003368274/neurodiversity-coaching-almuth-mcdowall-nancy-doyle
McDowall, A., Doyle, N., & Kiseleva, M. (2024). Is a little knowledge a dangerous thing? A stakeholder perspective on the use of evidence about neurodiversity at work. *The Market: International Journal of Business*, *5*, 143-151.
McGreevy, E., Quinn, A., Law, R., Botha, M., Evans, M., Rose, K., Moyse, R., Boyens, T., Matejko, M., & Pavlopoulou, G. (2024). An Experience Sensitive Approach to Care With and for Autistic Children and Young People in Clinical Services. *Journal of Humanistic Psychology*, 00221678241232442. https://doi.org/10.1177/00221678241232442
Microsoft. (n.d.). *Microsoft Neurodiversity Hiring Programe.* https://www.microsoft.com/en-us/diversity/inside-microsoft/cross-disability/neurodiversityhiring
McVilly, K., McCarthy, M., Day, A., Birgden, A., & Malvaso, C. (2023). Identifying and responding to young people with cognitive disability and neurodiversity in Australian and Aotearoa New Zealand youth justice systems. *Psychiatry, Psychology and Law*, *30*(6), 789-811. https://doi.org/https://doi.org/10.1080/13218719.2022.2124548
Meacham, H., Cavanagh, J., Shaw, A., & Bartram, T. (2017). HRM practices that support the employment and social inclusion of workers with an intellectual disability. *Personnel Review*, *46*(8), 1475-1492. https://doi.org/10.1108/PR-05-2016-0105
Medina-Vicent, M. (2019). Neuroleadership: Diversity as a Moral Value in Organisations. *Moral Neuroeducation for a Democratic and Pluralistic Society*, 193-208.
Miltenberger, R. G., Zerger, H. M., Novotny, M., & Livingston, C. P. (2017). Behavioral Skills Training to Promote Social Behavior of Individuals with Autism. In J. B. Leaf (Ed.), *Handbook of Social Skills and Autism Spectrum Disorder : Assessment, Curricula, and Intervention* (pp. 325-342). Springer International Publishing. https://doi.org/10.1007/978-3-319-62995-7_19
Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & Group, P. (2010). Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *International journal of surgery*, *8*(5), 336-341.
Molett, T. A. (2022). *A NeurodivergentYFriendly 2trengthYBased Approach to Corporate Hiring and Learning: Training Modules for Change* Doctoral Dissertation Bridges Graduate 2chool of Cognitive Diversity in …]. https://losangeles.bridges.edu/uploads/6/3/7/5/63751333/molett_dissertation.pdf
Morgan, H. (2019). Connections Between Sensory Sensitivities in Autism; the Importance of Sensory Friendly Environments for Accessibility and Increased Quality of Life for the Neurodivergent Autistic Minority. *PSU McNair Scholars Online Journal*, *13*(1), 11.

Motti, V. G. (2019). *Designing emerging technologies for and with neurodiverse users* Proceedings of the 37th ACM International Conference on the Design of Communication, Portland, Oregon. https://doi.org/10.1145/3328020.3353946
Nash, L. (2022). There and Back Again: Neuro-Diverse Employees, Liminality and Negative Capability. *Work, Employment and Society*, *38*(1), 262-278. https://doi.org/10.1177/09500170221117420
Nelson, R. H. (2021). A Critique of the Neurodiversity View. *Journal of Applied Philosophy*, *38*(2), 335-347. https://doi.org/https://doi.org/10.1111/japp.12470
Nicholson, R. M. (2022). *Hyperfocus in autism: An exploration inspired by the principles of neurodiversity*. Immaculata University.
O'Dwyer, A., & Thorpe, A. (2013). Managers' understandings of supporting teachers with specific learning disabilities: Macro and micro understandings in the English Further Education sector. *Cambridge Journal of Education*, *43*(1), 89-105. https://doi.org/https://doi.org/10.1080/0305764X.2012.749390
Otaye-Ebede, L., Loon, M., Stewart, J., & Nachmias, S. (2023). How can Organisations Support and Maximise the Contributions of Neurodiverse Employees? *Academy of Management Proceedings*, *2023*(1), 16986. https://doi.org/10.5465/AMPROC.2023.16986abstract
Ott, D. L., Russo, E., & Moeller, M. (2022). Neurodiversity, Equity, and Inclusion in MNCs. *22*(3). https://doi.org/http://dx.doi.org/10.46697/001c.34627
Page, M. J., Moher, D., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., & Brennan, S. E. (2021). PRISMA 2020 explanation and elaboration: updated guidance and exemplars for reporting systematic reviews. *bmj*, *372*.
Parke, M. R., & Seo, M.-G. (2017). The role of affect climate in organizational effectiveness. *Academy of Management Review*, *42*(2), 334-360.
Pati, D., & Lorusso, L. N. (2018). How to write a systematic review of the literature. *HERD: Health Environments Research & Design Journal*, *11*(1), 15-30.
Patton, E., Santuzzi, A. M., Doyle, N., Comer, D. R., Hayward, S., Stokes, M., Bury, S., Hedley, D., Giannantonio, C. M., Hurley-Hanson, A., Griffiths, A. J., Segrest, S., Spoor, J. R., & Walkowiak, E. (2023). Neurodiversity and Work - Employment, Identity, and Support for Neurominorities. *Academy of Management Proceedings*, *2023*(1), 11452. https://doi.org/10.5465/AMPROC.2023.11452symposium
Priscott, T., & Allen, R. A. (2021). Human capital neurodiversity: an examination of stereotype threat anticipation. *Employee Relations: The International Journal*, *43*(5), 1067-1082. https://doi.org/10.1108/ER-06-2020-0304
Ramirez, D. Z. M., Barbareschi, G., & Holloway, C. (2024). Adult Autism Research Priorities and Conceptualization in Computing Research: Invitation to Co-Lead with Autistic Adults. *ACM Transactions on Computer-Human Interaction*. https://doi.org/10.1145/3635148
Rao, B., & Polepeddi, J. (2019). Neurodiverse workforce: inclusive employment as an HR strategy. *Strategic HR Review*, *18*(5), 204-209. https://doi.org/10.1108/SHR-02-2019-0007
Richards, B. A., Lillicrap, T. P., Beaudoin, P., Bengio, Y., Bogacz, R., Christensen, A., Clopath, C., Costa, R. P., de Berker, A., & Ganguli, S. (2019). A deep learning framework for neuroscience. *Nature neuroscience*, *22*(11), 1761-1770.
Rigden, S. (2017). *The biophilic learning environment : an alternative to the current New Zealand Innovative Learning Environment model* Unitec New Zealand.

Rismiller, J. L. (2024). *Encountering Neurodiversity-Affirming Perspectives of Neurodivergent Experiences: A Collaborative Exploration With Caregivers* Fielding Graduate University].
Rogers, C. R. (1986). The Rust workshop: A personal overview. *Journal of Humanistic Psychology*, *26*(3), 23-45.
Ru, O. S., & Jamil, R. (2024). Conceptual Framework of Inclusive Human Resource Management to Support Neurodiversity Employment. *International journal of academic research in business & social sciences*. https://doi.org/10.6007/ijarbss/v14-i2/20922
Russo, E., Ott, D. L., & Moeller, M. (2022). Is There a Place for Neurodiversity in the Talent Pool? In M. Latukha (Ed.), *Diversity in Action* (pp. 265-285). Emerald Publishing Limited. https://doi.org/10.1108/978-1-80117-226-420221014
Santuzzi, A. M., & Keating, R. T. (2022). Neurodiversity and the Disclosure Dilemma. In (pp. 124-148). Routledge eBooks. https://doi.org/http://dx.doi.org/10.4324/9781003023616-5
Savickaite, S. (2024). *Using Virtual Reality to explore individual differences in perception due to neurodiversity* University of Glasgow].
SAP. (n.d.). *Autism at work program.* https://jobs.sap.com/content/Autism-at-Work/
Schneider, B., Ehrhart, M. G., & Macey, W. H. (2011). Organizational climate research. *The handbook of organizational culture and climate*, *29*, 12169-12012.
Schneider, B., Ehrhart, M. G., & Macey, W. H. (2013). Organizational Climate and Culture. *Annual Review of Psychology*, *64*(Volume 64, 2013), 361-388. https://doi.org/https://doi.org/10.1146/annurev-psych-113011-143809
Scott, M. (2018). Evaluating the Effectiveness of an Autism-Specific Workplace Tool.
Sharma, K., & Makhija, T. K. (2024). Neurodiversity and Global Business Strategies Embracing Diversity in the Globalized Workplace. https://hal.science/hal-04552150/document
Shaw, C., Churchill, V., Curtain, S., Davies, A., Davis, B., Kalenderidis, Z., Hunt, E. L., McKenzie, B., Murray, M., & Thompson, G. A. (2022). Lived experience perspectives on ableism within and beyond music therapists' professional identities. *Music Therapy Perspectives*, *40*(2), 143-151. https://doi.org/https://doi.org/10.1093/mtp/miac001
Silver, E. R., Nittrouer, C. L., & Hebl, M. R. (2023). Beyond the business case: Universally designing the workplace for neurodiversity and inclusion. *Industrial and Organizational Psychology*, *16*(1), 45-49. https://doi.org/10.1017/iop.2022.99
Singer, J. (2017). *NeuroDiversity: The Birth of an Idea*. Judy Singer. https://books.google.co.nz/books?id=Ox_7uQEACAAJ
Singh, A. (2022). Neurodiversity in Education Celebrating Differences and Embracing Strengths. *International Journal for Research Publication and Seminar*, *13(5)*, 271-276.
Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of business research*, *104*, 333-339.
Spoor, J. R., & Walkowiak, E. (2024). Enabling Neurodiversity in Organisations: Leveraging the HRM and Digital Technology Nexus. In E. Patton & A. M. Santuzzi (Eds.), *Neurodiversity and Work: Employment, Identity, and Support Networks for Neurominorities* (pp. 231-253). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-55072-0_11
Stenning, A., & Rosqvist, H. B. (2021). Neurodiversity studies: mapping out possibilities of a new critical paradigm. *Disability & Society*, *36*(9), 1532-1537. https://doi.org/10.1080/09687599.2021.1919503

Sumner, K. E., & Brown, T. J. (2015). Neurodiversity and human resource management: Employer challenges for applicants and employees with learning disabilities. *The Psychologist-Manager Journal*, *18*(2), 77. https://psycnet.apa.org/journals/mgr/18/2/77/

Szulc, J. M., Davies, J., Tomczak, M. T., & McGregor, F.-L. (2021). AMO perspectives on the well-being of neurodivergent human capital. *Employee Relations: The International Journal*, *43*(4), 858-872. https://doi.org/10.1108/ER-09-2020-0446

Taormina, R. J., & Gao, J. H. (2013). Maslow and the motivation hierarchy: Measuring satisfaction of the needs. *The American journal of psychology*, *126*(2), 155-177.

Tomczak, M. T., & Ziemiański, P. (2023). Autistic Employees' Technology-Based Workplace Accommodation Preferences Survey—Preliminary Findings. *International Journal of Environmental Research and Public Health*, *20*(10), 5773. https://www.mdpi.com/1660-4601/20/10/5773

University of Auckland. (n.d.). *Neurodivergence at work.* https://www.auckland.ac.nz/en/about-us/about-the-university/equity-at-the-university/equity-information-for-staff/staff-with-disabilities-and-impairments/neurodiversity.html

Van Zyl, L. E., & Stander, M. W. (2013). A Strengths-Based Approach Towards Coaching in a Multicultural Environment. In J. H. D. Cornelius-White, R. Motschnig-Pitrik, & M. Lux (Eds.), *Interdisciplinary Handbook of the Person-Centered Approach: Research and Theory* (pp. 245-257). Springer New York. https://doi.org/10.1007/978-1-4614-7141-7_17

Volpone, S., Avery, D. R., & Wayne, J. (2022). Shaping organizational climates to develop and leverage workforce neurodiversity. In *Neurodiversity in the Workplace*. Taylor & Francis.

Walker, N. (2014). Neurodiversity: Some basic terms & definitions. In.

Walkowiak, E. (2021). Neurodiversity of the workforce and digital transformation: The case of inclusion of autistic workers at the workplace. *Technological Forecasting and Social Change*, *168*, 120739. https://doi.org/https://doi.org/10.1016/j.techfore.2021.120739

Ward-Horner, J., & Sturmey, P. (2012). Component analysis of behavior skills training in functional analysis. *Behavioral Interventions*, *27*(2), 75-92.

Weber, C., Krieger, B., Häne, E., Yarker, J., & McDowall, A. (2024). Physical workplace adjustments to support neurodivergent workers: A systematic review. *Applied Psychology*, *73*(3), 910-962. https://doi.org/https://doi.org/10.1111/apps.12431

Wehman, P., Brooke, V., Brooke, A. M., Ham, W., Schall, C., McDonough, J., Lau, S., Seward, H., & Avellone, L. (2016). Employment for adults with autism spectrum disorders: A retrospective review of a customized employment approach. *Research in developmental disabilities*, *53*, 61-72.

Westpac. (n.d.). *On the spectrum: Neurodiversity brings edge.* https://www.westpac.com.au/news/making-news/2017/12/on-the-spectrum-neurodiversity-brings-edge/

Whelpley, C. E., Holladay-Sandidge, H. D., Woznyj, H. M., & Banks, G. C. (2023). The biopsychosocial model and neurodiversity: A person-centered approach. *Industrial and Organizational Psychology*, *16*(1), 25-30.

WHO. (n.d.). *Autism.* https://www.who.int/news-room/fact-sheets/detail/autism-spectrum-disorders

Wiggleton-Little, J., & Callender, C. (2023). Screening out neurodiversity. *Kennedy Institute of Ethics Journal*, *33*(1), 21-54.

Wille, S., & Sajous-Brady, D. (2018). The inclusive and accessible workplace. *Commun. ACM*, *61*(2), 24–26. https://doi.org/10.1145/3176410

Wiltshire, G., & Ronkainen, N. (2021). A realist approach to thematic analysis: making sense of qualitative data through experiential, inferential and dispositional themes. *Journal of Critical Realism*, *20*(2), 159-180.

Wissell, S., Karimi, L., Serry, T., Furlong, L., & Hudson, J. (2022). Leading diverse workforces: perspectives from managers and employers about dyslexic employees in australian workplaces. *International Journal of Environmental Research and Public Health*, *19*(19), 11991. https://doi.org/https://doi.org/10.3390/ijerph191911991