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An Investigation of Higher Education Supports for Dyslexic Students

By
Patricia Healy
(Student Number 3115776)

Dissertation submitted in partial fulfilment of the requirements for the Masters of Arts in Education and Learning Development (*QQI*)

Faculty of Teaching and Learning

GRIFFITH COLLEGE DUBLIN
JULY 2024

Declaration

I hereby certify that this material, which I now submit for assessment on the programme of study leading to the award of the MA in Education Learning and Development, is my own; based on my personal study and/or research, and that I have acknowledged all material and sources used in its preparation. I also certify that I have not copied in part or whole or otherwise plagiarised the work of anyone else, including other learners.

Signed: Patricia Healy

Dated: 11th July 2024

Abstract:

As the diagnoses of neurodivergent conditions increase in Ireland, Higher Education Institutions are increasingly challenged to adapt their educational offerings. This research looks at supports across a range of Higher Education Institutions and examines their effectiveness in meeting students' needs.

Research was conducted via questionnaires submitted to 25 Higher Education Institutions. Of those surveyed, 15 responded, answering a range of questions on supports provided to neurodivergent students. Independently, five former students were surveyed and answered similar questions.

Key findings from the research include differing opinions between past students and colleges on the value of supports provided. The supports most valued by students are recorded lectures, assistive technology and extra time in exams. There is consensus that colleges need to better leverage technology to make life easier for students. Higher Education Institutions viewed Universal Design as a key offering, but this appeared to have little impact with students. In addition, the research clearly found that many students do not disclose their condition, largely attributed to the associated social stigma, making it difficult for supports to be provided.

Increased disclosure of conditions and a greater understanding of areas benefitting students, can lead to better allocation of scarce funding, on behalf of the institutions. This would result in a more inclusive culture within Irish Higher Education Institutions.

Keywords: Dyslexia, Disabilities, Support staff, Neurodivergent, support services, Higher Education.

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To my husband Paul and daughter Aisling, thanks for your immense support and patience. I would not have got through this without you both.

James and Cian, I hope this research benefits you, in years to come and goes a little way to make up for the time I missed out spending with all three of you, while I sat at my desk. You might not realise, but you inspired me to pursue this research and I hope it helps in life's journey, regardless of what pathway you choose!

A big thank you to my supervisor, Joanne, who was a great support throughout.

List of Abbreviations

AHEAD – Association on Higher Education and Disability is an organisation that creates an inclusive environment in education and employment for people with disabilities. AHEAD provides “Universal Design Learning” badges and facilitator programs to staff across institutions (AHEAD, 2024).

AKO AoteAroa is an education sector organisation, that strives for inclusivity, diversity, equity, and barrier free access to education in New Zealand. Their Dyslexia-Friendly Quality Mark, in collaboration with New Zealand’s Tertiary Education Commission, is designed to encourage more inclusive environments for learners, trainees or clients with dyslexia (AKO AoteAroa, 2024).

BERA – British Educational Research Association is a membership association and learned society, committed to advancing research quality, building research capacity and fostering research engagement. Its aim is to inform the development of policy and practice by promoting the best quality evidence produced by educational research (BERA, 2018).

CAO – Central Applications Office processes applications for undergraduate courses in Irish Higher Education Institutions (HEIs). Decisions on admissions to undergraduate courses are made by the HEIs who instruct the CAO to make offers to successful candidates (Central Applications Office, 2024).

CAST - Centre for Applied Special Technology is a non-profit education research and development organisation that created the Universal Design for Learning framework and guidelines, that are now used worldwide to make learning inclusive (CAST, 2024).

CSO – Central Statistics Office is Ireland’s national statistical office. Its purpose is to impartially collect, analyse and make available statistics about Ireland’s people, society and economy (CSO Ireland, 2024).

DARE – Disability Access Route to Education is a third level alternative admissions scheme for school-leavers under the age of 23, whose disabilities have had a negative impact on their second level education (AccessCollege.ie, 2024).

DFQM - Dyslexia Friendly Quality Mark (UK) is the British Dyslexia Association's Dyslexia Friendly Quality Mark, that provides a framework for schools to improve their understanding of dyslexia and develop the support they offer to their dyslexic learners. The Quality Mark philosophy is that changing practice to accommodate dyslexic individuals, results in greater levels of achievement and engagement for all learners (British Dyslexia Association, 2024).

DSS – Disability Support Services support a wide range of students including students with learning disabilities (including dyslexia, dyscalculia, dyspraxia (DCD)), Aspergers syndrome/ASD, borderline mild general learning difficulty, speech and language communication disorder, ADHD, acquired brain injury (ABI) or any other condition impacting on cognitive functioning (MTU, 2024).

FSD - Fund for Students with Disabilities assist Higher Education Institutions in ensuring students with disabilities have the necessary assistance and equipment to enable them access, fully participate in and successfully complete their chosen course of study. Funding can be used to fund assistive technology, personal assistants/notetakers, academic/learning support and transport support. The fund is administered by the Department of Further and Higher Education under the auspices of the Higher Education Authority (Higher Education Authority, 2024).

HEA - Higher Education Authority is the statutory planning and policy development body for higher education and research in Ireland. It has wide advisory powers throughout the Irish third-level education sector. In addition, it is the funding authority for a number of designated Higher Education Institutions, which include universities, technological universities and a number of colleges (Higher Education Authority, 2024).

HEAR – Higher Education Access Route offers reduced points for students from socio-economically disadvantaged backgrounds. Eligible students compete for a quota of reduced points places in the colleges that run the scheme (AccessCollege.ie, 2024).

HECA - Higher Education Colleges Association is the representative body of Ireland's independent higher education sector. HECA serves as a representative voice for twelve established and state accredited privately funded providers of higher education, advocating on behalf of and supporting its members in achieving their strategic goals (Higher Education Colleges Association, 2024).

HEIs - Higher Education Institutions, with whom the HEA works under statute or who are in receipt of core public funding are listed below:

- Atlantic Technological University (ATU)
- Dublin City University (DCU)
- Dun Laoghaire Institute of Art and Design & Technology (IADT)
- Dundalk Institute of Technology (DKIT)
- Mary Immaculate College (MIC)
- Maynooth University ("Maynooth")
- Munster Technological University (MTU)
- National College of Art & Design (NCAD)
- RCSI University of Medicine and Health Sciences (RCSI)
- Royal Irish Academy (RIA)
- South East Technological University (SETU)
- St Angela's College (St. Angela's)
- Technological University Dublin (TUD)
- Technological University Shannon: Midlands Midwest (TUS)
- Trinity College Dublin (TCD)
- University College Cork (UCC)
- University College Dublin (UCD)
- University of Galway (UG)
- University of Limerick (UL)

(Higher Education Institutions, 2024)

LD – Learning Disabilities are disorders that affect the ability to understand/use spoken or written language, do mathematical calculations, co-ordinate movements or to direct attention (National Institute of Neurological Disorders and Strokes, 2024).

NFQ – National Framework for Qualifications lists the main qualifications awarded at each level and pathways from one NFQ level to the next. It shows how general education, further education and training, and higher education awards are mapped against the 10 levels of the framework (Quality and Qualification Ireland, 2023).

NHS - National Health Service (UK) provide everyone in the UK with healthcare based on their needs, and not on their ability to pay. The NHS is respected throughout the world for the standard of care it gives to patients (National Health Service (NHS) UK, 2024). It provides advice on many health-related topics, including neurodiversity and dyslexic supports (NHS (UK) Conditions, 2018).

NIH – National Institutes of Health, part of the U.S. Department of Health and Human Services, is the US medical research agency that makes important discoveries that improve health and save lives. It and its agencies provide information regarding several health-related matters *(National Institutes of Health, 2024)*.

OCR - Optical Character Recognition converts visual materials, such as scanned documents, into text that can be read by a computer. OCR software can then convert text to audio or braille (Bureau of Internet Accessibility, 2024).

PCI - Private Colleges in Ireland award degrees, validated by QQI or by a foreign university. These colleges include:

- CCT College Dublin
- Dublin Business School
- Dorset College
- Galway Business School
- Griffith College
- Hibernia College
- National College of Ireland (NCI), and;
- Royal College of Surgeons in Ireland (university designate since 2019).

Several of these colleges are members of the Higher Education Colleges Association (HECA) (Department of Trade, Entreprise and Employment, 2024)

QQI - Quality and Qualification Ireland are responsible for the external quality assurance of further and higher education and training in Ireland. QQI validate programmes, make awards and are responsible for the promotion, maintenance, development and review of the National Framework of Qualifications (NFQ) (Quality and Qualification Ireland, 2021)

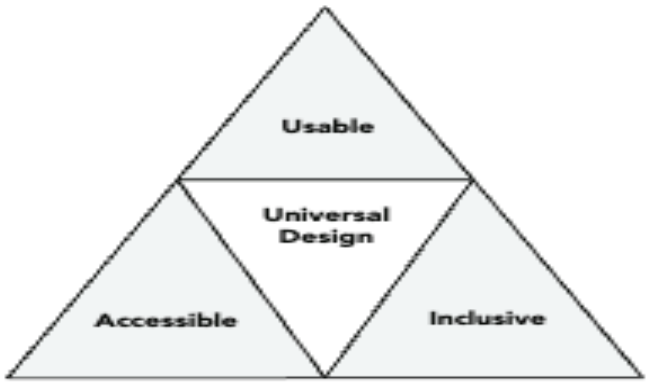
SA - Smart Award (UK) is designed to recognise and promote good practice for supporting the needs of dyslexic and neuro-diverse individuals (British Dyslexia Association, 2024).

SEC – State Examinations Commission is responsible for the development, assessment, accreditation and certification of the second-level examinations of the Irish state: the Junior Certificate and the Leaving Certificate. It is a non-departmental public body under the aegis of the Department of Education (State Examination Commission, 2024).

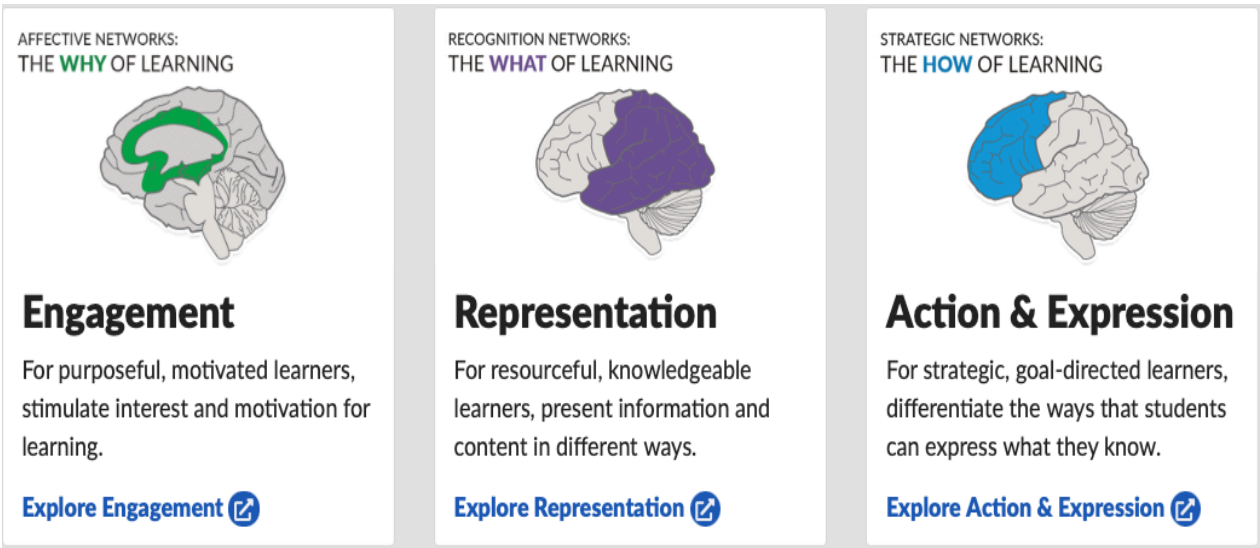
SNA – Special Needs Assistant play an important role in assisting the teacher to support students with special educational needs who have significant care needs. They are allocated to the school and work under the direction of the principal/teachers. The SNA usually supports a number of students with care needs in the school (National Council for Special Education, 2024).

TU - Technological Universities address the social and economic needs of their region and engage in industry-focused research, focusing on science and technology programmes that are vocationally and professionally oriented. These institutions were previously known as Institutes of Technology or Regional Technical Colleges (Higher Education Authority, 2024).

UDI – Universal Design Instructions is the design of teaching and learning products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialised design (Burgstahler, 2020).



UDL – Universal Design for Learning guidelines is a framework to improve and optimise teaching and learning for all people based on scientific insights into how humans learn. They offer a set of concrete suggestions that can be applied to any discipline or domain, to ensure that all learners can access and participate in meaningful, challenging learning opportunities (CAST, 2024). Universal Design Principles include Engagement, Representation and Expression, as shown below.



UNESCO - United Nations Educational, Scientific and Cultural Organisation contributes to peace and security by promoting international cooperation in education, sciences, culture, communication and information. It promotes knowledge sharing and the free flow of ideas to accelerate mutual understanding and a more perfect knowledge of each other's lives (UNESCO, 2024).

VLE - Virtual Learning Environment is a platform used in education to give access to educational content online. This can be via computers or mobile devices (tablets or phones or even games consoles). Most VLEs are set up by a specific education institution, for example, a school, college, or university (Learning Ladders, 2020).

Chapter 1 Introduction

1.0 Introduction

In recent years, '*increased access to higher education in Ireland,* and globally*, has contributed to the diversification of the student population'* (Wall, 2022, p. 24). Clouder et al. (2020) suggests the increasing number of students with neurodiversity, entering higher education poses a shared and growing challenge internationally for teachers and institutional leaders. The number of neurodivergent students in Higher Education Institutions (HEIs) is increasing, evidenced by AHEAD's 2021 survey of 25 Irish Higher Education Institutions, showing the "*total student population rose 7% over the preceding year, while the percentage of students registered with disabilities, almost doubled at 13%"* (Ryder, 2021, p. 10). Third level institutions have begun to understand the importance and benefits of a neurodiverse centred campus over the academic focus of universities of the past, where a flawed understanding between neurodiversity and intelligence existed. Endlich (2022) proposes:

> "*Instead of viewing neurodivergent diagnoses as forms of pathology to be prevented or treated, the neurodiversity paradigm suggests that different does not mean defective or inferior, but merely different*" (Endlich, 2022, p. 1).

Figure 1.1: Recruitment and Neurodiversity in the Workplace (Kirby, 2019, p. 1)

For the purpose of this research, “Neurodiversity” incorporates Dyslexia, Dyspraxia (a.k.a. “Development Coordination Disorder”), Dyscalculia and Development Language Disorder, which are collectively considered as “*Specific Learning Disabilities*”. Neurodiversity also incorporates Autism Spectrum Disorder, Attention Deficit Hyperactivity Disorder, Tic Disorder/Tourette’s Syndrome and Intellectual Disability (Kirby, 2019, p. 2), all of which are defined in Appendix 1. According to Singer (2017), the term “Neurodiversity” refers to the:

> “*Virtually infinite neuro-cognitive variability within Earth’s human population. It points to the fact that every human has a unique nervous system with a unique combination of abilities and needs*” (Singer, 2017, p. 1).

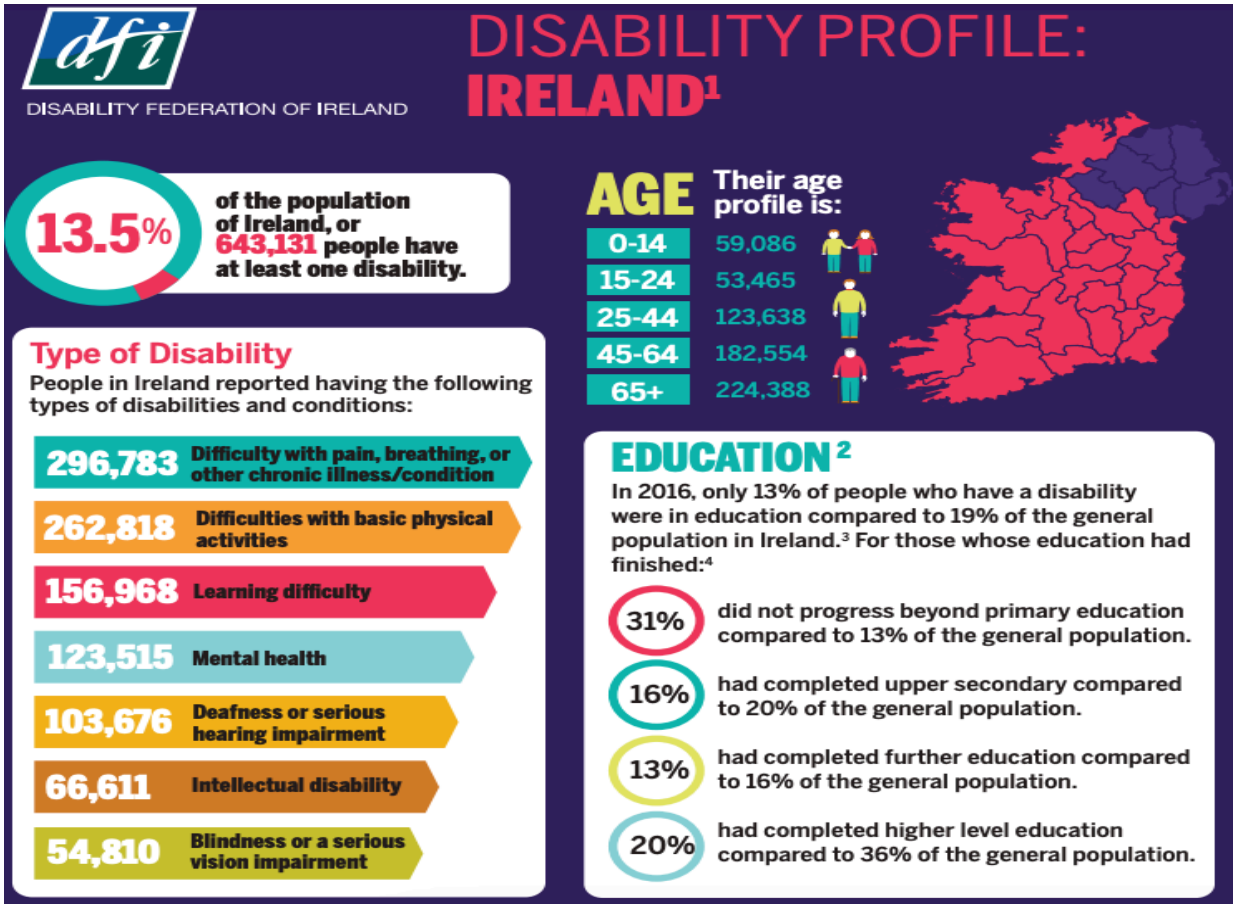


Figure 1.2: Disability Profile: Ireland (DFI, 2019)

As seen from the profile above, in Ireland, 20% of people with disabilities have a higher education qualification, compared to 36% of the rest of the population (Disability Federation of Ireland, 2019).

Part of this differential is attributed to the transition to third-level education for students with disabilities, which O'Donovan (2021) argues is *"populated with unique challenges [where] Higher Education needs to support fully the engagement and participation of students with disabilities"* (O'Donovan, 2021, p. 68). O'Connor (2024), a psychologist with AsIAm autism charity, suggests the transition to college is a challenge for most. It involves "*a combination of factors that can be a recipe for mental health struggles, change of routine, challenging course work, increased responsibility, and disruption to our usual self-care routines and support systems"* (O'Connor, 2024, p. 1). Coleman (2023) argues that concerns can be exaggerated for neurodiverse students, who may need extra support, as the structure that exists in the secondary education system becomes more fluid at third level.

Although many students access college through the DARE reduced-points system and have an awareness of support services outlined in student handbooks, many decide not to disclose their condition(s). This is evidenced by Sweeney *et al.*, (2018) survey, in conjunction with AsIAm and DCU, that suggests "*54% had not disclosed their diagnosis and so received no support, while 35% of students who disclosed, did not feel adequately supported"*. Support, Sweeney *et al.*, (2018) suggest, includes greater awareness of the needs of persons with neurodivergent conditions and more overt support with exams, assignments, planning and organisation, quiet spaces, and more information on the supports available (Sweeney *et al.*, 2018, pp. 51-52).

A contributory factor to non-disclosure, is that neurodiverse students can find communication, both socially and academically difficult, which Hamilton and Petty (2023) depict as:

> "*Social, pedagogical and physical aspects of the learning environment can place neurodivergent students at a disadvantage, with anxiety triggered by uncertainty of what is required of them in the learning situation, interactions with others inside and outside of the classroom, fear of failure, managing time, perfectionism, and additional causes of stress and fatigue not shared by their peers*" (Hamilton and Petty, 2023, p. 7).

Available supports tend to be shaped around academic needs, with neurodiverse students more likely to drop out, because they feel socially isolated and unsupported (Reilly, 2009). This is evidenced in AHEAD's journal on "*Outcomes from students with Disabilities*", based on the Higher Education Authority (2021) Completion Data Release, that quotes the "*average withdrawal (drop-out) rate across all disability types is 17%*" (Reilly, 2009, p. 6), compared to 9% for the general student population (Sweeney, 2016, p. 4).

UCD Toolkit (2018) argues higher education should not take a 'one-size-fits-all' approach. Neurodiverse students don't always fit into higher education, given they struggle with executive functioning skills such as completing assignments, organising study materials and monitoring progress toward specified goals. Dijkhuis *et al.*, (2020) outlines:

> *"Executive functioning for academic progress was evaluated in 54 young adults with ASD, which showed autism symptoms explained 12% of a variance in academic progress" (Dijkhuis et al., 2020, p. 1)*.

It is vital that supports are put in place to ensure a level-playing field for all students for learning, and assessment, regardless of their ability level. It must be asked, if *"increasingly employers are recognising the value of hiring neurodiverse teams and accommodating communication differences"* (Krzeminska *et al.*, 2019, p. 1), why can't colleges do the same?

Hamilton and Petty (2023) advocate for the diversification of assessment types, which allows all students to excel. This could include oral interviews, digital assessments, such as submitted video assessments, on-line quizzes using own-laptops under exam hall conditions, group projects and presentations, all potentially part of continuous assessment.

> *Building in flexibility to assessment schedules could, for example, allow a student with high social anxiety but strong information technology skills to demonstrate their learning in an animated video as an alternative choice to a live presentation in front of an audience* (Hamilton and Petty, 2023, p. 10).

1.1 Research Background

An Oireachtas (2023) report indicated the Department of Education increased its spend on funding on special education at primary and post-primary level by 10% in 2023, spending €2.6 billion (or 27% of the department's allocation), leading to 19,000 teachers working in special education and 20,000 Special Needs Assistants ('SNA's). This is up from 2021, which recorded close to 14,000 resource teachers and 18,000 SNA's. Comparison can be made from 2011 to 2021, where primary and post-primary schools saw a 48% increase in the number of special education teachers and an 81% increase in the number of SNA's, over the previous decade.

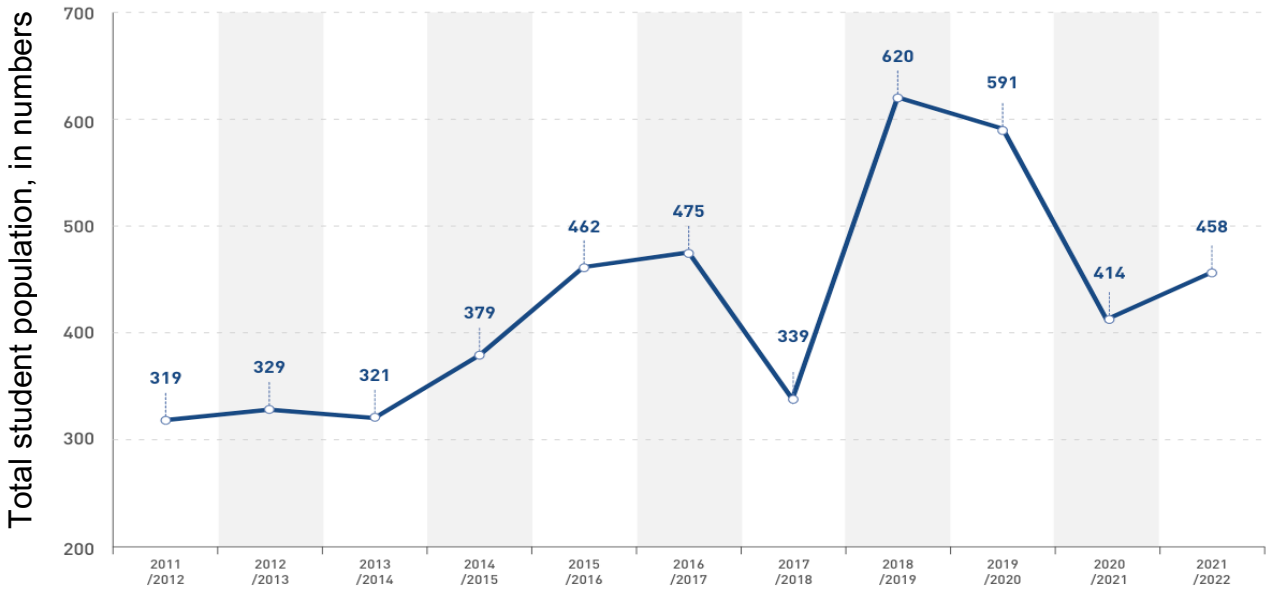


Figure 1.3: Number of students per learning support staff member (Healy, 2023, p. 70)

Announcements by the Minister, of projects advancing supports are welcome, including the recent €1.8 million allocated to inclusion measures, including the roll-out of sensory maps of college campuses, to support autistic learners (Minister for Higher Education, 2024, p. 1). Notwithstanding these announcements, a gap can be seen to have emerged in the allocation of supports beyond post-primary. A survey by AHEAD of 25 Higher Education Institutions, indicate, in Figure 1.3 above, the number of *'total'* student population, per learning support staff member, increased by almost 44%, from 319 students in 2011/12, to 458 students in 2021/22" (Healy, 2023, p. 70).

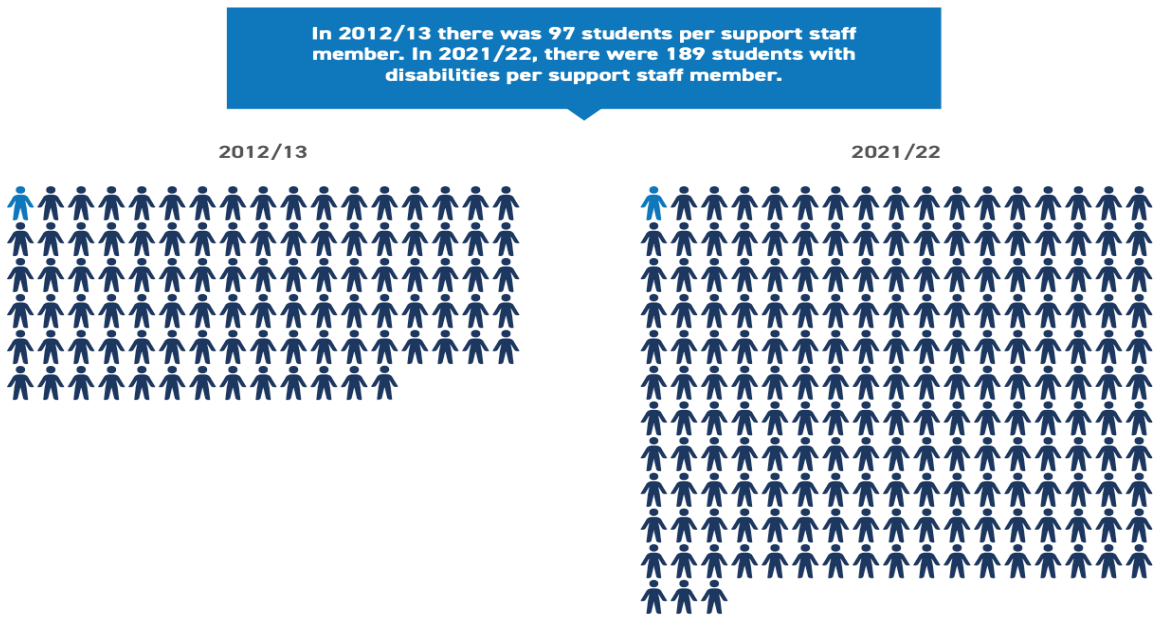


Figure 1.4: Number of Students with a Disability per Support Student (Healy, 2023, p. 86)

Further on in this AHEAD's report, Healy (2023) narrows the focus to show there has been a 95% rise in the number of students '*registered with a disability'* per learner support staff, going from 97 students with a disability per support staff member in 2012/13, compared to 189 students in 2021/22, as depicted in Figure 1.4 above (Healy, 2023, p. 86).

It is apparent that a welcome increase in students with disabilities accessing higher education has not been matched with a similar increase in the number of support staff, reflecting the exponential increase of 268% of students with disabilities over the last 12 years (Healy, 2023, p. 4). This rising caseload of support staff in Irish Higher Education Institutions, and the lack of increased resources to meet growing demand has implications for the quality of support provided to students with disabilities and requires urgent attention. With increasing staff to students ratios, this research critically examines if a "gap" exists between best practice and "on-the-ground" reality of supports, and if such gaps vary between institutions.

There is a dearth of published research across Irish third-level institutions, systematically investigating the "*consistency"* of supports provided across our Higher Education Institutions. O'Byrne, Jagoe and Lawler (2019) put forward, in their journal, titled "*Experience of dyslexia and the transition to university*", that:

> *"A lack of research has been undertaken in Ireland regarding students' experience of dyslexia... A greater understanding of the challenges encountered is necessary to inform provision of resources to help students with dyslexia, excel in higher education*" (O'Byrne, Jagoe and Lawler, 2019, p.1).

This could be due to the perceived "can-of-worms" perception delving into an area with exponential growth in numbers of students with disabilities and an unmatched increase in supports, with complex ethical considerations in researching this area. The Psychological Society of Ireland (2022) prevalence study indicates *"neurodiverse conditions, once a rare diagnosis, is now recognised as relatively common"* (Psychological Society of Ireland 2022, p. 4), which Russell *et al.*, (2022) suggest has resulted in an exponential increase in referrals for assessment and diagnosis.

Looking beyond assessment, it is noted that an estimated 15-20% of the world's population exhibits some form of neurodivergence (National Institute of Mental Health, 2022). Ireland has progressed in their provision for those with disabilities, but this research studies if the Irish higher education sector is falling short in meeting the needs across the system.

In summary, recent research has stated that the number of students is increasing at a much higher rate than supports provided by the department of higher education, indicating initially an issue of quantity of support services to impacted students.

1.2 Research Aims and Objectives

The aim in completing this dissertation is to look through the Equality, Diversity and Inclusion lens and emphasise the need for change, so that all third level students have appropriate access to justified supports across our higher education system, thereby improving the outcome for this cohort of students.

The research objectives are to:

- Establish the extent of support required and availed of, by students;
- Compare international "best practice" standards to research findings and identify gaps in the Irish higher education system;
- Put forward recommendations to alleviate any such gap, so students' campus-life experience is equivalent to that of their peers.

1.3 Research Justification

> *"Third-level institutions can help students thrive by providing them with the right conditions and necessary knowledge, and by helping them tap into the best of what they can be*" (*Royal College of Surgeons Ireland, 2024, p. 1).*

While few would dispute the above view, the rationale for this research stems from the belief, that a lack of consistent support models (or "*right conditions*") for students, can impact the outcome of neurodiverse students at third level. Despite institutions having supports for neurodivergent students (outlined, for each college within appendix 5), there is a reported variation in support for students with neurodiverse conditions.

This could partly be due to a lack of defined structures in institutions and in allocating funding in this area. Scanlon et al., (2015) describe the "*cumulative effect of the reduction in educational resources, to support young people with disability in education as significant*". They examined 42 students with special education needs, moving to further or higher education in both rural and urban settings across four geographical areas (Scanlon et al., 2015, p. 1).

Failure to invest in defined assessments and educational support structures at third level, can result in young people missing the opportunity to reach their potential and make a positive impact on society. Many highly successful individuals are known to have dyslexia. Examples are Apple's Steve Jobs, Henry Ford, Virgin's Richard Branson's, Walt Disney, Tommy Hilfiger and the celebrity chef, Jamie Oliver, who contributed immensely in their fields of expertise.

Contrast this, here in Ireland, where it is "*estimated 85% of autistic people are unemployed or underemployed"*, which they suggest "*contributes to social isolation and a loss of independence and dignity …. representing a major loss of talent to both employers and our society*" (Harris and McIlveen, 2023, p. 4).

1.4 Methodological Approach

The use of survey questionnaires was deployed, using Google Forms, setting out pre-set questions, specifically around dyslexia. These questionnaires are outlined in appendices 3 and 4. The questionnaire asked college staff about supports, accommodations and strategies available, using quantitative and qualitative methods detailed in chapter 3.

To corroborate staff views, this is supplemented with surveys for past students, who could attest what "on the ground" supports they received, throughout their college life. Originally, interviews were planned for past students, but participants were reluctant to participate in any form of interviews, so questionnaires were used.

1.5 Structure of Thesis

The structure of the dissertation follows a standard thesis format;

Chapter 1 “Introduction” provides an overview of the study, outlining the background, aims, objectives and justification for the research.

Chapter 2 “Literature Review” analyses definitions, facts, research and related literature in the area of dyslexia and includes an outline of:
a) The development of supports at third level;
b) Alternative pathways into higher education for non-traditional learners and;
c) An examination of the current higher education environment, for universities, technological universities and colleges.
Finally, it outlines the current focus and references international best practices.

Chapter 3 “Research Methodology” outlines the research methodology used, a research design outline and timeline, how samples are chosen, how piloting of questionnaires takes place, before concluding on limitations and ethical concerns.

Chapter 4 “Findings, Data Analysis and Discussions” deals with the presentation of data and findings from this research.

Finally, Chapter 5 “Recommendations and Conclusion” outlines recommendations, aimed at alleviating gaps in the Irish education system and improving the standard of supports provided to students. This is before considering what further research could be conducted in this area in the future. Finally, conclusions are drawn on the research, including a personal reflection.

References and appendices provide supporting resources and further reading.

Chapter 2 Literature Review

2.0 Introduction

It is apparent not all students fit the “one-size-fits-all” college experience, gaining the required CAO points and flourishing with college life. This chapter narrows its focus to dyslexia, which is the focus of the study’s questionnaires. This chapter defines dyslexia, examines research, the development of supports in higher education, alternative pathways for non-traditional learners and finally considers the higher education environment in Ireland, with reference to international best practices.

2.1 Definition of Dyslexia and Research to Date on Dyslexia

The term Dyslexia comes from two Greek Words – “Dys” meaning “difficulty” and “Lexia” meaning “speech” (Hascoet, 2009). The British Dyslexia Association (2024) describe dyslexia as *“a learning disability that primarily affects the skills involved in accurate and fluent word reading and spelling”.* Characteristic features of dyslexia, they add, are *“difficulties in phonological awareness, verbal memory and verbal processing speed”,* which the association adapts from the Rose's (2012) definition of dyslexia (British Dyslexia Association, 2024, p. 1).

Estimates of the prevalence of dyslexia vary and depend on the definition of dyslexia used in each research study, as well as other factors, including language complexity. Depending on the definition used, estimates suggest between 4% to 17% of the Irish population may be considered to have dyslexia, while the international consensus suggests a 10% average worldwide (Dyslexia Association of Ireland, 2024).

Although extensive research has been carried out on certain aspects of dyslexia, which is elaborated on below, no study examines the consistency at which supports are provided to neurodivergent students across Irish Higher Education Institutions.

O'Mahony (2023) shows, where UCC “developed teaching and learning techniques for dyslexic students, equipping them with tools and skills to facilitate their learning and tackling the “working world post-education”. However, its focus was on post-graduation work and Science, Technology, Engineering and Maths (‘STEM’) at university level, where this research considers how consistently applied generic supports are, across all institutions.

AHEAD research completed by Murphy (2009), showed how students with dyslexia ‘*navigate*’ Higher Education. Expression of interest forms, sent to the Access Officers of Maynooth University and the Technological University Dublin, were forwarded onto registered dyslexia students, under the terms of ethical approval. Fieldwork was conducted across the campus where the *“approach to teaching, assignments and managing workloads was observed”* (Murphy 2009, p. 9). This research differs, as it asks support staff views of learning supports and, within the ethical parameters permitted, asks past students, to corroborate how consistent the supports were delivered on the ground, when they attended college.

The aforementioned Healy (2023) AHEAD study, also examined the “*fields of study*” students with disabilities studied, which is outlined in Appendix 6. The research disaggregated findings by institution, by undergraduate and post-graduate category, full and part time students, mature and international students and by disability.

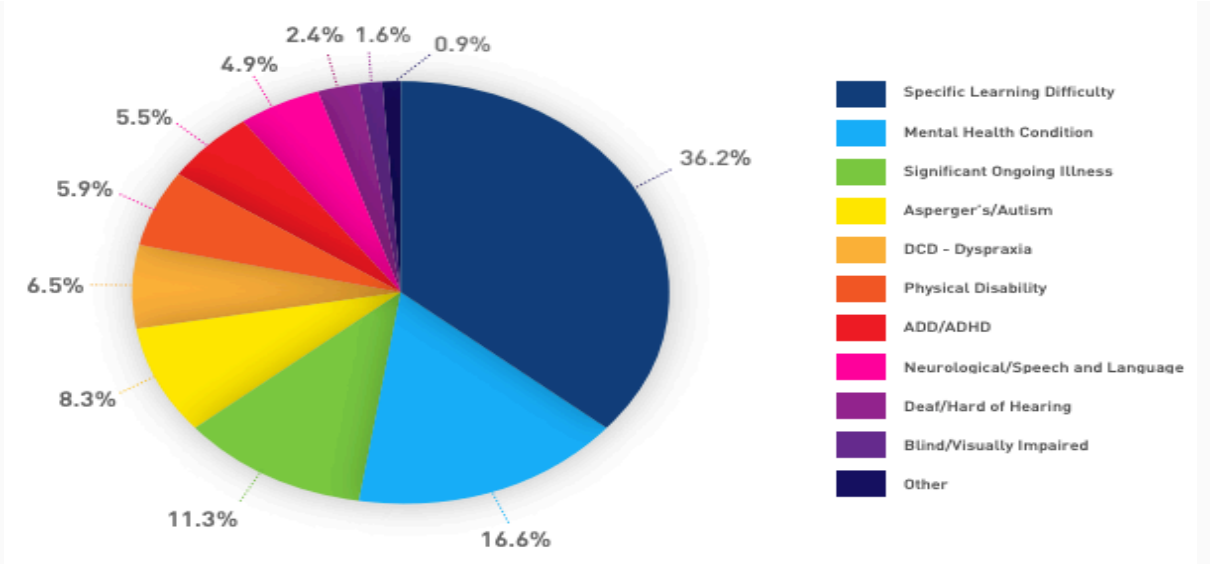


Figure 2.1: Students Registered with Learning Support - by Disability (Healy, 2022, p. 21)

AHEAD's earlier report reaffirms that dyslexic students, consistently remain the largest represented cohort amongst students with disabilities in Irish higher education, over the past 10 years (Healy, 2022, p. 21). This research project, being conducted, differs in that it compares institutional data on supports, at university, technological university and college level to garner the consistency at which services were delivered and to recommend measures to address any gaps, when compared to international best practice.

Zdzienski (1998)'s "*Explanatory study of Learning Support, Screening and Diagnostic Assessment*", available from the British Library online collection, most closely mirrors this research. It explores the most effective elements of dyslexic learning supports. However, it uses British sources and case studies and proceeds to focus on their surveys of screening and diagnostic assessment procedures, delving into far more detailed procedures, at doctoral level.

Interestingly, progressing beyond education, Moll *et al.*, (2023) reported higher unemployment rates in young adults with dyslexia compared to those without dyslexia (12% versus 4% at the age of 18 years and 26% versus 4% at the age of 25), indicating that unemployment rates in young adults increase with age (Moll *et al.*, 2023, p. 15). This brings into question, an aspect of related research, asking how students with dyslexia are reaching their potential in their life's journey from education to employment and beyond.

Outside of the research outlined above, there is a dearth of research specifically about dyslexia supports in Irish Higher Education Institutions. Available research revolves largely around statistical findings on collective neurodiverse conditions, typically on entry and progression through college, examined by the Irish 'Association of Higher Education and Disability' (AHEAD).

2.2 Development of Neurodiversity Supports in Higher Education

A landmark development in supports for those with disabilities was October 2009, when the Disability Access Route to Education (DARE) program was introduced. DARE provides reduced points for entry into third level for school leavers with disabilities. Wood (2009) suggests:

> *"It recognised the impact of disability on educational attainment and on progression to higher education, where in the absence of such schemes, many would not enter higher education"* (Wood, 2009, p. 1).

Healy (2022) illustrates in figure 2.2 below, that ahead of DARE's introduction, the academic year 2005/06 data showed only 3.2% of new entrants to higher education indicated they had a disability, compared to 6.6% of the student population in the year 2020/21 (Healy, 2022, p. 12).

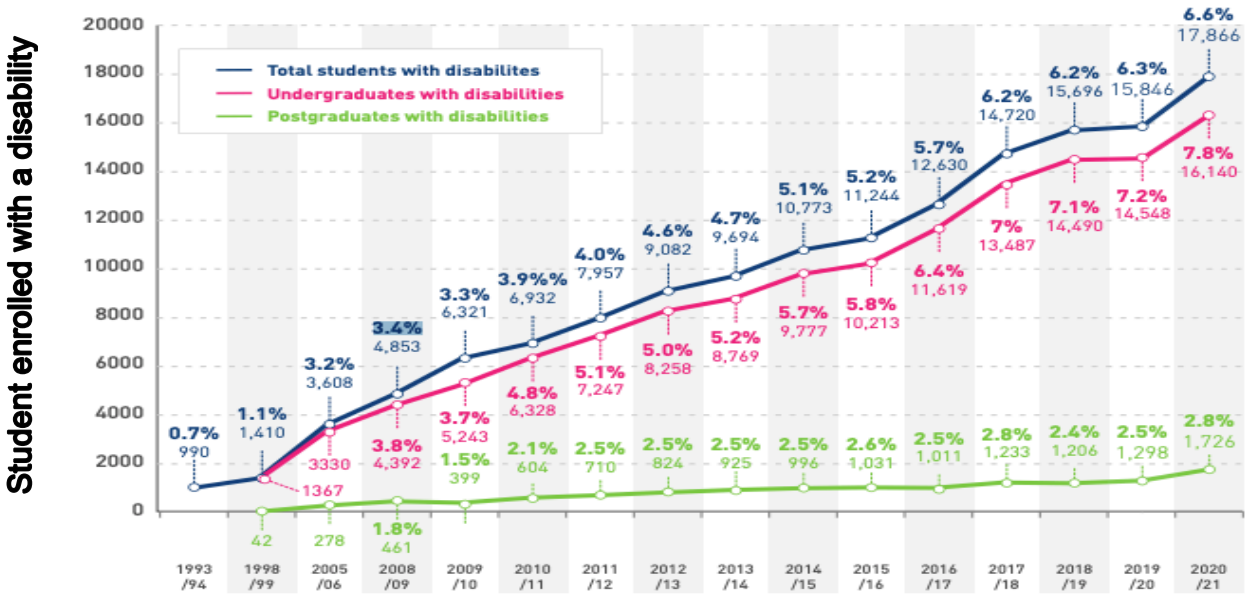


Figure 2.2: Students engaged with Support Services in Higher Education (Healy, 2022, p. 12)

Comparing to the UK (closely examined below), McNicholl *et al.*, (2021) suggests, in the UK, participation rates have been steadily increasing with students with disabilities comprising 11.3% of the undergraduate population in 2013 versus 7.1% in 2004. (McNicholl *et al.*, 2021, p. 1-2).

Turning to the other end of academia, Syharat (2023) suggests 7% of recipients of Science and Engineering doctoral degrees in 2014 reported having a disability (Syharat et al., 2023, p. 4), significantly less than the prevalence of 13.5% in the Irish general population (CSO Ireland, 2016). This questions the educational supports available at higher National Framework Qualification levels such as at PhD level. Inger (2023) suggests:

> "*Neurodiverse brains can also struggle with exerting the levels of concentration required for long stints of reading or analysis"* and may "*find the scope of their PhD gets wildly out of control as they fall down many rabbit holes opened up by their curiosity*" (Inger, 2023, p. 3).

There has been an overall gradual increase over time in the proportion of students indicating a disability in the Higher Education Authority's (2022) Equal Access Survey. Within its related National Access Plan, the HEA projects that *"by 2026, 14.8% of the overall population will have a disability*". It aspires to increase the proportion of higher education new entrants with a disability to 16%, over the next seven-year period, taking account of an aging and increasing population, which must be matched with increased support staff.

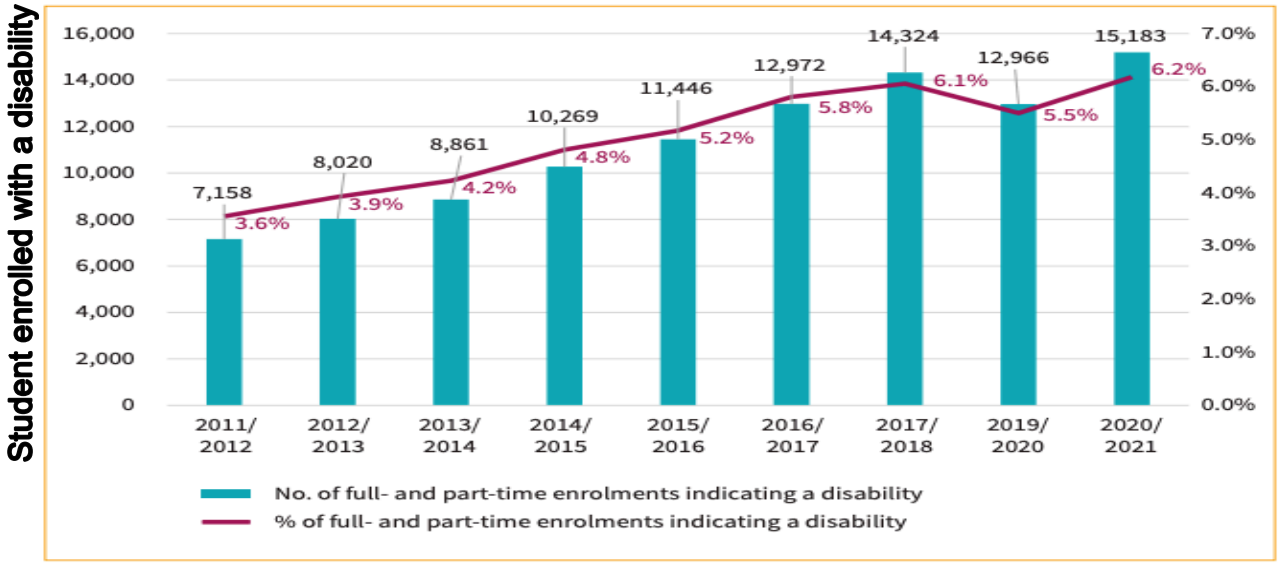


Figure 2.3: Enrolment indicating a Disability on Entry to Higher Education HEA (2022)

The HEA National Access Plan (2022) report shows an increase in the proportion of full and part-time students with a disability across all years of study has gone from 3.6% of enrolments indicating a disability in 2011/12, to 6.2% in 2020/21.

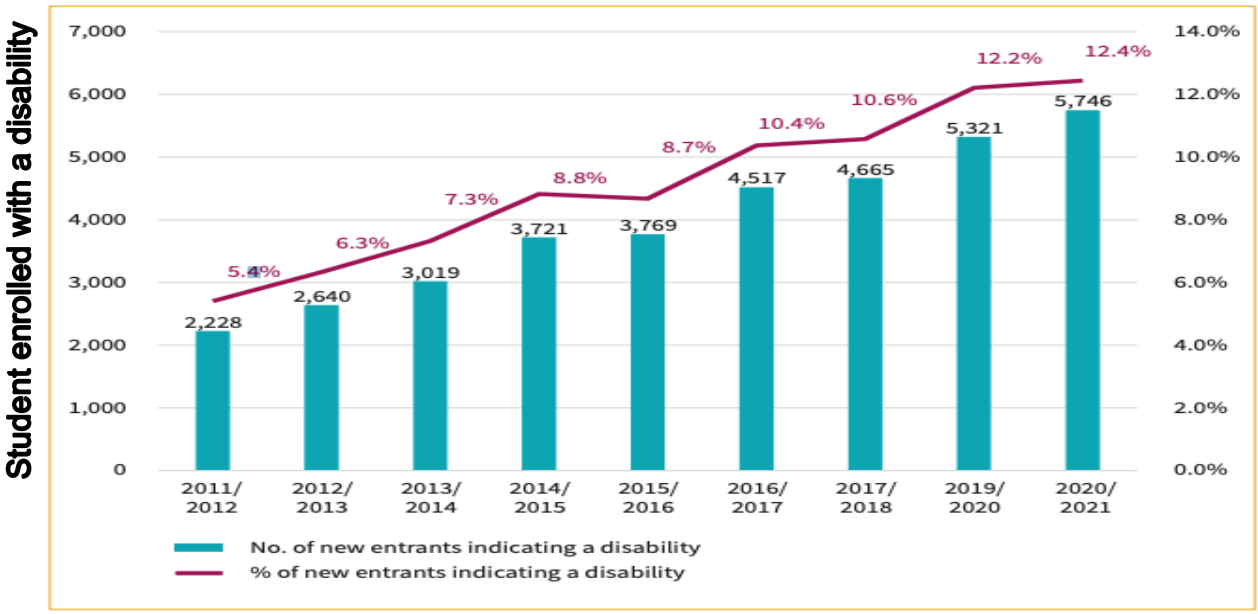


Figure 2.4: New Entrants indicating a Disability on entry to Higher Education HEA (2022)

Isolating new entrants shows, in 2011/12, 5.4% of new entrants indicated a disability compared to 12.4% in 2020/2021, showing an increasing trend on accessing college. Generic college supports are traditionally provided to assist all students, in the first weeks, to navigate their way around the college and make all aware of support services. Ginty (2016) suggest progress has been made "*providing visual roadmaps at regular intervals during the first year, which highlights all the connection points of their course, to keep them on the right track*" (Ginty, 2016, p. 44).

O'Byrne, Jagoe and Lawler (2019), in their journal on "*Experiences of Dyslexia and the transition to college*", outline how *"various difficulties were identified regarding the lack of appropriate academic resources, and inconsistencies between supports provided in secondary and third level education".* Their findings highlight the *"need to re-evaluate the current academic service provisions, in alignment with a model of dyslexia that allows individualisation and enables students, as opposed to disabling them" (*O'Byrne, Jagoe and Lawler, 2019, p. 1).

Even with the promotion of learner support services at institutional and governmental level, one could argue, there is a long way to go before colleges reflect the numbers of those with disabilities in the general population, given the last census reporting disability found 13.5% of the population has a disability (CSO, 2016). To address this, the Minister for Higher Education (2024) deployed some initiatives, including a €10m allocation to the creation of ten third-level courses designed for students with intellectual disabilities, adding to previous initiatives, such as Inclusive Education Pathways for Students with Intellectual Disabilities at UCC, established in 2009 (UCC, 2021, p. 1). These initiatives, coupled with the promotion of disability supports across institutions, represent a significant shift towards inclusive education in Ireland, providing students with the necessary support to succeed in higher education.

However, a challenge to this has historically been under-funding of resources, where considerable literature has been published. Mindful that private colleges do not publish financial results, funding in the other two categories is considered. Compared to technological universities, universities are seen as better sourced, from diversifying income sources, through non-exchequer fee-paying international student fees and other income e.g. research funds and philanthropy. The HEA (2017) report stated "*12 out of 26 education institutions were in deficit in 2016, with the problem particularly apparent amongst technological universities*" (HEA, 2017, p. 12). Clear indications from current Irish Higher Education Institutions accounts show the funding crisis prevails. A correlation exists between funding and student-staff ratios. This is despite "*Irish universities student-to-staff ratio being 24.7:1, compared to technological universities student-to-staff ratio of 18.1:1, which the OECD attributed to the instructional model used in technological universities*" (OECD, 2022, p. 21).

Recent Royal Irish Academy (2021) European data shows Ireland, amongst 33 systems studied, stood out for its chronic decline in funding in the face of ever-increasing student numbers. Given the OECD's recommendation of a 3% annual surplus to maintain institutional sustainability, the deficit position across higher education is a major concern (HEA, 2017).

Looking at institutions' funding of supports, the Higher Education Authority's "Fund for Students with Disabilities" ("FSD"), seen as the most prominent financial assistance in this area, provides a range of supports, (including academic, IT, personal support, and transport) through disability support services. This fund:

> *"provides funding to institutions to ensure that students with disabilities have the necessary equipment and supports to enable them to access, fully participate in and successfully complete their chosen course of study"* (Higher Education Authority, 2024).

Institutions need to complete a needs assessment in respect of each student, ahead of determining the appropriate supports required. Carroll, Ye and McCoy (2022) emphasise a failure to increase the FSD budget in line with the increased number of disabled students in Higher Education as noted by Rath *et al.*, (2023). Daly (2021) indicates the fund increased from €8m in 2011 to €11m in 2019 before declining to €8m in 2020. This must be taken in the context of the aforementioned higher student numbers registering with disabilities, without a corresponding increase in support staff. In 2019/2020, 16,517 students received supports eligible for funding under the FSD which is a significant increase (109 per cent) from the 7,897 students who were supported in 2012/2013 (HEA, 2017). The majority of expenditure related to students with disabilities in the field of Further Education and Training (FET), to increase their prospects of employment or further education or training, and not within the Higher Education setting, examined within this research. Detrimentally, expenditure in this area decreased each year from €55m in 2011 to €43m in 2020 (Daly, 2021, p. 15-16). Healy and Ryder (2023) go further, suggesting that 11.4% of students registered for supports (representing over 2,000 students surveyed) were not eligible for any funding from the FSD, with one institution recording over 27% of students applying deemed ineligible (Healy and Ryder, 2023, p. 8).

2.3 Pathways into Higher Education for Non-traditional Learners

Many students with neurodiverse conditions use alternative access routes, outside of the required CAO points or DARE reduced points schemes, where education institutions provide opportunities to use 'Further Education' as a stepping stone to higher education, with minimal fees and grant assistance. For example, UCC offers students the opportunity to study their area of interest for the first year before committing to a full 4-year degree, where students take a QQI Further Education course at PLC level or use their level 5/6 qualification elsewhere to gain entry to a level 8 programme. UCC also publish their breakdown of Access Route entries, shown below (Alternative Entry Supports, 2024, p. 1).

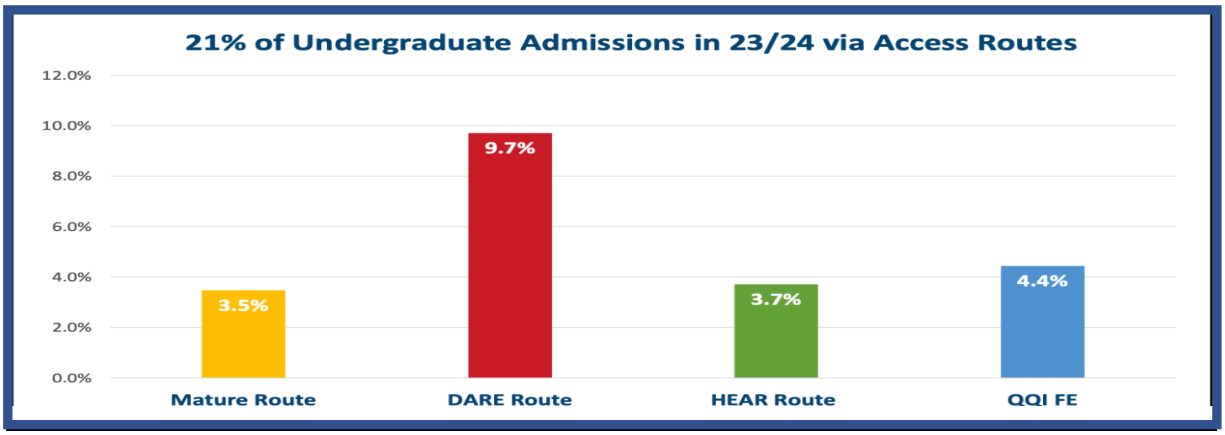


Figure 2.5: Alternative Access Routes UCC (2024)

Similar routes in other institutions, allow students, who may not obtain the CAO points, the opportunity to study courses of interest to them (Bowers, 2022, p. 7).

2.4 Higher Education Environment in Ireland

There is a growing body of literature recognising higher education institutions' focus on Universal Design. This well-researched model, seen as supporting all students, is relevant rather than the core to my study. Meyer et al, (2014) propose:

> "*UDL and associated checkpoints, correspond to the nervous system and brain structure and help teachers address the predictable variability in learning that we know will be present in any environment*". They add *"UDL ensures that a variety of pathways (choice and flexibility) are offered to students to understand the content and that goals are clear and specific to the expected outcome" (Flood, 2021, p. 160-161)*.

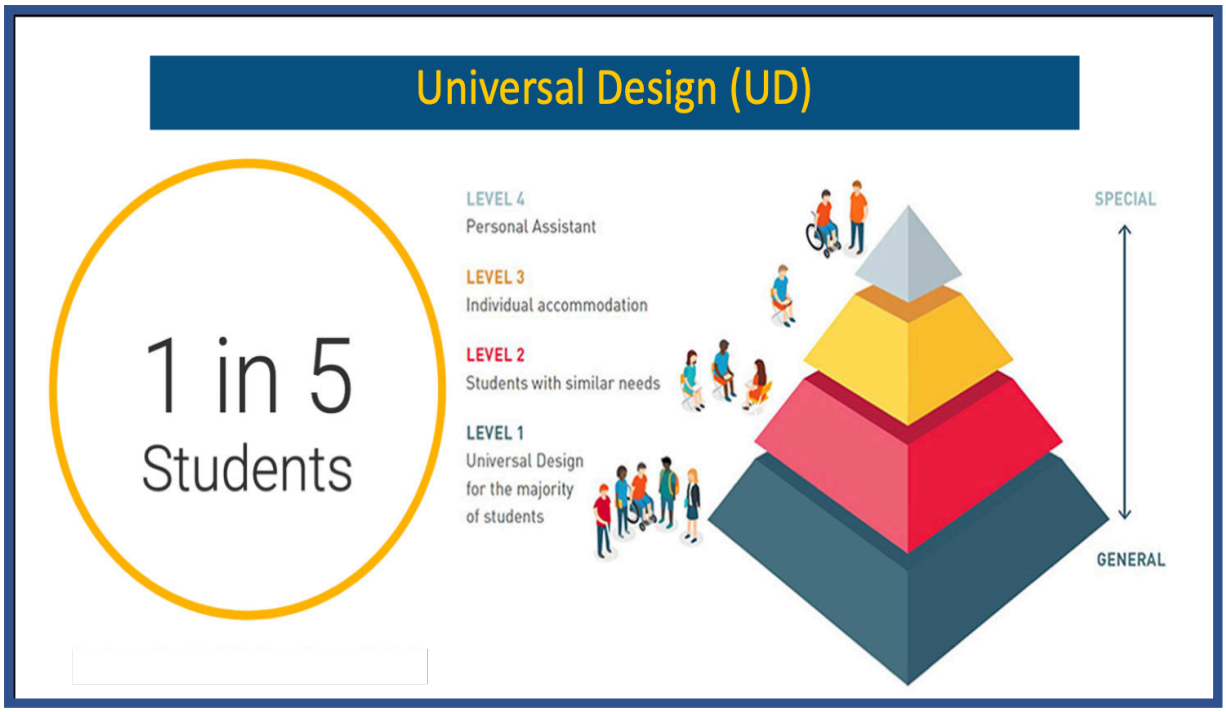


Figure 2.6: Universal Design – Inclusive Education Pyramid (AHEAD, 2024)

CAST (2023) and AHEAD provide "Universal Design for Learning" badges and facilitator programs to staff across education institutions. Padden's (2009) AHEAD article on "Universal Design for Curriculum Design" outlines guidance for equitable, flexible and accessible use of materials and delivery of lectures, such as multi-modal course material. However, one could argue that an element of individualised attention, from support services, must also be catered for, given the increased number of support staff per students with a disability, within Irish Higher Education Institutions.

Assistive technology, including the 'Technology Support Guide for Dyslexic Students' in Appendix 2, coupled with tightly resourced occupational and language therapies, can help overcome challenges that neurodivergent students face with organisation, sensory and social aspects of college life. Forgrave (2002) describes assistive technology as having two purposes - to build on individual strengths, and to compensate for their disabilities to enable them to better perform a given task" (Forgrave, 2002, p. 166). McNicholl *et al.*, (2021) advocate:

> "*For people with disabilities, Assistive Technology has the potential to improve functioning, reduce activity limitations, promote social inclusion, and increase participation in education, the labour market and civic life"* (McNicholl *et al.*, 2021, p .1).

2.5 International Best Practice

Attention now turns to a basis for comparison between research findings from the Irish Higher Education Institutions surveyed and 'International Best Practices', that focus largely on our neighbours in the UK.

Legislative frameworks, including the UK Equality Act 2010 (gov.uk, 2010), along with significant funding to education and research, has led to the UK being considered a centre of excellence for dyslexia. The Complete University Guide (2024) provides pan-sectoral information about university study for dyslexic learners, enabling potential learners select a university that meets their needs, while also encouraging providers meet market standard.

Added to this, UK agencies specialising in dyslexia include, amongst others, the British Dyslexia Association, the Association of Dyslexia Specialists in Higher Education, UK Dyslexia Guild, which is a network of professionals in the field and Dyslexia Action, which is an organisation focused on training needs.

These combined initiatives, along with the Dyslexia-Friendly Quality Mark (DFQM) and the British Dyslexia Association Smart Award, have led to a culture of support for dyslexic learners in the UK.

The New Zealand Tertiary Education Commission (2001) ("*Commission*" hereafter), suggests the UK is world leader in the areas of dyslexia awareness, research and support. It suggests a myriad of positive practices, which is analysed below, will form an integral part of this research and in formulating recommendations.

The Commission outlines positive practices, at two levels, firstly at Higher Education organisational level and secondly at governmental level, which is detailed below.

Positive Practice within Higher Education Organisations

The Tertiary Education Commission gives a UK context of the international "best practice" standards that higher education institutions should strive to achieve:

1. Dyslexia support that is part of a supportive wider environment, where legislation and reporting explaining the condition, leads to increased participation;
2. Free flowing quality info about dyslexia, where all understand and accept dyslexia as something that impedes learning and requires assistance e.g. student handbooks;
3. Holistic response to dyslexia from centralised leadership down, regarding policies governing how the organisation responds to dyslexia, requiring knowledge, intervention, and accountability from staff;
4. Dyslexia support are visible and upfront and easy to access;
5. Impact of assistive technology and other supports to level the playing field for dyslexic learners e.g. campus-wide apps Dragon Naturally Speaking, Read & Write;
6. Active partnership with external organisations, like British Dyslexia Association and **signing up to UK Special Educational Needs and Disability" ("SEND") Code of Practice, National Dyslexia Friendly Quality Marks, Dyslexia Smart award etc.,** designed to promote good practice supporting dyslexics & heighten awareness;
7. Research leads to improved knowledge and understanding e.g. Birmingham City University have a profile for providing high quality tuition for dyslexic students.

Table 2.1: Tertiary Education Commission (2001) Positive Practices in Higher Education Organisations

Positive Practices from Government:

The Commission considers the following internationally recognised "best practice" countries should adopt, throughout their society, including education and healthcare:

1. Strong sign-posting role by government for learners to access quality plain English information including how to navigate around available services e.g. NHS;
2. Collaboration and funding contracts, with government delegating authority to advise on supports to national dyslexia associations;
3. Govt accept dyslexia is a "whole life" condition not just affecting children;
4. Education agencies are responsible for learner financial support funding, where the UK Education Ministry administers the "Disabled Student Allowance" (DSA)" directly funding students' equipment, non-medical help, transport etc.;
5. UK Govt agencies adopt the "SEND" Code of practice and Web Content Accessibility Guidelines, allowing for "read aloud", "text magnification" etc.
6. Scholarship grants for research into dyslexia establishes a knowledge base and quantum of research expertise to move the field forward e.g. Oxford University;
7. Government agencies publish data about disabilities, on the basis that what gets measured, gets addressed (Tertiary Education Commission, 2001, pp. 6-14);

Table 2.2: Tertiary Education Commission (2001) Positive Practices from Government

As a worldwide comparison, Agrawal et al., (2019) examines the United Nations Educational, Scientific, and Cultural Organisation (UNESCO) report that explores legislative efforts and global intervention for students with learning disabilities in reading. This research focuses on interventions provided to students with Learning Disabilities in each country. Appendix 8 outlines a detailed review of the Western countries discussed in this report and others, with summary findings below:

Country	Specific Law governing Special Education	Specific definition/ Identification	Service/ Interventions provided
New Zealand	Yes	*Yes*	> Comprehensive guide for tutors on how to support dyslexic learners, including providing proof-reading support, presenting material in multi modal form and using mind maps; > Introduced the dyslexic-friendly Quality Mark accreditation for education organisations to take steps to make themselves more dyslexia-friendly. The Dyslexia-Friendly Quality Mark, a collaboration with the Tertiary Education Commission, is designed to encourage more inclusive environments for learners, trainees or clients with dyslexia.
Canada	No	Yes	> Inclusive settings; > Differentiated instruction; > Assistive technology such as speech to text software; > extra time for reading and writing; > Social/behavioural skill-building instructions; **Dyslexia Canada** provides higher education dyslexic students with financial assistance by way of grants and scholarships and arranges community connections programs offering peer-to-peer supports.
Denmark	Yes	No	> Instructional supports; > Teaching materials and; > Instructional technology needed by the student in-class and at home.
Netherlands	Yes	Yes	> Funding for support, including speech & language therapist, educational psychologist and research identifying treatment; > Accommodations e.g. extra exam time.
Germany	No	No	> Inclusive teaching, where cooperative instruction and collaboration amongst education and support staff is common.
Australia	Yes	Yes	> Academic assistance through disability support programs and guidance for practitioners dealing with students with learning disabilities (ADCET, 2024).

Table 2.3: International Policies & Services for Students with Learning Difficulties (Agrawal et al., 2019)

Agrawal et al. (2019) argues "*further research should investigate how published literature serves to guide current practices for students with Learning Disabilities across the world given the gap between research and practice seen in many countries"* (Agrawal *et al.*, 2019*, p. 109)*.

In essence, Agrawal et al. (2019,) emphasises the:

> "*Variability and lack of consistency in assessment, identification and services provided to students with Learning Disabilities across countries".* This, they add, is "*of particular importance in planning educational services for instruction of students with Learning Disabilities*" *(A*grawal et al., 2019, p. 110).

They also stress the "*importance of international organisations providing guidance and support to researchers, practitioners, and lawmakers to facilitate changes that will better serve students with Learning Disabilities*" (Agrawal *et al.*, 2019, p. 110).

Based on a comparison between these best practices and the survey findings considered in Chapter 4, evidence is gathered to support where Ireland is positioned compared to the UK-based best practices outlined above and recommendations put forward in Chapter 5.

2.6 Conclusion

This chapter discusses "Dyslexia", including research to date. It examines developments in neurodiversity supports in Higher Education since DARE's reduced points system introduction, seen as a landmark time, from which the numbers of registered for supports have increased. However, the increase in the number of students with disabilities contrasts with the prevalence of people with disability, in the general population. We see how ground-breaking courses and assisted technology for those with disability has changed the educational landscape, including alternative pathways. We consider Universal-Design and other supports, which come at a cost, most institutions struggle to afford, with their mounting deficits and increasing student to support staff ratios.

Finally, we considered best practices, which we use as a comparison. In the next chapter, the research methodology will be outlined, ahead of presenting our findings and comparisons.

Chapter 3 Research Methodology

3.0 Introduction

Following the previous chapter's literature review, this chapter presents the research methodology used in conducting this study. It examines "what" research we collect and "how" we collect it, before analysing our data and using the findings to provide recommendations, in the coming chapters. Sauders et al, (2009) define research as:

> *"Something that people undertake in order to find out things in a systematic way, thereby increasing their knowledge"*. It involves "*an explanation of the methods used to collect the data, argues why the results obtained are meaningful, and will explain any limitations that are associated with them*" (Sauders et al, 2009, p. 5).

More specifically, this chapter elaborates on research methodology, research design and timelines involved, before outlining how samples are selected and how questionnaires are piloted, before wider distribution to participants. The chapter closes by closely examining our limitations, including any ethical impact.

3.1 Research Methodology Approach

Research methodology provides a roadmap for researchers, where they collect, analyse and interpret data, by means of quantitative, qualitative and mixed methodology.

> "*Philosophical ideas must be combined with broad approaches to research (strategies) and implemented with specific procedures or methods"* (Creswell, 2003, p. 4).

To gain a holistic understanding of this area, mixed methods research, using triangulation of both quantitative (post-positivism) and qualitative (constructivism) methodologies, was used for this research, as outlined in appendix 9.

The objectives of this research, with the above methodology in mind, was to:
a) Establish the extent of support required, and availed of, by students;
b) Compare international "best practice" to research findings and identify gaps in the Irish higher education system;
c) Put forward recommendations, to alleviate any such gap, so student's campus-life experience is equivalent to that of their peers.

From the secondary data reviewed in the last chapter, we see a dearth of empirical investigations into the consistency of supports provided across Irish Higher Education Institutions, which this research critically examines.

When collecting data on the provision of educational supports, it was taken students had disclosed their diagnosis, as the sample of past students were selected on the basis they were dyslexic. We know the reality is most students do not disclose. This is evidenced by the aforementioned AsIAm/DCU's (2018) survey indicating 54% of students surveyed had not disclosed their condition (Sweeney *et al.*, 2018, p. 51).

The research approach included critically analysing various options, including the methods used to gather research findings and ascertaining the most appropriate persons to access, to ask questions. Hecker and Kalpokas (2024) recommends researchers should describe all stages of their research process, including the selection and recruitment of participants, the data collection methods, the setting of the research, and the timeline. Each step, they argue should be explained in enough detail that another researcher could replicate the study (Hecker and Kalpokas, 2024, p. 27).

Data Collection Methods: Early research weighed up the pros and cons of deploying surveys, interviews and focus groups. Harrell and Bradley (2009) proposes the methods selected depend on the redundancy of other methods, where a researcher may have difficulties convincing candidates to participate in a focus group, for example, where surveys may be more practical, as was the case here.

Questionnaires followed by interviews were initially considered as a complementary method of collecting data from support staff, where data collected by questionnaire, could be further explored and questioned, during interview. Schilling et al, (2014) discusses complementary methods for collecting data, where he explains "*surveys is where researchers directly elicit information on features, patterns and interrelations; and interviews is where connected speech is elicited",* adding *"surveys and interviews can provide valuable information on attitudes*, in a given area (Schilling, Podesva and Sharma, 2014, p. 96).

For surveys, the construction of questionnaires has to be managed, to ensure research yields limited but clear responses. Bee and Murdoch-Eaton (2016) advise:

> "*Self-completed questionnaires require careful construction with clear articulation of purposes*. *Their success depends strongly on format as well as the working, use of attractive, easy to navigate presentation and ensure the length is kept as short as possible*" (Bee and Murdoch-Eaton, 2016, p. 2).

They recommend researchers consider open or closed questions, or a combination, adding "*closed questions can provide large amounts of easily handled (often numerical) data*", such as measuring variables like percentages of students accessing support services, percentages of students with individual conditions and availing of exam accommodations. In this research, a combination of open and closed questions have been designed, where closed questions subsequently lead to free text responses. They argue that open questions suit gathering opinions (Bee and Murdoch-Eaton, 2016, pp. 2-3). This can be seen where this research asks "*what more the college could do*" around areas such as disclosure, supports and assessments or garner the level of satisfaction, the reported progress or overall performance of a chosen area.

For interviews, Rubin & Rubin (2005) describes them as an "*extended conversation with key qualities*", where participants' responses are recorded. Bee and Murdoch-Eaton (2016) advocates that "*interviews gather opinions, perceptions and attitudes. They gather background information, expert knowledge, facts and descriptions" (Harrell and Bradley, 2009, p. 24).*

It was not considered realistic to expect busy staff to have the time to commit to a time-consuming structured interview in addition to time for initial questionnaires (which tend to have a higher response rate). Therefore, research focused on closed questions as part of the Google Form surveys sent to all 25 institutions, along with limited opportunity for free-text explanation, to cater for some written explanation.

Face-to-face semi-structured interviews were initially considered appropriate for past students, as it suited 1-to-1 explanatory research and used more open-ended questions compared to the self-administered questionnaires. The focus on student surveys was to garner the extent of educational supports delivered "on the ground", when they attended college. However, upon requesting interviews with past students, via LinkedIn, text messages and e-mails, none responded favourably to the request. As a work-around, the same option as support staff was given to past students, to complete a short survey, which was well received by all five participants.

"Focus groups tests survey questions, develop semantics, explain survey results, provides insights into seemingly conflicting opinions and explores WHY people feel that way" (Harrell and Bradley, 2009, p. 82). Focus Groups were considered following a review of Harrell and Bradley (2009) literature, but not deemed appropriate given the potential difficulties recruiting participants for this sensitive topic. The planning involved in implementing, questioning participants, assessing and reporting the outcome of the findings "*requires considerable resource time for the analysis*" (Bee and Murdoch-Eaton, 2016). Furthermore, there was little incentive for student to participate in any focus group and limited time available for either party to devote to this method of research and its intrinsic ethical issues. Given more time for this research and a better network of contacts, focus groups could have been an invaluable tool to use.

Data extraction and analysis was through Google Forms and MS Excel, using responses entered by support staff and past students into Google forms surveys. When determining “whom” to question as part of the research, initial advice suggested surveys should be sent to college registrars, who were seen as “gate-keepers” of institutions, who control information. Advice also suggested liaising with support staff, who are at the forefront of support services. Researchers are mindful not all those contacted will conform to requests, and those willing persons may not have access to literature and statistics that satisfy research requests. Robson and McCartan, (2016) suggest:

> “*Some gate-keepers may deny access to researchers for a range of reasons, one of which may be an assumed lack of competency on the part of the potential research participant* (*R*obson and McCartan 2016, p. 258).

The introductory part of the Google Forms survey was used primarily to address such concerns and justify the purpose of this research, to participants. However, the reality upon data collection, was that no registrars responded to the surveys and instead directed questions to support staff. All 25 Irish Higher Education Institutes were surveyed, with 15 institutions responding across an even spread of five universities, five technological universities and five colleges, varying in student size and funding model. The survey did not distinguish between subcategories of students, such as full or part-time, undergraduate or post-graduate, school-leaving or mature adults, or based on any student background.

3.2 Research Design

Research design provides clarity on the aforementioned research objectives and aims. Creswell and Creswell (2018) proposes:

> *"Research design plans the procedures for research, that span the steps from broad assumptions to detailed methods of data collection, analysis and interpretation*" (Creswell and Creswell, 2018, p. 3).

Robson and McCartan (2016) advocate that design primarily deals with aims, purposes, intention and plans, under the constraints of time, money, staff and the location. They add questions should help achieve the goals of the research and try to answer research questions (Robson and McCartan, 2016, p. 72 and 258).

Sourcing questions for participants was a first step, which was initially perceived, as being easily sourced online. However, outside of questions Murphy (2023) asked on students' experience navigating the text-based Irish third level education system (Murphy, 2023, p. 16), there was a dearth of pre-set questionnaires regarding Irish dyslexia educational supports. As an alternative, findings from various publications, was used as a means to form questions, outlined in Appendix 3 and 4.

Considering the categories from which we gather our findings, the research achieved a broad coverage of five universities, five technological universities and five colleges across each geographical region in the Republic of Ireland along with five past students, two from universities, one from a technological university, one from a private college and one from a state funded college, from Leinster and Munster.

Research was conducted using two Google Forms questionnaires - one for college support staff and one for past students, which was chosen after previously mentioned semi-structured interviews for past students, had a low uptake.

The survey data accumulated responses of students requiring learning supports, in statistical terms across institutions, including an account of their conditions and extent of exam accommodation students receive.

The purely qualitative component of the survey asked about how colleges:
i) Gather detail of disclosures;
ii) Approach students who do not disclose their condition;
iii) Approach assessments for dyslexic students;
iii) Observe how teaching dyslexic students is changing and can improve further;
v) Consider neurodivergent students' performance compared to others;
to get an insight into how services and student experiences can be improved.

Separately, students were asked their qualitative views, from preset options, asking:
i) How they disclosed their identified diagnosis or possible reasons for not disclosing;
ii) Past student's views on how colleges approach students who do not disclose?
iii) How assessment could better suit students?;
iv) How they rate 'Support Services'?
v) How services have changed since the pandemic, what students would like to see changed and what the future holds and;
vi) If their condition, in any way, hampered their life at college;
followed by open questions asking what more colleges could do in a chosen area?

The combined quantitative and qualitative component of both research surveys asked participants to choose, from a list, the supports and accommodations made available to and availed of by dyslexic students.

Questions were from multiple choice, check-boxes, drop-down options, short answers and linear scale responses, from which percentage ranges and preferences were chosen, from which concise answers could be easily collected and analysed.

Once responses were analysed, the research applied inductive techniques that generated major and minor theories. Research applied deductive techniques (testing hypotheses) using a systematic approach to pinpoint major common themes, such as views on disclosure, supports, exam accommodations, assessment methods, service satisfaction rates and the future for supports going forward. These themes were examined across universities, technological universities and colleges, forming part of the findings and recommendations outlined in Chapters 4 and 5.

Participants were not compensated for their time, but a copy of the study's recommendations, will be forwarded to the participating institutions.

3.3 Research Timeline

See below the research timeline associated with this study:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Research proposal Write up agreed research Questions and objectives Outline research methodologies								
Complete research ethics								
Draft Chapter 1 Introduction and Chapter 2 Literature Review								
Refresh Literature Review Refresh research skills Read all relevant literature								
Draft methodology chapter, research design, piloting, sample selection and ethics								
Design of data instrument & accompanying documentation letters								
Data collection								
Data analysis & write-up								
Review, editing and proof reading								
Submission								
Viva preparation								

Table 3.1: Dissertation Research Timeline

3.4 Sampling

Sampling is an important tool, which allows researchers to efficiently explore populations and gather meaningful data from their studies. Sampling is *“where only a representation sample can be taken, given a full population cannot be feasibly questioned”* (Harrell and Bradley, 2009 p. 8-10). Robson and McCartan (2016) suggests *"population refers to all the cases [whereas] a sample is a selection from the population"* (Robson and McCartan, 2016, p. 258-276).

Mweshi and Sakyi (2020) recommends “*the number of individuals in the sample depends on the size of the population, and how precisely the required results should be to represent the population as a whole (Mweshi and Sakyi, 2020, p. 181).*

In this research, non-probability sampling techniques are used, specifically ‘Judgement sampling’ which Taherdoost (2016) describes as:

> “*a strategy, in which particular settings, persons are selected deliberately, in order to provide important information that cannot be obtained from other choices…, where the researcher includes participants in the sample because they believe that they warrant inclusion”* (Taherdoost, 2016, p. 23).

Through judgement sampling, registrars and support staff from all 25 Irish Higher Education Institutions, listed on the Higher Education Authority website, were sent a link to the Google Form survey, using e-mail addresses sourced from college websites. The researcher approach was to contact all 25 institutions, mindful not all would respond, to initial or subsequent requests. From this sample, five responses from universities, five from technological universities and five from colleges were received, out of 25 institutions surveyed.

For past students, contact was established with former students, as well as to parents and colleagues of dyslexic graduates, asking initially for interview and subsequent requests to complete a survey.

3.5 Piloting of Interview Questions

Piloting of questionnaires is crucial as it allows researchers to test and refine their survey instruments before full-scale data collection, ensuring questions are clear, relevant and effective (Malmqvist *et al.*, 2019, p. 1). Denscombe (2021) contends that "*a pilot survey is conducted to check for potential problems*" (Denscombe, 2021, p. 32).

Piloting of questionnaires in this research entailed academic colleagues reviewing the question pack to ensure instructions, questions and the intended purpose was clear, ahead of circulating questionnaires to the wider audience of Irish Higher Education Institutions. Following piloting of questionnaires, changes were made to a number of questions, wording and sequencing.

3.6 Limitations

As with all research, there are limitations. Paul (2024) suggests acknowledging limitations helps avoid criticism from others who might question a researcher's credibility. Limitations from this research include:

i) Restricted sample size, where views of a single support staff member from 15 of the 25 colleges questioned and from five past students were garnered. This contrasts with AHEAD's research, who have access to staff and students across colleges.

ii) Time limitations, both time spent and the fixed duration of the dissertation, makes it difficult to employ evaluation models, such as Kirkpatrick four levels of evaluation (across), or analysis of any 'Return on Resources Invested' into supports. Walser and Trevisan (2016) suggests students completing an evaluation within a given time frame, need to be aware of the time required for planning and monitoring evaluation projects.

Figure 3.1: Kirkpatrick Evaluation Model (Adobe Learning, 2018)

iii) Lack of Funding for research means researchers are conscious of costs accruing;

iv) Methodologies used, with closed question questionnaires seen as a more transferable means of gathering and presenting information across colleges, compared to using open-ended interviews;

v) Narrowing the focus from neurodivergence to dyslexia, to better manage findings;

vi) The researcher is a first time researcher, who despite holding three previous professional qualifications, had no academic writing experience before this Master's;

vii) General Data Protection Regulations (GDPR) around data collection and retention, and ethical considerations undoubtedly formed part of research limitations.

3.7 Ethics

Denscombe (2017) states ethics is not optional, but a fundamental feature of all good research. Furthermore, the British Educational Research Association (2018) recommend safeguards are put in place to minimise any risks. For this research, anonymity was crucial given it studies people from a medical viewpoint. Communication with students, albeit past students, was carefully managed and anonymised, to ensure no data was identifiable to the individual or institution.

Support staff and past students completed an informed consent form within the Google Form survey. Each survey required participants to provide consent, after being informed of the risks and benefits of participation. At the start of each survey, there was a dedicated page, outlining participation was voluntary, that non-participation would not adversely impact them and that participants had the right to withdraw from research, at any stage, without giving a reason or fear of any repercussion.

Permission was sought from participants to use their data within this research and to share their data with other academic research institutions for the purpose of research in the area of neurodiversity and educational supports.

According to Cohen, Manion and Morrison (2018), the principle of informed consent arises from the participants' right to freedom, and when there are restrictions on that freedom, they must be justified and consented to, as part of the research.

Ideally, direct questioning of current dyslexic students would have been permitted, similar to Murphy's (2022) AHEAD report, where he heard (first hand) of the critical robust experience of students' supports (or lack thereof). However, this was weighed up by Griffith College's Ethics committee, who noted a perceived potential vulnerability that could be seen, when questioning current students. Therefore, such questioning was not permitted, given lecturers could exert power over them. Stemming from this, Robson and McCartan (2016) distinguishes between consent and "assent", seen as a student's *"agreement to participate in research without necessarily understanding its purpose*" (Robson and McCartan, 2016, p. 222-228). Upon re-submission to the ethics committee, the alternative of surveying past students was deemed more appropriate and only past students were surveyed.

The researcher considered the time and effort required of participants and communicated this to them, to manage their expectations, as they outlined available supports (British Educational Research Association, 2018).

According to the British Educational Research Association (2018), payment for participation in educational research is generally discouraged, not least because of the extra burden of cost that the extension of this practice would place on the practice of research. Thus, there was no financial incentive applied to this research.

3.8 Conclusion

This chapter described the research methodology used and considers those most appropriate to participate. It includes steps on the systematic research design and sampling methods used, within the limited timeframe allocated to this research. The questionnaires for collecting data reaffirms the mixed method approach taken, using quantitative and qualitative approaches outlined in Appendix 9. The chapter closes examining limitations, including ethical concerns, that limit the scope of the research. This comes ahead of the findings, analysis and discussion outlined in the next chapter.

Chapter 4 Findings, Data Analysis and Discussions

4.0 Introduction

This chapter presents the findings and analysis generated after collecting primary data, in accordance with the research methodology outlined in the last chapter.

Research findings and analysis are considered simultaneously, in the context of the three research objectives, where:

- The first part explores five themes that emerged from research into supports required and availed of, by dyslexic students;

- The second part compares international “best practice”, outlined in Chapter 2, to the findings from our questionnaire responses and identifies gaps in the Irish higher education system, from a Higher Education Institution and governmental viewpoint;

- The final part, outlined in Chapter 5, puts forward recommendations to alleviate the gap between our findings and that of international “best practice”, so students’ campus-life experience is equivalent to that of their peers.

4.1 Presentation of data

Data was analysed from support staff of five universities, five technological universities and five other colleges (private and public), out of a possible 25 (n=25) Irish Higher Education Institutions listed on the Higher Education Authority's website.

It was deemed essential at dissertation proposal stage, to corroborate support staff views with that of five past students who shared their views of "on the ground" supports, during their time in college. The five past student respondents were taken 40% (n=2) from universities, 20% (n=1) from a technological university and 40% (n=2) from colleges (private and public). Consideration was given that, with only five past students, there was a limited dataset, from which to base our findings.

4.2 Findings

When formulating questionnaires, the structure deployed was to firstly expand on the over-riding question examining educational supports (including accommodations) for higher education students. Where possible, findings were linked back to relevant literature in earlier chapters, indicating whether or not research agreed with secondary research previously reviewed.

Based on the literature review, questions were asked based on the themes that could emerge from the findings of the survey. These questions were grouped into five key discussion areas and are analysed below:

1. Disclosure of diagnosis of students registered with services;

2. Prevalence of conditions in higher education and the impact on student life;

3. Support mechanism and accommodation available to students;

4. Assessment structures for dyslexic students and support during the term;

5. Satisfaction with support services and looking forward into the future.

4.2.1 Disclosure of Diagnosis of Students Registered with Services

Initial questions for both support staff and past students, revolve around mechanisms by which students with disabilities disclose their dyslexia;

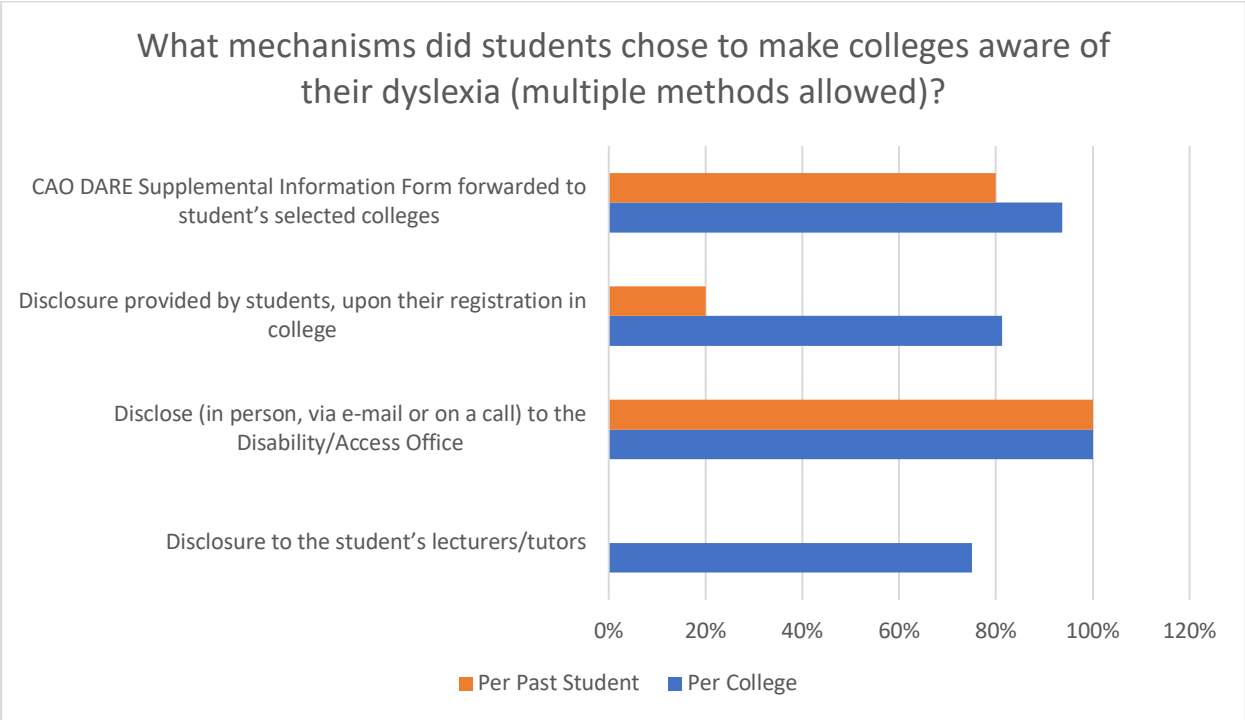


Figure 4.1: What Mechanism exists for Students to make your College aware of their Dyslexia?

- Results showed support staff indicated all students registered with support services, contacted their services directly, with 93% (n=14) disclosing their condition, on their CAO form. One past student surveyed (n=1) was unsuccessful, in their application for the DARE reduced points program, and therefore their condition was not disclosed to the college, via the CAO system. Support staff indicated 80% (n=12) of their registered students disclosed their condition upon registration, with an estimated 73% (n=11) disclosing their condition to a lecturer or tutor.
- This contrasts with only 20% (n=1) of past student surveyed disclosing their condition upon registration, and none (n=0) approaching their lecturer/tutor as a first step to disclosing their diagnosis. This shows apprehension by students to disclose, evidenced by Healy's (2022) AHEAD statistics showing lower disclosure rates in Irish Higher Education Institutions, compared to higher rates in the UK, which McNicholl's (2021) outlines.

Given Sweeney's (2018) revelation that 54% of students do not disclose their condition, reference had to be made to the reasons why students do not disclose their condition. McNicholl *et al.,* (2021) suggests "*social stigma is a major challenge to integration within tertiary institutions …and reduces their willingness to disclose their disability in an attempt to 'fit in' among their peers*" (McNicholl *et al.*, 2021, p. 2).

Even following disclosure on DARE's reduced points system, the stigma prevails, partly explaining the low levels of students registered with support services, as evidenced by the earlier Disability Federation of Ireland (2019) statistics that 20% of those with disabilities complete third level education, compared to 36% otherwise.

Emerging from this, past students were asked what they believed prevented students from disclosing and their comments were:

Figure 4.2: Study Findings asking 'What Prevents Students from Disclosing?'

Views expressed from past students, showed a desire to be independent, upon accessing higher education. There was also a perception that any discrete supports, were excessively generic in nature and not sufficiently tailored to students' individual needs, to warrant disclosure. This supports Sweeney's (2018) earlier claim that "*35% of students who disclosed, did not feel adequately supported"* (Sweeney *et al.*, 2018, pp. 51-52).

A related question, in figure 4.3 below, asked support staff and students how colleges approach those who are dyslexic, but do not disclose.

- Notably, 87% (n=13) of support staff indicated their college leaves it to students to disclose, while 73% (n=11) recommend lecturers encourage students to disclose. Furthermore, 47% (n=7) of support staff surveyed revealed they reach out to students about disclosing their condition(s).

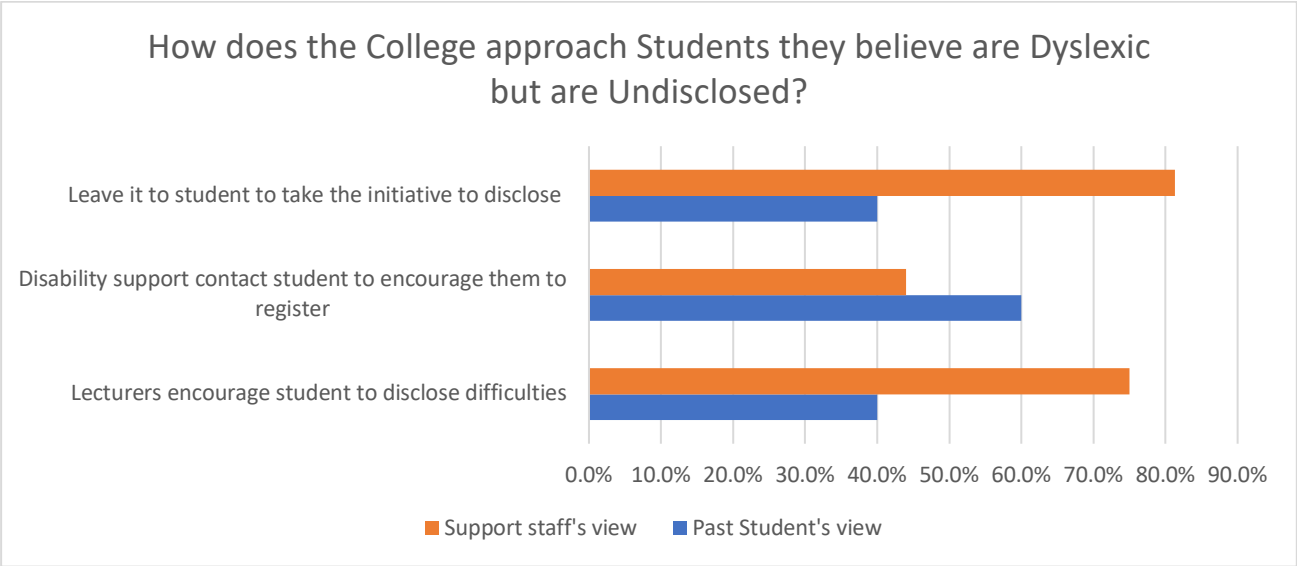


Figure 4.3: How Colleges approach Students who do not disclose their Condition?

- In contrast to support staff's views, just 40% (n=2) of past students indicated lecturers encouraged them to disclose and the same percentage suggested the college left it to them to disclose, far less than what support staff suggested above.
- Conversely, 60% (n=3) of students experienced contact from support services encouraging them to disclose, compared to the 47% which support staff estimated this at. The research should be qualified, reiterating the past student sample size is just five. Therefore, a single view can disproportionately impact findings.

Ultimately, AHEAD (2024) recommends colleges' support staff advise students to:

> "*weigh-up the benefits of reasonable accommodation… against potential discrimination or differential treatment [noting] college are not legally obliged to provide students with any supports or reasonable accommodation, where students do not disclose* (AHEAD, 2024).

When the research then asked what more colleges could do to address disclosure rates, support staff suggested screening facilities and promotion of services was the best that could be done on the uptake of the services, within the current budget. More encouragement of disclosure was needed from both support and academic staff. However, Healy's (2023) reference to almost double the number of students with a disability per support staff member, over the decade to 2021/22, along with Daly's (2021) reference to cuts in Funding for Students with Disabilities by €3m in 2020, exacerbated, rather than helped this situation.

Support staff added if campus-wide free access to accessibility resources and apps were 'mainstreamed, students with dyslexia would not need to disclose and could just avail of supports like all other students'. This supports AHEAD's earlier guidance on supports (AHEAD, 2024).

Instead of making apps available campus-wide, one student (n=1) recommended learning support workshops, emphasising an acceptance of neurodivergence. They added that promotion of disclosure had to come from top-down from college authorities. These practices align with "best practices" outlined in Chapter 2, where the Tertiary Education Commission, (2001) advocate a "holistic response to dyslexia from centralised leadership down", across institutions. Interestingly, one student (n=1) referenced *'parents applying pressure to disclose their condition'*, which the past student, in retrospect, saw as beneficial. This contrasts with Malhi and Singhi (2023) research indicating *"delayed disclosure can be related to parents' apprehension that the label of a child's condition would lead to their child being stigmatised, excluded, and marginalised" (Malhi and Singhi, 2023, p. 1).*

Notably, 40% of past students (n=2) suggested 'focusing more on training for lecturers on how to support students'. One student (n=1) "*received negative stereotyping from a lecturer despite [their] continued A grades, just because [they] needed extra time for an assignment*". Another student (n=1) expressed concerns about a "*lack of responses from academic staff in addressing concerns about assessments"*. Hopkins (2011) talks about students taking the path of least resistance by choosing routes where the barriers are least, which he describes as a way they are being discriminated against.

The research below showed 40% (n=6) indicated 6 to 10% of their total student population is registered with support services. This is comparable with Healy and Ryder's (2023) finding that 6.6% of the student population were registered with a disability, in year 2020/21.

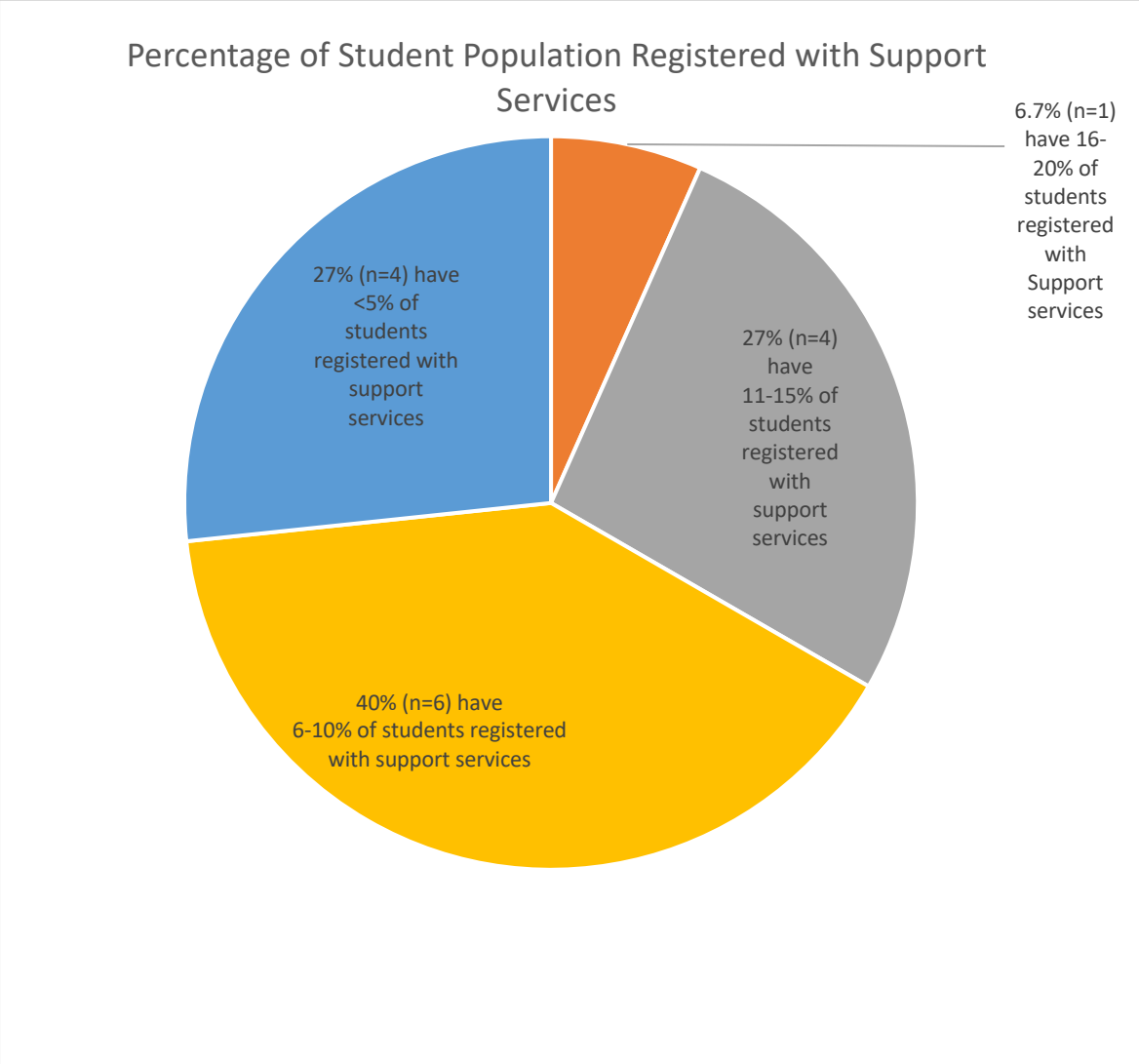


Figure 4.4: Percentages of Students Registered in Colleges

While only 6.7% (n=1) indicate percentages in line with the US National Institute's prevalence of 15-20% for neurodivergent conditions, the aforementioned Higher Education Authority reported progress with its findings, with increased numbers of new entrants disclosing their condition, compared to a decade ago.

UNIVERSITIES:			TECHNOLOGICAL UNIVERSITIES:			COLLEGES:	
University 1	6-10%		TU 1	6-10%		College 1	1-5%
University 2	6-10%		TU 2	16-20%		College 2	1-5%
University 3	6-10%		TU 3	11-15%		College 3	1-5%
University 4	1-5%		TU 4	6-10%		College 4	6-10%
University 5	11-15%		TU 5	16-20%		College 5	11-15%

Table 4.1: Percentage of Student Population Registered with Support Service

Examining the profile of the three institution categories, shows lower percentages were registered in the “colleges” category (including private colleges), compared to higher percentages at technical university level and mid-to-low percentages in most of the universities surveyed. While Coleman (2023) refers to the Equal Status Act (2000) that provides that colleges support disabled students by means of “Reasonable Accommodations”, it is clear that there is disparity between the lower percentage of students registered with support services in colleges (private and public) compared to those registered in technological universities. Notwithstanding that, there is a dearth of research supporting that any less resources are allocated to the promotion and provision of disability supports in these private or smaller colleges or that any lesser priority is given to supporting students with disabilities therein.

The Irish Times (2022) highlighted the plight of Higher Education Colleges Association, (representing 12 accredited privately funded providers of higher education) describing the:

> *“exclusion of its students from [public] supports as amounting to discrimination… and sought engagement with the Minister to discuss the potential of designating private colleges, being opened up to state-funded grants for students”* (The Irish Times, 2022, p. 3).

As part of the secondary research, it was noted two of its member private colleges (surveyed in this research), went onto secure government funding in late 2023. This may set precedence on the public funding of supports within privately funded colleges and in turn, increase the number of students registered for disabilities in Irish private colleges.

4.2.2 Prevalence of Conditions in Higher Education and Impact on Student Life

Regarding the breakdown of students' conditions, 100% (n=5) of past students questioned had dyslexia, with 20% (n=1) also having dyspraxia, another 20% (n=1) also having dyscalculia and a further 20% (n=1) having a mental health condition.

From the colleges' responses, the research shows 73% (n=11), indicated '21%-50%' of students registered with a disability, have dyslexia, with more colleges weighted in the '21-30%' bracket, depicted in grey below, making it the most common disability.

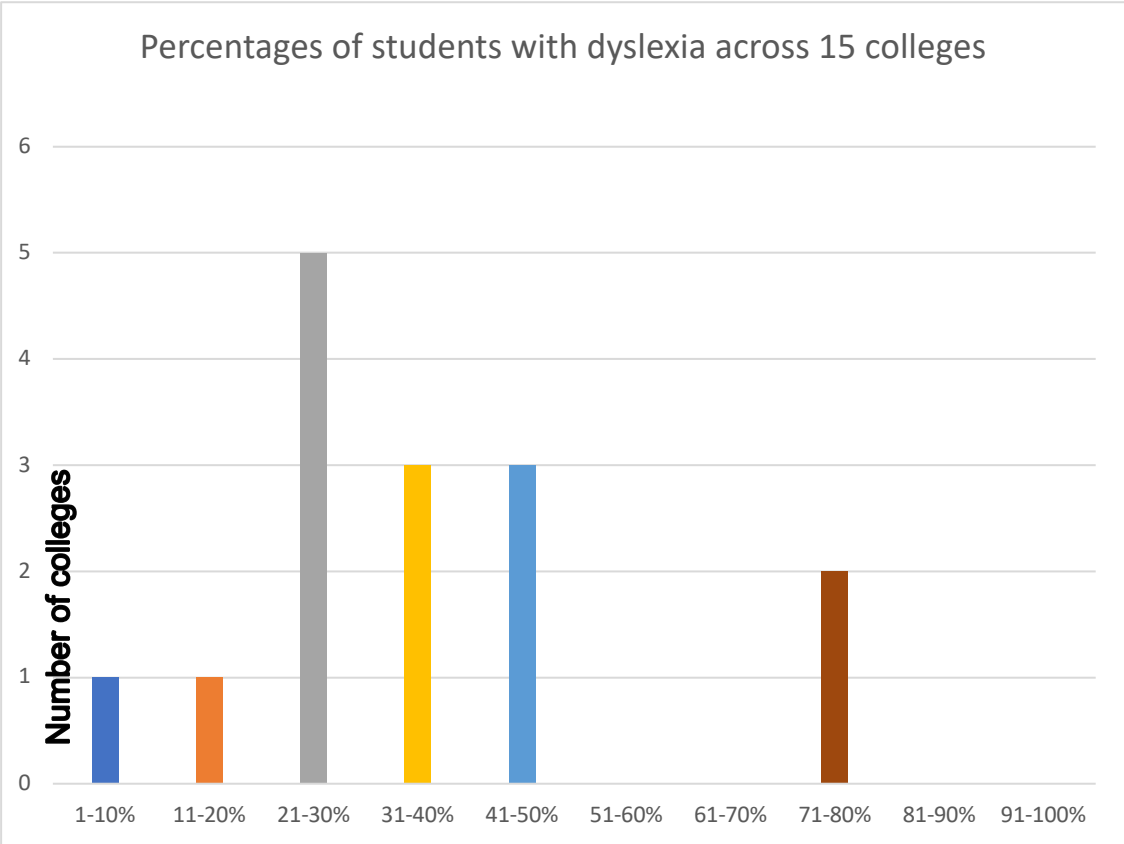


Figure 4.5: Percentage of students registered with a disability, having dyslexia

• Outside of this graph, the findings indicate the next most common condition was ASD, where 87% (n=13) of institutions had less than 20% of their students registered with a disability, categorised as autistic. Just behind that, 80% (n=12) of institutions had less than 20% of their students registered with a disability, as having ADHD. Notably, 93% (n=14) of institutions had less than 10% of those registered with a disability, with other co-existing conditions such as dyspraxia, dyscalculia or other co-existing neurodivergent conditions, including anxiety and mental health illnesses.

These findings are in line with Healy (2023), which states the most common disability reported by students, in the academic year 2021/22, was dyslexia representing 39.8% of students registered with learning support. Their research also reveals that ADHD represented 10.2% of students, ASD represents 9.8% of students and DCD/Dyspraxia and Dysgraphia represented 8.8% (Healy, 2023, p.9).

A final question asked of students was, if dyslexia hampered them from taking an active role in college. Feedback was largely positive, when students answered.

Figure 4.6: Survey asking if Dyslexia hampered them from taking an Active Role in College

One student (n=1) suggested they "*didn't hide it, they did what they could to own it and would often laugh about it to friends*". However, another student (n=1), who looked back on their time in college, regretted that they did not take a more active role, as they struggled to keep up academically. Another students (n=1) didn't believe the culture of the smaller institution catered for neurodiverse students, such as having a neurodiverse society. There was a mix between past students who knew others who shared their positive views of supports (largely from larger institutions), and past students who knew nobody else with a neurodivergent condition.

As a final question, support staff were asked on the performance of neurodiverse students compared to neurotypical students, from both an academic and non-academic viewpoint.

As can be seen from the pie-chart below, 73% (n=11) of colleges surveyed indicated they did not monitor the academic success of students registered with a disability. Drucker's famous quote that *"you can't improve what you don't measure" (Forbes, 2024, p. 1)* indicates colleges, should at a minimum, measure performance, so gaps in performance can be identified and corrective action taken, where needed.

- Of those who monitored performance, only 27% (n=4) of support staff (in blue), considered that neurodivergent students performed less, with the balance of support staff considering students were at par academically with their neurotypical peers.

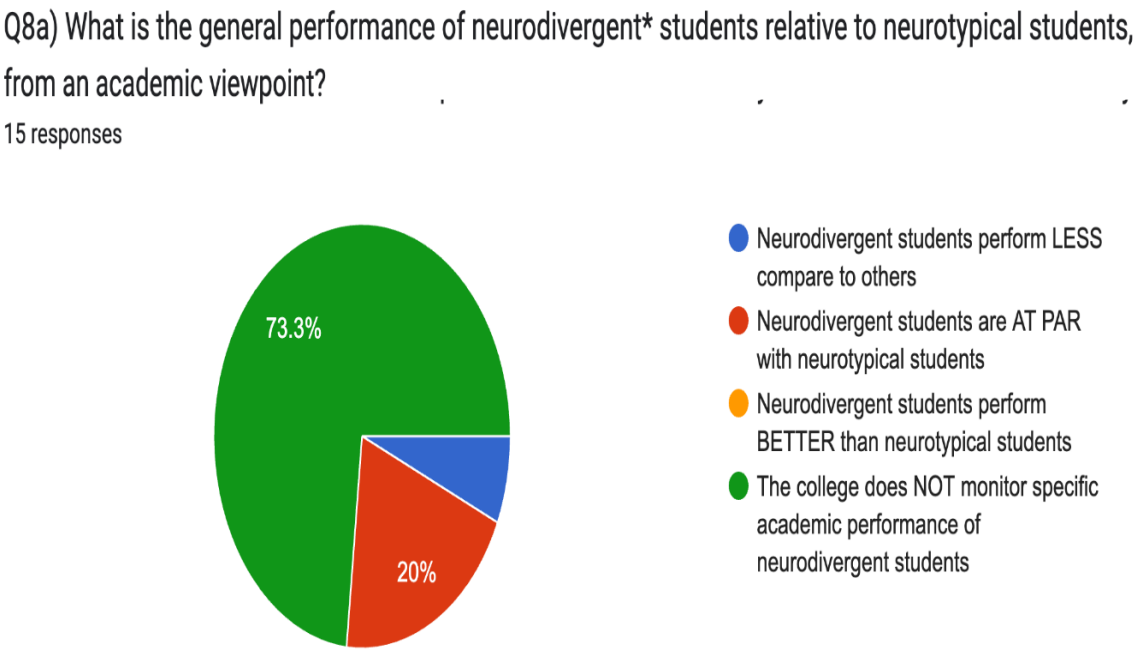


Figure 4.7: General Performance of Neurodiverse Students academically

Changing the focus to non-academic (below), the research showed 80% (n=12) of colleges did not measure non-academic performance. Of those that measured performance, 33% (n=1) of support staff indicated neurodiverse students performed better non-academically (in orange) and the balance performing at par with others.

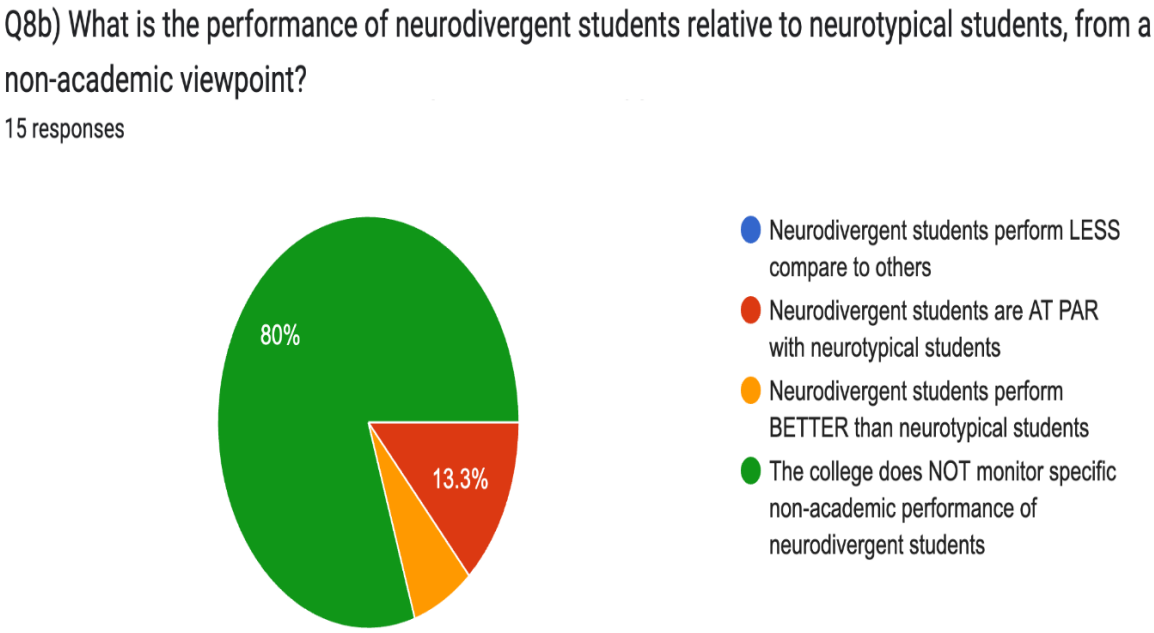


Figure 4.8: General Performance of Neurodivergent Students Non-Academically

4.2.3. Support Mechanism and Accommodation available to Students

The research now moves beyond registration and the prevalence of conditions and asks *"what"* supports are students offered and what do they avail of, from priority registration to exam accommodations?

This research indicated:

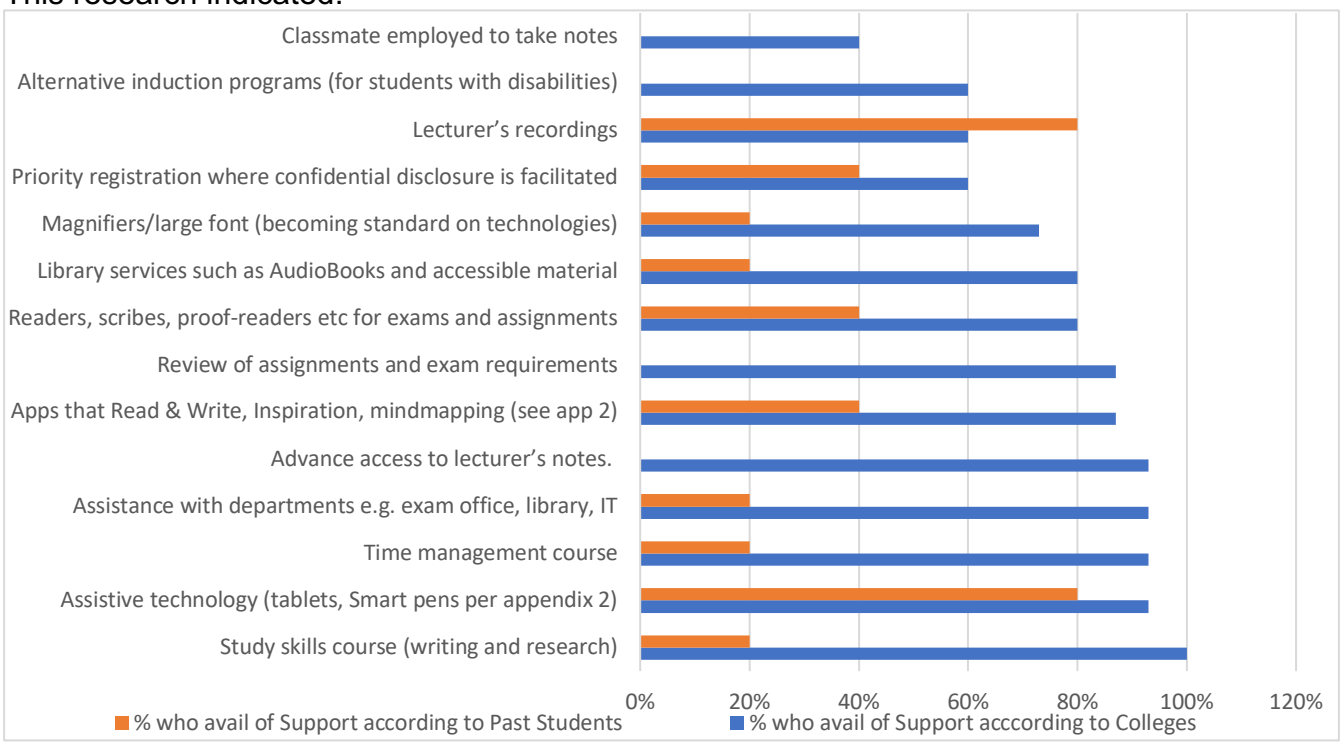


Figure 4.9: Supports Colleges provide Students with Learning Disabilities

- The chart above shows similar views, where orange lines, depicting past students views, is similar in length to the blue lines, representing support staff views. Similar views can be seen for lecture recordings and assistive technology.
- In contrast, there is disparity for supports for advanced access to lecturer notes and classmates employed to take notes, where support staff suggest such supports are used widespread, while past students didn't avail of these supports.
- The blue lines demonstrates, in support staff's view, more than 60% (n=9) of students take up most supports (outside of grant assistance, reduced printing and notetakers), noting a wide range of supports are offered and successfully availed of.
- From the students' perspective (in orange), only the use of lecture recordings and assistive technology are widely used, where 80% (n=4) of students availed of these supports, suggesting areas of disconnect on the uptake of some supports.

The research went on to ask about accommodations given upon assessment, which are depicted below:

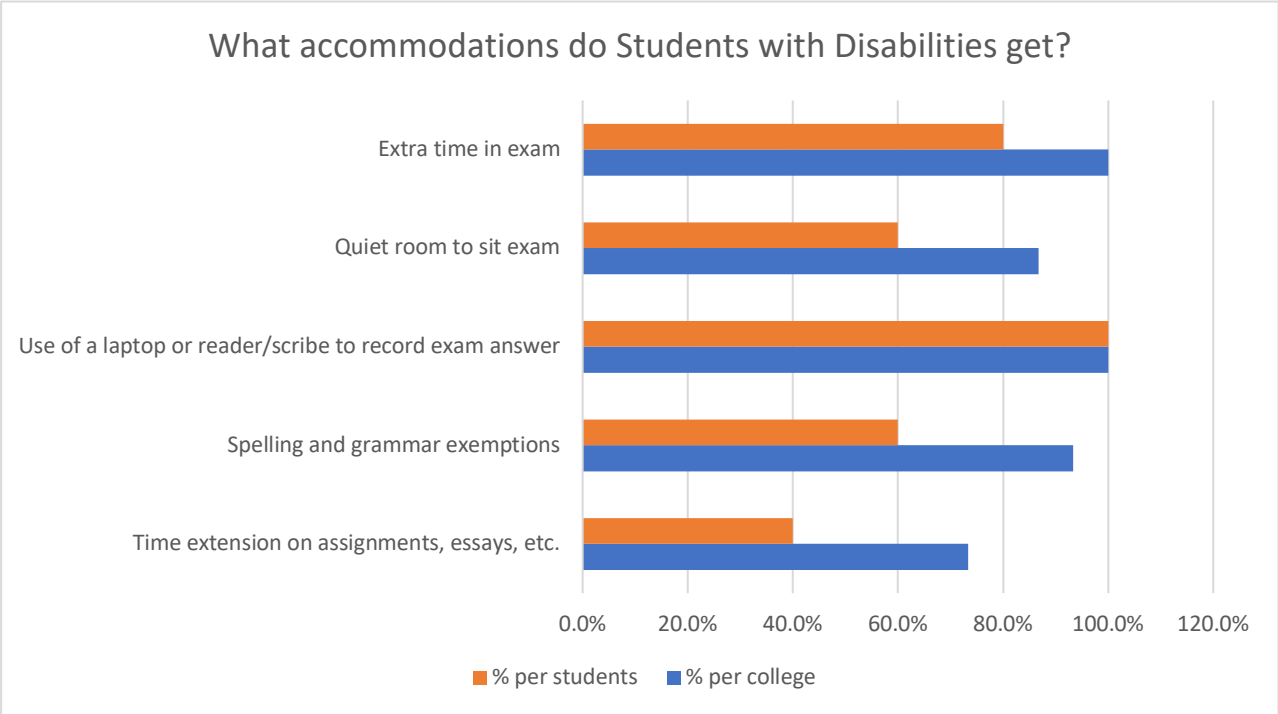


Figure 4.10: Accommodation for Students with Disabilities

- From the above graph, we can see full agreement on the use of laptops or scribes, with views largely shared on the provision of extra exam time.
- There is lesser alignment on the use of quiet rooms for students with disabilities and granting spelling and grammar exemptions, to dyslexic students;
- The main disparity surrounds the granting of time extensions for assignments, where support staff suggest 73% (n=11) avail of extensions, whereas only 40% (n=2) of past students availed of this, possibly indicating student's reluctance to request an extension, closer to exam date.

Consideration is now given to the provision of extra time in exams. At post-primary level, the State Examination Commission recently responded to the Dyslexia Association of Ireland's demand for extra time for state exams, stating "*any special arrangements should ensure they will not give any candidate an unfair advantage over other candidates in the same examination*". The Commission did agree to undertake a formal review of the issue of extra time in state exams, while the Dyslexia Association argued extra time was "standard" for dyslexic students at third level (RTE, 2024).

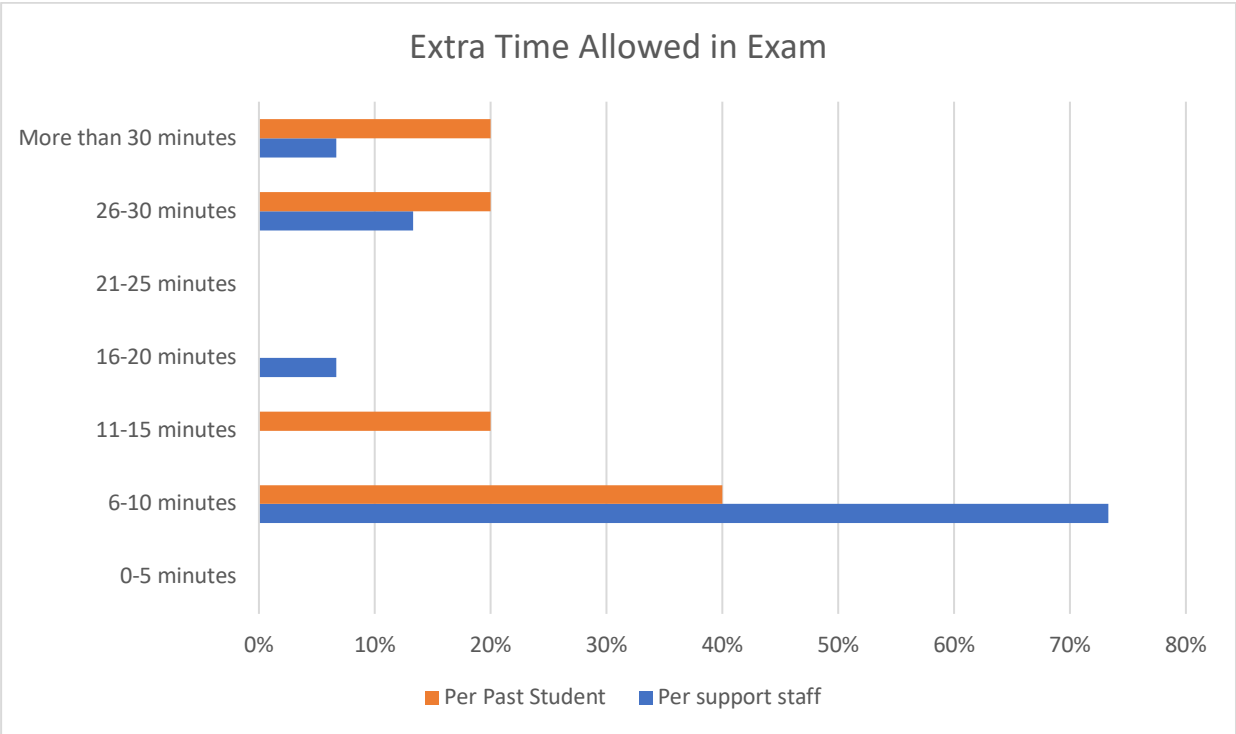


Figure 4.11: Extra Time Allowed in Exams

• Despite extra time in exams being "standard", a high degree of variability was evident from the research, in how much extra time support staff suggest and what past students experienced. Findings indicated inconsistencies on adherence to the allocated extra time, in minutes, given in practice in "quiet room" exam centres, with past students indicating more generous time allocations.

4.2.4. Assessment Structures for Dyslexic Students and Support during Term

Respondents were asked what assessment structures would suit dyslexic students.

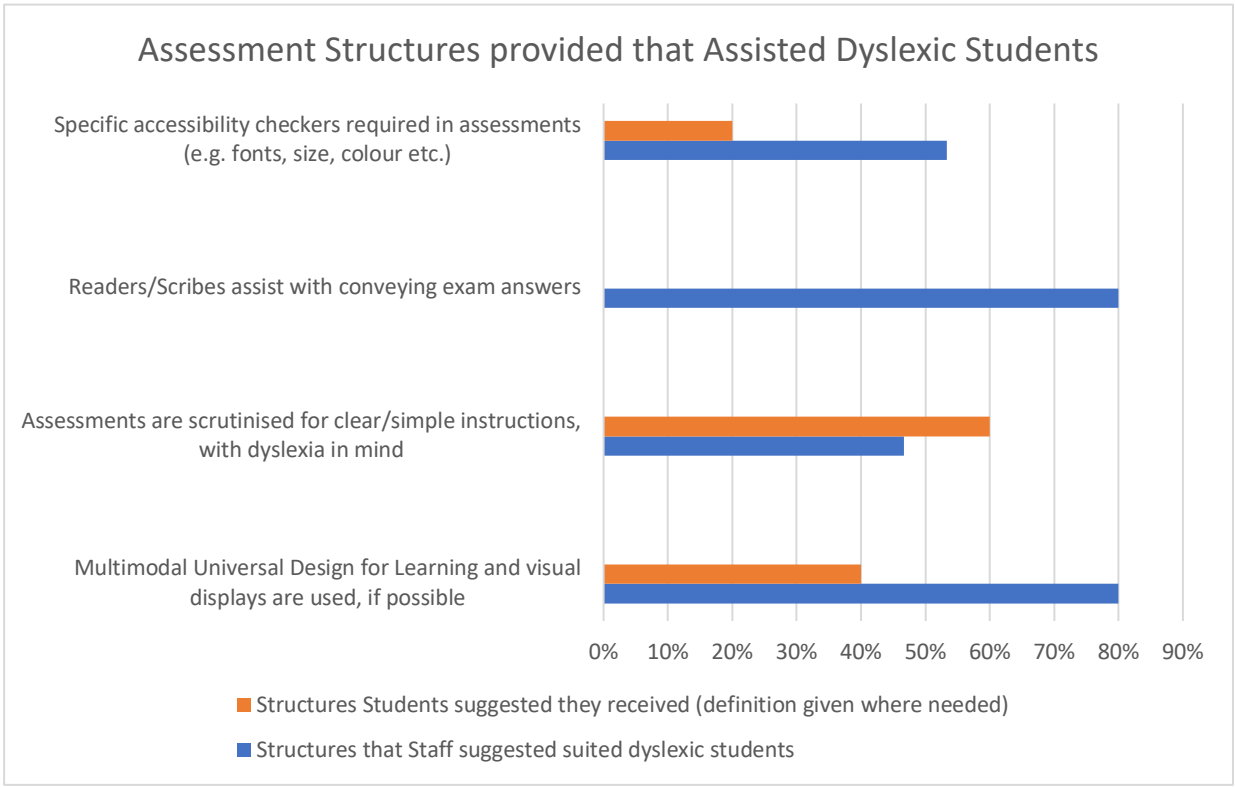


Figure 4.12: Assessment Structures that assisted Dyslexic Students

- Notably, 80% (n=12) of support staff thought multimodal universal designed supports suitably adapted assessments for dyslexic students, whereas only 40% (n=2) of students found it of help;
- While 80% (n=12) of support staff thought readers/scribes were best placed to support students, students (n=5) thought they were no longer needed, which may indicate technology has replaced traditional assistants sitting alongside students;
- Support staff and past students were somewhat aligned on the need for simplified assessments.

The research proceeded to ask both support staff and past students “What more the college could do regarding assessments for dyslexic students?”

- Notably, 40% (n=2) of past students described the negative impact final exams had.
- One past student’s view (n=1), was “*continuous assessment was more appropriate, compared to interim assignments, and a final exam, carrying most marks*”.
- One past student (n=1) explained “*Initiatives around assignments that better suit students with disabilities, such as oral interviews, was seen as an alternative, but only possible, for smaller classes*”.

- Notably, 80% (n=4) of past students emphasised, at least once in the questionnaire, that “*more support from academic staff”* was required ahead of assessments. This referred to exams, but 40% (n=2) also referenced assignments, with one past student (n=1) referencing “*presentations in class, which neurodivergent students struggled with”*.

- Notably, 80% (n=12) of support staff referenced “Universal Design”, or prioritised it, as an options for improving assessment, indicating a preference for this well researched model, covered in chapter 2.

- The above findings questions the support given by academic staff and indicates disparity on the views of Universal Design and assessments.

Focus now moves from specific end-of-term assessment to supports for students, throughout the term. Reference was made by support staff (n=1), to a culture where "*helpful messages come from the top-down*". This re-enforces international best practices, discussed in Chapter 2, where those *"from centralised leadership down"* must support initiatives.

- Support staff also (n=1) referred to efforts to keep ahead of technological advances, including screen-readers in exams. Requests for more mainstreamed supports were made by support staff (n=1), where students would not need to disclose their condition, but simply avail of campus-wide available supports such as grammar-checkers, mind-mapping tools etc. As a corroborative measure, 40% of past students (n=2) expressed a need to access the latest technology to support students with disabilities.

- In contrast, 100% of past students (n=5), made no reference to Universal Design, which could be attributed to students not being familiar with the term. The only reference akin to generic supports was where one past student (n=1) advocated "*how essential it was all assignments and exam papers used plain English and were reviewed for accessibility*". Another past student (n=1) referred to "*specific supports being needed"*, while another (n=1) went as far as negatively commenting on "*how generic supports were*".

4.2.5. Satisfaction with Support Services and Looking Forward into the Future

A final series of questions asked what changes could be put in place to better support students and how support staff feel supports will change in the next 5 years?

Support staff were asked to prioritise, from a list of supports, what support best suited dyslexic students. The feedback from respondents did not reach a clear consensus.

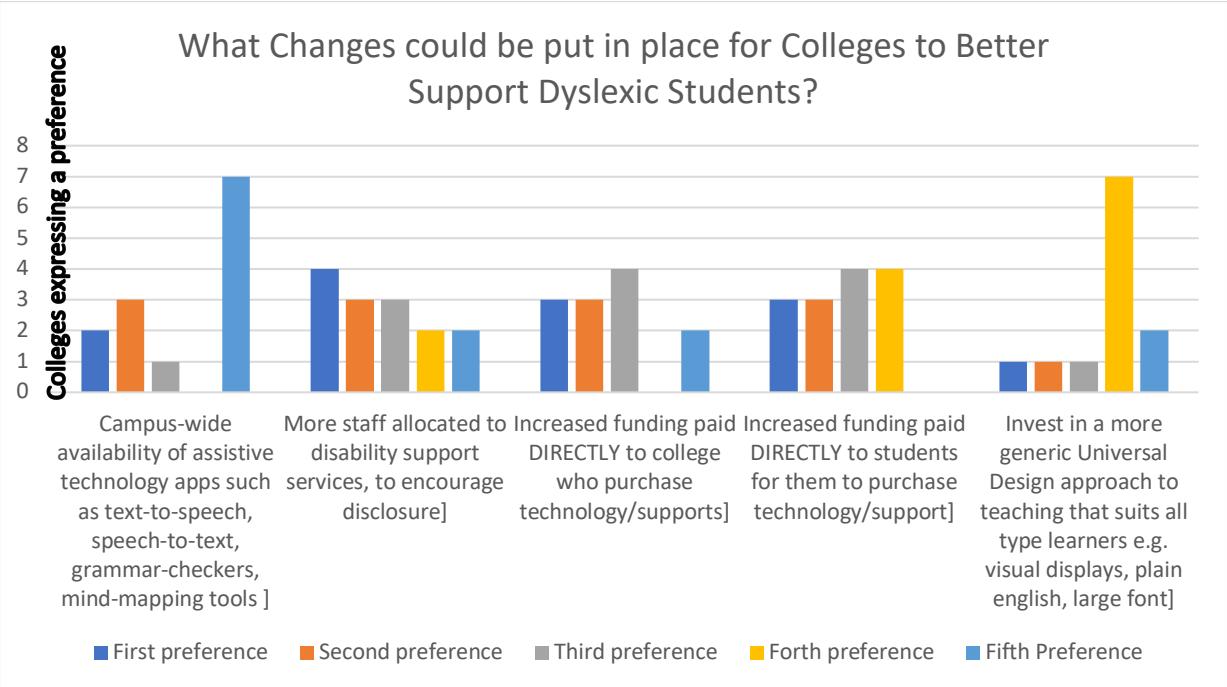


Figure 4.13: Changes to Better Support Dyslexic Students

As illustrated in Figure 4.13, support staff show their preferred choices related to increased staffing and funding (to both colleges and students), which were almost equal for first, second and third choices. Funding being key for support staff and students, supports Healy's (2023) aforementioned rise in the number of students registered with a disability per learner support staff, without the corresponding increase in support staff. It also reinforces the Royal Irish Academy (2021) European data showing Ireland, amongst 33 systems studied, stood out for its chronic decline in funding in the face of ever-increasing student numbers.

More minor two choices were “campus-wide availability of assistive technology” and the implementation of the academic framework of Universal Design.

The research went on to ask support staff "*What further could be done by way of supports?*"

- Notably, 60% (n=9) of support staff, mirrored students' earlier comments, when they requested more staff training.
- One support staff member (n=1) referred to *"a better understanding of the challenges faced by neurodivergent students around assessments and the social environments students find themselves in"*.
- Another support staff member (n=1) suggested "*neurodivergent students needed far more on-campus supports such as psychology and occupational therapy to steer through college life*", while another (n=1) added "*graduating students with neurodiverse conditions, needed supports on transitioning to their future in the workplace".*

Past students were then asked to rate their satisfaction with learning support.

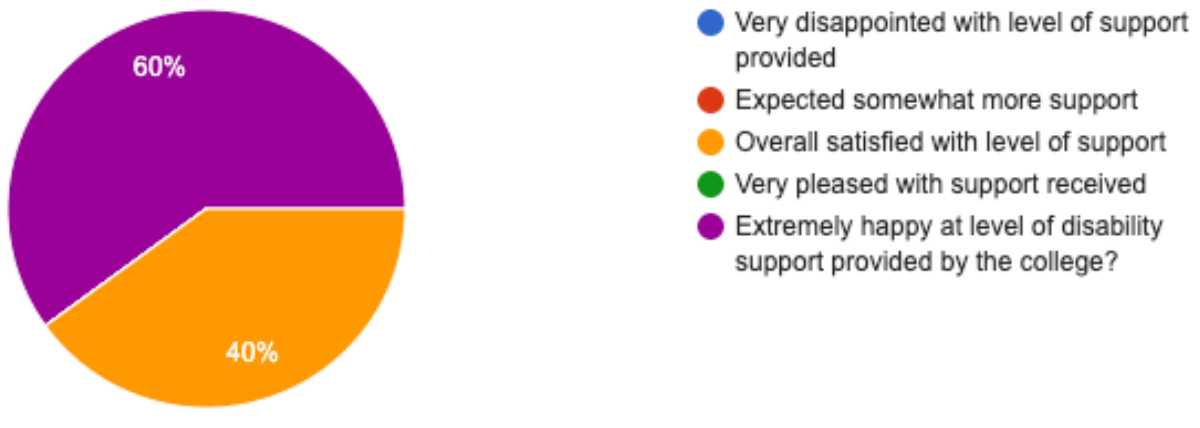


Figure 4.14: Rating of Supports by Students

- Positive data emerged, where 60% (n=3) of past students surveyed suggested they were "*extremely happy*" with the level of support provided by their college's support services, whereas 40% (n=2) said they were "*overall satisfied*" with the support.
- One past student (n=1) had the view "*nothing further could be done by support staff, in the provision of supports for students with dyslexia*".

- Past students were asked what they would like to see changed, regarding support services. One past student (n=1) suggested, "*despite an abundance of supports in some institutions, these supports needed to be more targeted*". For example, they considered there should be a more "*cultural norm, where lecturers offered neurodiverse students 1-to-1 meetings about assessments*". This, they saw, as manageable, when only 40% (n=2) of students surveyed knew of others with neurodiverse conditions in the college they attended and of those they knew, the other neurodiverse student(s) shared their views.

Students were asked how teaching neurodiverse students changed since Covid.

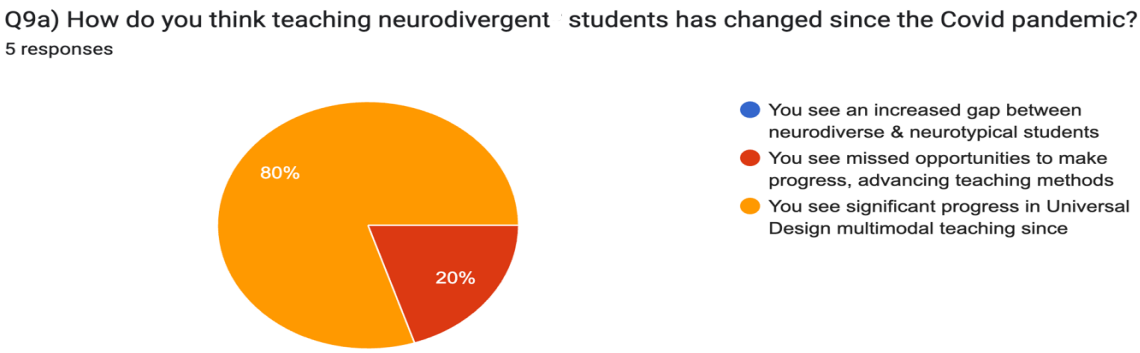


Figure 4.15: How Teaching Neurodivergent Students have Changed since Covid

- 80% (n=4) of those surveyed reported dramatic progress, largely through Universally Designed multimodal teaching that has evolved since teaching was forced to go on-line during lockdowns.

Finally, students were asked how they anticipated supports would change in the coming 5 years, as technology advances.

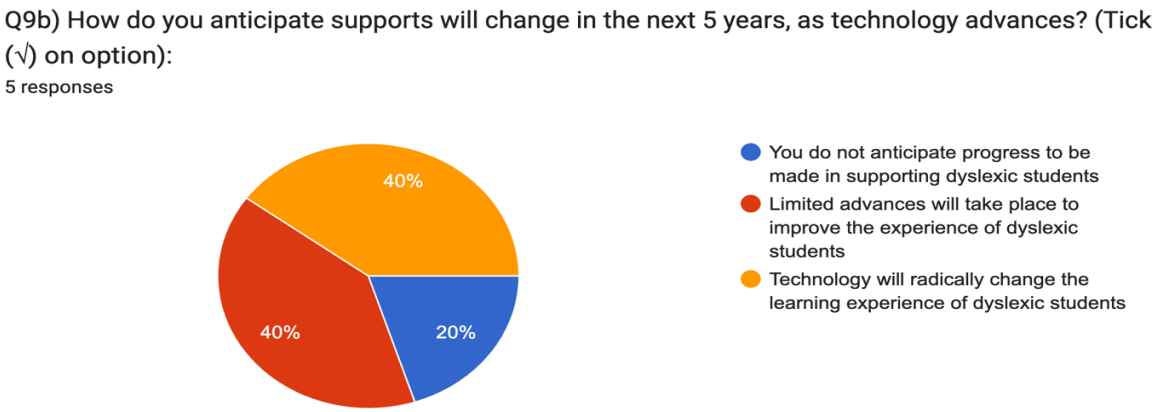


Figure 4.16: How Students perceive Supports will Change in the Next 5 Years

- Of the 80% (n=4) who anticipated progress, half of past students surveyed expected limited advances. The other half expect radical advances, such as the removal of writing gateways, that would address challenges of handwriting and spellings, facing dyslexic students. It is clear that colleges must position themselves to capitalise on technological advancement, in the coming years.

Support staff were also asked how supports would change in the coming 5 years.

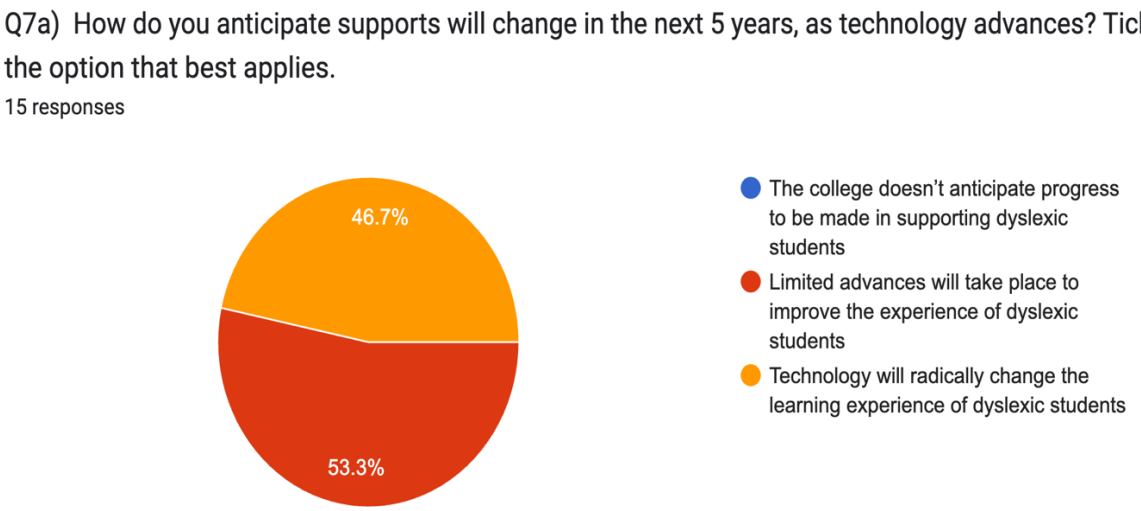


Figure 4.17: How Support Staff perceive Supports will Change in the next 5 years

The answer from support staff, was roughly split between those indicating limited advances to radical changes to the learning experience of dyslexic students going forward, alluding to technology radically changing the experience of dyslexic learners.

Finally, as ending comments, support staff were given an opportunity to make a concluding comment upon reflecting on their answers. These answers varied, but notable comments included one support staff member (n=1) emphasised *"students who registered tended to perform better that those who do not engage with support services".* Another support staff member (n=1) noted *"occupational and psychological services were invaluable, in supporting neurodiverse students approach to college and in safeguarding their mental health,* but that this was not possible for all, under the current funding". A further support staff-member (n=1) stated "*there was always room for improvement*", with limited resources a key concern.

However, with 13% (n=2) of institutions requesting "*more disability awareness*" and "*collaboration across third level institutions*", a desire can be seen to exist, to collectively support neurodivergent students throughout their college lives, aligned with the aim of this research.

4.3 Key Findings

Key findings, supported by research above, include:
a) High disclosure rates are evident upon applying for DARE's reduced points system, but disclosure rates taper off upon registration into college, drop further when contacting support services and again when liaising with lecturers.

b) There was a difference between what supports institutions suggested are available supports and what students take. Students availed of lecture recordings, assistive technology and extra time in exams, and not the range of supports indicated by support staff. For extra exam time, support staff indicated up to 10 minutes per hour, whereas students' experience was for longer, albeit irregular, extra time added on.

c) Few students referenced Universal Design compared to support staff's repeated reference to the model. Instead, past students emphasised "more support" from academic staff was required, in assisting neurodiverse students with aspects of college life they struggled with, including assessments, presentations, revision etc. Dyslexic students, making up the largest portion of those registered with disabilities, described negative stereotyping from academic staff, when requesting assistance, such as lecture recordings, assignment extension etc., which they consider part of a lecturer's role. Support staff shared this view, but emphasised that academic staff needed to do more to encourage students to disclose their condition(s).

d) Support staff prioritised increased staffing and funding, suggesting resources were needed to encourage students to disclose and to ensure availability of student supports over the implementation of the academic framework of Universal Design.

e) Findings show a lower rate of students registering for learning support in colleges, relative to technological universities. Almost all institutions reveal rates below the prevalence of conditions in the general population with it more noticeable in colleges.

f) Research showed little evidence of college's measuring the performance of neurodiverse students, academically or otherwise, making it more difficult to gauge what is needed to support this cohort of students.

4.4 Examination of International Best Practices

On the back of the above findings, focus turns to the culture of these institutions. Comparison should be made with international 'best practices", including the Tertiary Education Commission's (2001) positive characteristics. Appendix 7, shows these practices, outlined in Chapter 2, alongside feedback from participants and other research. A summary of these findings is below:

- '**Supportive environments' increase participation.** All past students were pleased with support services, but 40% (n=2) were negative towards academic staff. Cultural differences in institutions' approach to students with disabilities was apparent as students described negative stereotyping from academic staff when requesting additional time for assignments and asking for a quiet area to study.
- **College budgets impact the quality** of **supports provided**, with larger colleges better equipped. Notably, 40% (n=2) of past students noted their college, had limited promotion of supports, with some "tapping-into" external sources while other larger institutions had ample support and guidance. Larger institutions allowed for widespread availability of assistive technology and adherence to legislation. One past student (n=1) described "*having access to the latest apps targeted at dyslexic students*", while another student (n=1) described "*blanketed supports for students who struggle to present in class or write-up assessment answers*".
- **Holistic response from leadership down is required to support initiatives**. The findings suggest one college (n=1) indicated "*the norm*" of providing lecture recordings to all students registered with a disability. In contrast, another college (n=1) put no obligation on academic staff to record lectures, despite facilities being available to record, citing '*students were encouraged, instead, to turn-up in person'*.
- **Visible access to supports was crucial**. An estimated 60% (n=9) of institutions' literature showed supports such as quiet hubs, study areas, guidance on processes and accessible signage, explaining a higher uptake of support in those institutions.
- **Support infrastructure was essential**. A support staff member (n=1) referred to emerging Autism friendly campuses, but no evidence of dyslexia friendly campuses, despite dyslexia being more prevalent. Nor is there an equivalent to a Complete University Guide (2024), like in the UK, providing guidance on the best colleges for dyslexic learners.

- **Reference to Quality Standards**. No support staff made reference to partnerships with dyslexia associations, to the Dyslexia Friendly Quality Marks, to the UK Special Educational Needs and Disability" ("SEND") Code of Practice, or Smart awards, designed to promote good practice and heighten awareness of dyslexia.

One could argue initiatives should come from government and agencies, like the Dyslexia Association, rather than expecting education institutions, with deficits, to drive change. In Ireland, positive practices required from government include:

- **Sign-posting from dedicated bodies**, like the UK's National Health Service ("NHS"), navigating available services. This contrasts with the scarcity of information provided by the Irish Health Service Executive, where research indicates a dearth of guidance on assessment and treatments, outside of the Dyslexic Association of Ireland. In their defence, the Irish government delegates the authority to advise on dyslexic supports to the Dyslexia Association of Ireland, where it provides it funding to support dyslexic students in accessing education (Oireachtas, 2022, p. 7).
- **Funding students with disabilities:** UK Education Ministry's "Disabled Student Allowance" ('DSA') is paid directly to students to fund equipment, non-medical help, transport etc. The Higher Education Authority (HEA) manages the "Fund for Students with Disabilities" (FSD), paid to institutions, to provide assistance and equipment to students with disabilities.
- **Knowledge base:** Scholarship grants for research into dyslexia, has emerged in Irish Higher Education Institutions (covered in Chapter 2), but nothing to the scale of the UK's Oxford and Birmingham City University research.
- **Measurement:** Government agencies should publish data about disabilities, noting what gets measured, gets addressed. Ireland's limited data, is largely from the AHEAD organisation, referenced throughout this study.
- **Available Guidance:** While Ireland has a "Code of Practice on Accessibility of Public Service", helping public bodies fulfil their statutory obligations under the Disability Act 2005 (National Disability Authority ('NDA'), 2005) and must comply with EU Web Accessibility guidelines (NDA, 2021), there is still a distance to go to achieve the UK standards. This includes the Dyslexia Friendly Quality Marks, the UK Special Educational Needs and Disability and Dyslexia Smart award.

4.4 Conclusion

This chapter summarises the findings of questionnaires from 15 Irish Higher Education Institutions and five past student respondents. It examines their view of supports and analyses the data, across five universities, five technological universities and five colleges (public and private) under five headings. These include disclosure and percentages registered, prevalence of conditions, supports available, assessments, students' performance and the outlook for the future, including ending comments.

Within the final chapter, the above findings are used to put forward recommendations that will be provided to the 15 institutions surveyed within this research.

Chapter 5 Recommendations and Conclusion

5.0 Introduction

This final chapter starts with a recap on our aims and objectives, before putting forward key recommendations for academic staff, institutions and government. Future research areas are discussed and final conclusions presented. As a final note, the primary researcher provides a personal reflection on what this research has meant to her.

5.1 Recap on the Aims and Objectives of this Research

To recap, the aim in completing this dissertation is to emphasise the need for change, so all third level students have access to justified supports across our higher education system, thereby improving outcomes for this cohort.

Research objectives established the extent of support required and availed of by students. The research compares findings across colleges and compares this to international “best practice”, to identify gaps in the Irish Higher Education system. This chapter puts forward recommendations, aimed at alleviating such gaps.

This research has undoubtedly highlighted inconsistencies in the provision of supports between colleges. It notes differences in views between support staff and past students and identifies gaps between international best practice and the reality ‘on the ground’. However, recommendations, where implemented, should address these gaps.

5.2 Recommendations

Recommendations must consider the affordability and funding of each option, which support staff see as priority. The recommendations, by theme, include the following:

1. Leader-driven culture of inclusion built on disability awareness and training: The importance of empowering students to disclose their disability, without stigma, has been shown to be beneficial. Data presented in chapter 4 illustrates that many students are reluctant to disclose their disability, thereby limiting access to supports. It is now critical that Irish Higher Education Institutions create a culture of inclusion and openness, to enable students disclose such disabilities. A *'College Diversity and Inclusion Charter'* should be generated and training provided to both academic and support staff on the importance and benefits of disclosure and support. This charter and related publicity materials should be visible to all. Staff training should cover:
a) Attitudes towards neurodiverse students to avoid stereotypes & other behaviours;
b) Empowering students to disclose and remove the stigma around disclosure;
c) How to interact with students with disabilities, so they can contribute to college life.
The survey data indicates this is critical in smaller and private colleges where there is least disclosure. Those surveyed want to see lecturers encourage more openness about disclosure and students' concerns. Lecturers may argue disability is the responsibility of support staff, but as Hopkins (2011) articulates the "*challenge… is to make staff internalise inclusivity as a general guiding ethos rather than something that is tagged on to a disablist curriculum as a reaction to an excluded student*".

2. Survey on the Effectiveness of Supports Services, when Allocating Funding: Survey data indicated a disparity where support staff indicate most supports are broadly used, while past students did not avail of supports such as advanced lecture notes and classroom notetakers. A 'Customer Pulse' survey should be conducted on each campus for colleges to assess what services are working well for their students and offer students the opportunity to put suggestions forward (e.g. priority registration). This would ensure funding is allocated to the most effective services and supports potentially be withdrawn and replaced with technology, where appropriate.

Furthermore, a policy may be adopted to tailor allocated extra exam times, in accordance with a student's diagnosed condition or the severity of their needs, rather than variable extra time, students reported 'on the ground' in quiet rooms.

3. Leverage Technology to Measure Performance and Minimise the Stigma: Colleges should position themselves to capitalise on technological advancement that can support and measure the performance of their neurodiverse students. This supports the Tertiary Education Commission (2001) Positive Practices guidance that states the impact of assistive technology and other supports level the playing field for dyslexic learners. Forgrave (2002) describes "*assistive technology as having two purposes - to build on individual strengths, and to compensate for their disabilities to enable them to better perform a given task*" (Forgrave, 2002, p. 166). McNicholl *et al.*, (2021) describes that for people with disabilities, "*technology has the potential to improve participation in education, the labour market and civic life*". Technology is continually advancing and colleges should leverage technology to make life better for students. Consideration should be given to the use of handwriting, spellings and reading applications, including the provision of campus wide available apps, covered within the 'Dyslexia Technology Resource Guide' in Appendix 2, such as Read & Write, mind-map tools and grammar-checkers, which potentially removes the need for students to disclose in the first place. Given how ubiquitous assistive technology has become, this option is now more affordable.

4. Institutional Review of Alternative and Continuous Assessment Methods: Research indicates that assessment methods, such as end of year examinations, discriminate against dyslexic students. This builds on Hamilton and Petty's (2023) earlier research which advocates for the diversification of assessment types, allowing all students to excel. By better understanding the assessment methodologies that support dyslexic students, this should help level the playing field with neurotypical students, especially when part of continuous assessment. Initiatives, supported from leadership down within institutions, include oral interviews, group projects, presentations and digital assessments, such as submitted video assessments and Virtual Learning Environment quizzes using own-laptops under exam hall conditions.

5. Governmental Initiative developing Dyslexia-friendly Measures:

It is recommended that the government sponsor an initiative to promote awareness of dyslexia. These could be managed by the Dyslexia Association of Ireland, similar to the NHS, giving practical instructions on how to navigate Irish based assessments, treatments, education and healthcare. In addition, the below initiatives to support students with dyslexia entering third level education, should be considered:

- Complete University guide, allowing students select colleges that meet their needs and encourage institutions meet internationally recognised ‘best practice’;
- Promotion of Dyslexia Friendly Quality Marks and Dyslexia awards, designed to promote good practice, supporting dyslexic learners and heightening awareness;
- Dyslexia-friendly colleges, similar to Autism friendly campuses, emerging in Ireland.

5.3 Future Research

Central to this study is a need for the Department of Further and Higher Education to ensure consistent delivery of supports. This would enable a level playing field for neurodiverse students, to ensure they are citizens that contribute to society after graduation. However, other related areas, referenced in the study, warrant further investigation, in their own right, possibly by means of a Ph. D.

Investigation into disparities noted between the percentage of students registered with support services, within private and smaller colleges compared to that in technological universities is also warranted, given indications by past students that smaller colleges did not always cater for neurodiverse student needs.

Following recent developments in public funding of students with disabilities within private colleges, further research needs to be performed on the effectiveness and impact public funding (and lack thereof) has on students from such colleges.

Additionally, further research is warranted on the possibilities of neurodiverse graduates attaining full employment in the decades following graduation. This would give insight into the impact of the supports made available through higher education.

Finally, research is warranted on how effective Universal Design measures are, in practice, given the resources invested into this model. Past students describe the '*blanket approach'* taken and limited tailored help such as therapies, with current resources. Agrawal et al. (2019) argues "*further research [such as on Universal Design] should investigate how published literature serves to guide current practices for students, given the gap between research and practice seen in many countries".*

5.4 Evaluation and Conclusion

Evaluation of supports was conducted by analysing research findings from 15 institutions. Evaluating the success from implementing recommendations could be limited, using such models, as Kirkpatrick or any ‘Return on Resources Employed’ analysis on investments in educational supports. Statistics analysing any increase in participation or disclosure rates, would indicate success, but crucial to this, is the increased funding prioritised by support staff across the Higher Education sector.

An output from this research was the creation of invaluable resources for students and staff working in the Irish higher education sector, assisting in the research in this area. Most notably, appendix 2 provides a list of available technological resources while appendix 5 acts as a reference points for supports within each Irish Higher Education Institution. A copy of the study, including recommendations, will be forwarded to all participating institutions.

A national survey rolled out across all Higher Education Institutions would provide a clearer picture of progress in the five support areas surveyed. Furthermore, a study could be performed in the near future, attempting to establish a standard, by which all Irish Higher Education Institutions adhere to, under the management of a body such as the Higher Education Authority.

What is paramount, is this research highlights the need for change in the provision of support services to students. With the European Accessibility Act (2025) set to harmonise accessibility requirements for digital products and services, this is the perfect opportunity for government and Higher Education Institutions to step up to the mark and provide consistent supports to neurodiverse students, allowing for a level playing field. Higher Education Institutions have to change, by addressing the deficit and putting the supports and best practice (including those recommended in this research), in place for neurodiverse students. Changes need to engage staff in compulsory training, given the current climate. With the recommended measures in place, neurodiverse people can contribute to society like everyone else, for a better society for all!

5.5 Personal Reflection

As a parent of a neurodiverse child, it is apparent, how support improves outcomes of students at primary school level. Also, as a lecturer, I see the challenge faced by institutions, in providing such services to those eligible for support. On an individual level, being labelled with a neurodiverse condition, can have a considerable impact on one's emotions and confidence, when faced with negative and dismissive feedback about their disability. There were ups and downs throughout this study. However, through robust surveys, I was able to establish findings and put forward changes that have to take place. Institutions must, above any other responsibility, instil from top-down, an ethos, where diversity and inclusion is welcome and accepted, and ensure all students contribute to society and provide a better world we can all live in.

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Appendices

Appendix 1: Definition of Neurodivergent Conditions

Dyslexia is described as a learning difficulty that primarily affects the skills involved in accurate and fluent word reading and spelling. Characteristic features of dyslexia are difficulties in phonological awareness, verbal memory and verbal processing speed (British Dyslexia Association, 2024, as adapted from Rose (2009)).

Figure App 1: Understanding how technology supports Dyslexia students' learning (Jacobs, 2021)

Autism spectrum disorder (ASD) is defined as a neurological and developmental disorder that affects how people interact with others, communicate, learn, and behave. Although autism can be diagnosed at any age, it is described as a "*developmental disorder*" because symptoms generally appear in the first 2 years of life (National Institute of Mental Health, 2024).

Attention-Deficit/Hyperactivity Disorder (ADHD) is marked by an ongoing pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development. People with ADHD experience an ongoing pattern of symptoms such as inattention, hyperactivity and impulsivity, including interrupting others or making important decisions without considering long-term consequences (National Institute of Mental Health, 2024).

Developmental Co-ordination Disorder (DCD), also known as **Dyspraxia**, is a condition affecting physical co-ordination. It is characterised by an impairment in the ability to plan and carry out sensory and motor tasks. Generally, individuals with the disorder appear "out of sync" with their environment. Although individuals with the disorder may be of average or above average intelligence, they may behave immaturely. Symptoms vary and may include:

- Poor balance and coordination
- Clumsiness
- Vision problems
- Perception difficulties
- Emotional and behavioural problems
- Difficulty with reading, writing, and speaking
- Poor social skills
- Poor posture
- Poor short-term memory
  (National Institute of Neurological Disorders and Strokes, 2024).

Dysgraphia is where people have problems with their handwriting. They may have trouble forming letters, writing within a defined space, and writing down their thoughts, while **Dyscalculia** is where people have a maths based learning disability, where they may have difficulty understanding arithmetic concepts and doing addition, multiplication, and measuring (National Institute of Child Health and Human Development, 2024).

Developmental Language Disorder (DLD) is a communication disorder that interferes with learning, understanding, and using language. These language difficulties are not explained by other conditions, such as hearing loss or autism, or by extenuating circumstances, such as lack of exposure to language (National Institute on Deafness and Other Communication Disorders, 2023).

Tics and Tourette's syndrome are common hyperkinetic movement disorders seen mostly in the paediatric age group. Tics are defined as sudden, rapid, recurrent, nonrhythmic motor movements or vocalisation, generally preceded by urge.

Tourette’s syndrome is defined as the presence of both motor and phonic tics for more than 1 year in patients with onset less than 18 years old (Mittal, 2020).

Intellectual disability is a term used when there are limits to a person’s ability to learn at an expected level and function in daily life. For example, children with intellectual disability may sit up, crawl, or walk later than other children, may learn to talk later, or have trouble speaking, may find it hard to remember things, have trouble understanding social rules, have trouble seeing the results of their actions and have trouble solving problems (Centers for Disease Control and Prevention, 2019).

Appendix 2: Technology Resource Guide for Dyslexic Students

Apple Assistive Technology Apps:

Apple iPhones, iPads and Macs have tools that help dyslexic students, including dictation which converts speech to text and text into audio files saved onto Apple devices (AHEAD, 2024).

C-Pen Reader is a robust, portable, pocket-sized reading pen for those with difficulty reading, in that it reads text out loud with a human-like digital voice. Some are for exam purposes while others have a wider purpose. It can have built-in dictionaries, scan, store and transfer data to a personal computer (AHEAD, 2024).

Dragon Naturally Speaking is voice recognition software that creates, formats and edits documents by voice and audio playback of a person's own words (Jacobs, 2021).

Google Suite, including:
Google Lens and Accessibility that reads out printed text, using many reading tools e.g. text to speech, contrast, dyslexia coloured ruler which tints the page behind the ruler;
Google Read & Write browser tool with reading supports;
Google Docs that uses voice typing, where the user writes with their voice;
Google Dictionary;
Google Keep - allows for written/draw/voice notes, along with grab texts from images and converts them into editable digital format, without any typing needed (e.g. scanned textbook page converts to a transcript in digital editable format).
For others see -> https://www.ahead.ie/Google-Technologies (AHEAD, 2024).

Grammarly provides free writing assistant browser extension that supports writing e-mails, social media and online documents (Jacobs, 2021).

Inspiration allows for visualising mapping, brainstorming ideas, structuring thoughts, as it visually organises information (Jacobs, 2021).

LiveScribe pens (with build-in camera), used with LIVESCRIBE+ App, is an electronic pen that can record audio (from lectures) and can link the audio to the user's notes, so users can tap their notes to access the recording. Notes, saved to the pen, can be uploaded to a computer. It helps people with slow or difficult to read handwriting and useful for both reading and listening back to information. Users need a particular paper based notebook that can work with the pen, by tapping the pen on the control function on the end of each paper based note book e.g. record, pause, fast forward (LiveScribe, 2024).

MindMeister allows dyslexic students, who have executive functioning difficulty organising, planning or gathering information to focus on key elements of mind mapping. It can be used to note-take, build knowledge, prepare for exams and to write essays (AHEAD, 2024). It helps with:

1. Brainstorming: Starting from a single central topic, it develops ideas using a logical, hierarchical structure that groups topics by subject and allows users draw connections between ideas, either solo or with a team, at work or in a classroom;

2. Project planning: Mind mapping can define what needs to be done in a project and allows delegation of action items to team members via MindMeister's integration;

3. Meeting management: Mind maps are an alternative to linear meeting minutes and easily shares notes with participants after the discussion ends (MindMeister, 2024).

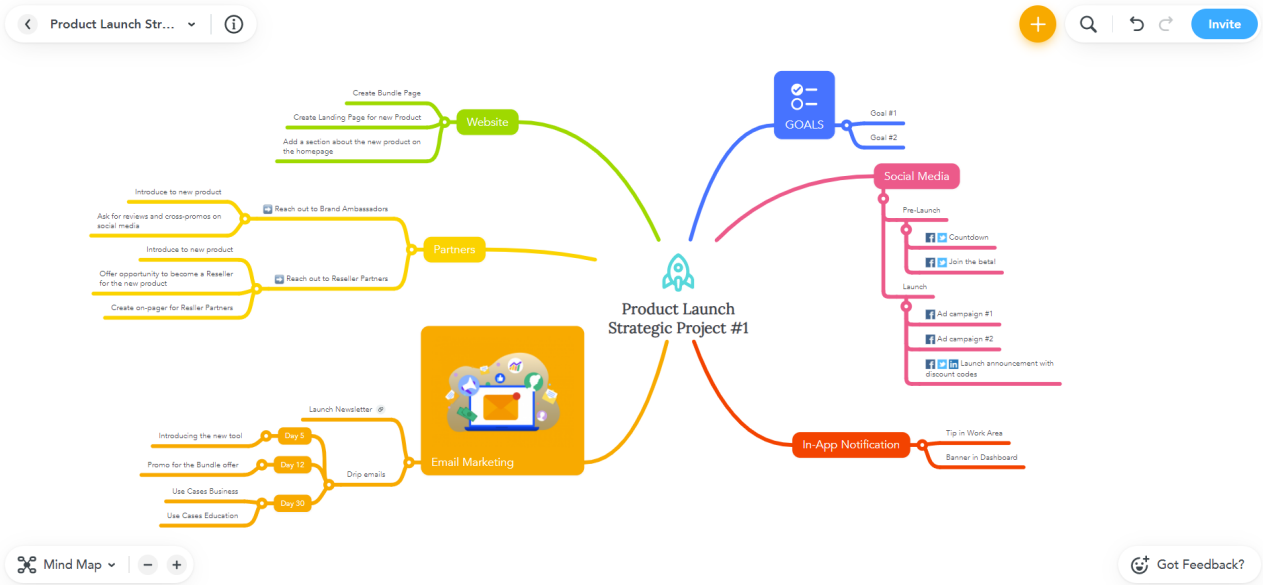

Figure App 2: Illustration of Mind Map (MindMeister, 2024)

MicroSoft Suite, including:
MS Dictation converts words to text on a PC with built-in speech recognition;
MS Editor brings out a student's best writer, in more than 20 languages, using AI;
MS Maths Assistant solves any spoken maths equation, or displays the step-by-step instructions guiding students to reach the solution on their own;
MS TEAMS Live Captions with subtitles in various languages;
MS Windows Ease of Access Centre that enables students and teachers to configure devices that meet their specific needs;
MS Word's Immersive Reader is a reading support tool, embedded in MS Office 365 that not only read text aloud (called Text to Speech), but also improves the readability of information, making it easier for the reader to read (AHEAD, 2024);
Reading Coach within Immersive Reader provides students with personalised and independent practice, based on words that a student has mispronounced. By embedding Reading Coach in Immersive Reader, users can practice their fluency and pronunciation individually, with content that suits their interests (Microsoft Support, 2024).

MyStudyBar, a MS Windows based 'one-stop-shop' toolbar resource, is designed to support the complete study cycle from planning and structuring thoughts and ideas to support with reading and writing. It is designed to support learners with literacy-related difficulties such as dyslexia. MyStudyBar use colour overlays to aid concentration and overcome visual stress, uses text-to-speech and improves typing. The toolbar has 10 different apps and 6 shortcut links into 6 separate sections:

1) Planning includes **Xmind** mind mapping tool and **Stickies** online post-it notes;
2) Reading including the **T-bar** app (acting as a virtual coloured overlay on your screen to aid reading), **Vu-Bar** box for one line of text to appear at a time and **Overlay** pink tint over the whole screen;
3) Writing includes **Balabolka** purpose-build word processing text to speech app;
4) Typing including **LetMeType** word prediction app with topic specific dictionaries (for specific subjects) and **Rapid Typing** Touch Tying programme;
5) Voice opens Windows Speech Recognition, enabling users to speak to their PCs;
6) Vision opens System Font Size Changer, enabling customised Windows font type, size and colour settings (MyStudyBar, 2024).

Optical Character Recognition (OCR) converts a camera image of a textbook page into a text rich word document. It can read out the text in an image via the Immersive Reader (AHEAD, 2024).

Pomodoro Tracker is a time management tool used as a valuable ally in accomplishing what we want to do in the way we want to do it and enables students to improve continually the way they work or study (Pomodoro Tracker, 2024).

Read & Write Gold app, provided by texthelp.com supports the development of written English including tense corrections, word prediction and advanced spell checker (Jacobs, 2021). Its features include text-to-speech with read-along highlighting, dictionary clarifying words or showing pictures, vocab list with student's own glossary and check-it for spellings, grammar and confusable errors (Read & Write Gold, 2024).

ReciteMe is an accessibility software and solutions provider that offers a range and innovative suite of on-demand accessibility tools that make websites accessible and inclusive for a diverse range of people online. It's "Assistive Toolbar" on top of each software (e.g. Moodle) caters for text-to-speech, downloadable text file, adjusted font/ colour, text-mode, inbuilt dictionary, dyslexic ruler, screen mask & magnifying glass (ReciteMe, 2024).

Appendix 3: Questionnaire for Support Staff

Q1. What **mechanisms** exist for students to make your college aware of their dyslexia? Tick those that apply.

- [ ] CAO DARE Supplemental Information Form forwarded to student's selected colleges
- [ ] Disclosure provided by students, upon their registration in college
- [ ] Disclose (in person, via e-mail or on a call) to the Disability/Access Office
- [ ] Disclosure to the student's lecturers/tutors
- [ ] Other...

Q2a) What **percentage of <u>all</u> students** are registered with disability supports? *

1. 1-5%
2. 6-10%
3. 11-15%
4. 16-20%
5. 21-25%
6. 26-30%
7. 31-35%
8. 36-40%
9. 41-45%
10. 46-50%
11. 51-60%
12. 61-70%
13. 71-80%
14. 81-90%
15. 91-100%

Q2b) What percentage, of those registered, have the following disabilities? *

	1-10%	11-20%	21-30%	31-40%	41-50%	51-60%	61-70%	71-80%	81-90%	91-100%
Dyslexia	○	○	○	○	○	○	○	○	○	○
Autism...	○	○	○	○	○	○	○	○	○	○
ADHD	○	○	○	○	○	○	○	○	○	○
DCD/D...	○	○	○	○	○	○	○	○	○	○
Dyscal...	○	○	○	○	○	○	○	○	○	○
Other	○	○	○	○	○	○	○	○	○	○

Q3. What **supports** does your college provide students with learning difficulties? Tick those that apply. *

- [ ] Priority registration, where confidential disclosure is facilitated
- [ ] Assistive technology equipment (laptops/tablets, C-Pen readers, LiveScribe Smartpens)
- [ ] Apps like Read & Write Gold, Inspiration, Mindmeister, Dragon Naturally Speaking
- [ ] Classmate(s) employed to take notes for student in-class
- [ ] Reader/scribe/proof-reader assists with exam or assignments
- [ ] Advanced copy of lecturer's notes
- [ ] Lecture recordings
- [ ] Alternative induction programme
- [ ] Study skills, including help in writing essays and in research techniques
- [ ] Time-management, help with timetables, assignment deadline and exam preparation
- [ ] Review of assignments and exams requirement
- [ ] Financial & grant assistance for educational supports

- [ ] Reduced cost printing/copying/no library charges
- [ ] Assistance with departments (e.g. exams offices, admissions, libraries, IT)
- [ ] Special Library services e.g. audiobooks, electronic textbooks, accessible material
- [ ] Magnifiers or provision of material in large print
- [ ] Other...

Q4a) What **exam accommodations** are given? Tick those that apply. *

- [ ] Time extension on assignments, essays, fieldwork, projects etc.
- [ ] Spelling and grammar exemptions
- [ ] Use of a laptop or readers/scribes to record exam answers
- [ ] Quiet room
- [ ] Extra time in exams for poor reading and writing speeds (see next sub-question)
- [ ] Other...

Q4b) If **extra time** is given, what is the **maximum** time given **per hour**? *
Tick the option that applies.

- [ ] 0-5 minutes
- [ ] 6-10 minutes
- [ ] 11-15 minutes
- [ ] 16-20 minutes
- [ ] 21-25 minutes
- [ ] 26-30 minutes
- [ ] 31-35 minutes
- [ ] 36-40 minutes
- [ ] Other...

Q5a) How does the college **approach** students they believe are dyslexic but are **undisclosed**? Tick those that apply. *

- [ ] Lecturer permitted to encourage student to disclose difficulties to disability support
- [ ] Disability support contact student to encourage them to avail of services/exemptions
- [ ] Leave it to student to take the initiative to disclose concerns or diagnosis report
- [ ] Other...

Q5b) Do you think the college could do more in this regard? If so, how? *

Long answer text

Q6a) What **assessment structures** are in place to suit dyslexic students? Tick those that apply. *

- [ ] Multimodal Universal Design for Learning and visual displays are used, if possible
- [ ] Assessments are scrutinised for clear/simple instructions, with dyslexia in mind
- [ ] Readers/Scribes assist with conveying exam answers
- [ ] Specific accessibility checkers required in assessments (e.g. fonts, size, colour etc.)
- [ ] Other...

Q6b) Do you think the college could do more in this regard? If so, how? *

Long answer text

Q7a) How do you anticipate supports will **change** in the next 5 years, as technology advances? Tick the option that best applies. *

- ( ) The college doesn't anticipate progress to be made in supporting dyslexic students
- ( ) Limited advances will take place to improve the experience of dyslexic students
- ( ) Technology will radically change the learning experience of dyslexic students

Q7b) What changes could be put in place for the college to **better support** dyslexic students (answer in order of preference (first, second, etc.))? *

	First preference	Second prefere...	Third preference	Forth preference	Fifth Preference
Campus-wide availability of assistive technology apps such as text-to-speech, speech-to-text, grammar-checkers, mind-mapping tools	○	○	○	○	○
More staff allocated to disability support services, to encourage disclosure	○	○	○	○	○
Increased funding paid DIRECTLY to college who purchase technology/supports	○	○	○	○	○
Increased funding paid DIRECTLY to students for them to purchase technology/supports	○	○	○	○	○
Invest in a more generic Universal Design approach to teaching suiting all type learners e.g. visual displays, plain English, large font	○	○	○	○	○

Q7c) In your opinion, is there any further support that, Higher Education Institutions, can offer neurodiverse students? *

Long answer text

Q8a) What is the general **performance** of neurodivergent* students relative to neurotypical students, from an **academic** viewpoint? Tick the option that best applies. *

* Neurodivergent incorporates Dyslexia, Dyspraxia, Dyscalculia, Development Language Disorder, Autism Spectrum Disorder, ADHD, Tic Disorder/Tourette's Syndrome and Intellectual Disability

- ○ Neurodivergent students perform LESS compare to others
- ○ Neurodivergent students are AT PAR with neurotypical students
- ○ Neurodivergent students perform BETTER than neurotypical students
- ○ The college does NOT monitor specific academic performance of neurodivergent students

Q8b) What is the **performance** of neurodivergent students relative to neurotypical students, from a **non-academic** viewpoint? Tick the option that best applies. *

- ○ Neurodivergent students perform LESS compare to others
- ○ Neurodivergent students are AT PAR with neurotypical students
- ○ Neurodivergent students perform BETTER than neurotypical students
- ○ The college does NOT monitor specific non-academic performance of neurodivergent students

9. Is there any further comments you would like to make? *

Long answer text

Figure App 3: Google Forms Questionnaire for Support Staff

Appendix 4: Questionnaire for Past Students

Q1) What **mechanisms** did you use to disclose your dyslexia diagnosis: **(tick (√) those that apply)**

1. CAO DARE Supplemental Information Form
2. Disclosure by you, upon registration at college
3. Disclose (in person, via e-mail or on a call) to the Disability/Access Office
4. Disclosure to your lecturer/tutor
5. Did not disclose your diagnosis at college

Q2) What diagnosis did you disclose on registering with support services?**(tick (√) those applicable)**

- [ ] Dyslexia
- [ ] ASD
- [ ] ADHD
- [ ] DCD
- [ ] Dyscalculia
- [ ] Others
- [ ] Did not disclose any condition

Q3) What **supports** were available & what you received in college? **Tick (√) if 'Available in College' or where you 'Received this Support'.**

	Available in College	You received this Support
Priority registration, where confid...	○	○
Assistive tech equipment (laptop...	○	○
Apps e.g. Read&Write Gold, Inspir...	○	○
Classmate(s) were employed to t...	○	○
Reader/scribe/proof-reader assis...	○	○

Advanced copy of lecturer's notes	○	○
Lecture recordings	○	○
Alternative induction programme	○	○
Study Skills, including help in writ...	○	○
Time-management, help with tim...	○	○
Review of assignments and exa...	○	○
Financial & Grant Assistance for ...	○	○
Reduced cost printing/copying a...	○	○
Assistance with departments (e....	○	○
Special Library services e.g. audi...	○	○
Magnifiers or provision of materi...	○	○
Didn't disclose condition so could...	○	○
Other	○	○

Q4a) What **exam accommodations** were you given: **(tick those applicable, where stated(√))**:

- ☐ Time extension on your assignments, essays, fieldwork, projects etc.
- ☐ Spelling and grammar exemptions
- ☐ Use of a laptop or Readers/Scribes to record exam answers
- ☐ Quiet rooms
- ☐ Extra time in your exams - See below
- ☐ Other...

Q4b) Maximum extra time allowed **in minutes,** per hour of exam *

Short answer text

Q5a) How do colleges approach students fearful of disclosing their diagnosis? **(tick (√) options)**:

- [ ] Lecturers encourage student to disclose their difficulties to disability support
- [ ] Disability support contact student to encourage them to avail of services/exemptions
- [ ] Colleges leave it to student to take the initiative to disclose concerns/diagnosis
- [ ] Other...

Q5b) Do you think the college could do more in this regard? How? *

Long answer text

Q6) Why would you (and others) be fearful of disclosing your dyslexia diagnosis to the college? **(tick (√) on options)**:

- [ ] Dyslexia supports appeared to be generic and not on an individual need basis
- [ ] A desire for independence
- [ ] Perceived stigma associated with support services after disclosing condition
- [ ] Other...

Q7a) What assessment structure, do you believe better suits dyslexic students? **Tick (√) on options)**: *

- [ ] Multimodal Universal Design for Learning and visual displays are used, if possible
- [ ] Assessments are scrutinised for clear/simple instructions, with dyslexia in mind
- [ ] Readers/Scribes assist with conveying exam answers
- [ ] Other...

Q7b) Do you think the college could do more in this regard? How?

Long answer text

Q8a) How would you rate the level of supports provided by Disability Support? **(tick (√) an option)**: *

1. Very disappointed with level of support provided
2. Expected somewhat more support
3. Overall satisfied with level of support
4. Very pleased with support received
5. Extremely happy at level of disability support provided by the college?

Q8b) What would you like to see change, such as what additional supports should be offered? *

Long answer text

Q9a) How do you think teaching neurodivergent* students has changed since the Covid pandemic? *

* Neurodivergent incorporates Dyslexia, Dyspraxia, Dyscalculia, Development Language Disorder, Autism Spectrum Disorder, ADHD, Tic Disorder/Tourette's Syndrome and Intellectual Disability

1. You see an increased gap between neurodiverse & neurotypical students
2. You see missed opportunities to make progress, advancing teaching methods
3. You see significant progress in Universal Design multimodal teaching since

Q9b) How do you anticipate supports will change in the next 5 years, as technology advances? **(Tick (√) on option)**: *

1. You do not anticipate progress to be made in supporting dyslexic students
2. Limited advances will take place to improve the experience of dyslexic students
3. Technology will radically change the learning experience of dyslexic students

Q9c) What changes could be put in place for the college to better support dyslexic students? *

Long answer text

Q10a) Did you take an active role in college life or did dyslexia hamper you in any way?

- [ ] Participated in clubs and societies, including any neurodiverse clubs
- [ ] Completed a courses studying disabilities, in college
- [ ] Part of a community connections program offering peer-to-peer supports
- [ ] Resided in residential accommodation that was allocated to those with disabilities
- [ ] Didn't participate as you felt dyslexia (or other condition) hampered you?
- [ ] Other...

Q10b) Did other students, you know with dyslexia, share the same view as you? Please explain. *

Long answer text

Figure App 4: Google Forms Questionnaire for Past Students

Appendix 5: Links to Supports from Various Irish Higher Education Institutions

Organisations providing Guidance on Accessing Supports in College

Organisation	
AHEAD	https://www.ahead.ie/commonsupports
Dyslexia Association of Ireland	https://dyslexia.ie/info-hub/reasonable-accommodations-in-college-and-further-education/
Careers Portal	https://careersportal.ie/disability
AsIAm Autism Charity	https://asiam.ie/accessing-supports-in-higher-education/

Public Funded Colleges:

University/College	Disability Page
Atlantic Technology University	https://www.itsligo.ie/student-hub/access-office/students-with-dyslexia/
Dublin City University	https://www.dcu.ie/disability/learning-barriers-accommodations https://www.dcu.ie/disability/exam-supports https://www.dcu.ie/disability/disability-learning-support-service-spelling-grammar-waiver
Institute of Art, Design and Technology (IADT) Dun Laoghaire	https://iadt.ie/services/institute-student-services/disability-support-services/ https://iadt.ie/services/institute-student-services/learning-supports/
Dundalk Institute of Technology	https://www.dkit.ie/student-life/student-services/disability-services-and-support.html
Mary Immaculate College	https://www.mic.ul.ie/study-at-mic/access-disability?index=0
Maynooth University	https://www.maynoothuniversity.ie/access-office/staff-support/inclusive-teaching/SLD
Munster Technological University	https://www.mycit.ie/access_disability/disability-support-service/dss-handbook
National College of Art & Design	https://www.ncad.ie/students/support-services/learning-advice/
RCSI University of Medicine & Health Sciences	https://www.rcsi.com/equality-diversity-and-inclusion/implementation/disability
Royal Irish Academy	https://www.riam.ie/riam-exams/exam-supports/special-needs
Technological University Dublin	https://www.tudublin.ie/for-students/student-services-and-support/student-wellbeing/disability-support-service/student-supports/
Tech University Shannon	https://tus.ie/access-services/midwest/disability-support/
Trinity College Dublin	https://www.tcd.ie/disability/information-for-teaching-and-professional-staff/disability-awareness-information/specific-learning-difficulties/
University College Cork	https://www.ucc.ie/en/access/support-while-in-ucc/disability-support/
University Cork Dublin	https://www.ucd.ie/t4cms/Managing%20Dyslexia.pdf
University of Galway	https://www.universityofgalway.ie/disability/staff-support/supporting-students/spld/#
University of Limerick	https://www.ul.ie/student-affairs/disability-services/staff-information-0

Private Colleges

CCT College Dublin	https://www.cct.ie/student-experience/disability-support/
Dublin Business School	https://www.dbs.ie/student-experience/disabilities-support
Dorset College	https://dorset.ie/wp-content/uploads/Support-for-Learners-QA-Manual-1.pdf
Galway Business School	https://www.galwaybusinessschool.ie/media/filer_public/59/2a/592a405a-5ef4-48ee-a39e-9f9014542332/support_for_learners_policy.pdf
Griffith College	https://www.griffith.ie/offices/student-supports/disability-learning-supports
Hibernia College	https://hiberniacollege.com/student-support/#:~:text=Disability%20Supports%20Services&text=The%20College's%20Reasonable%20Accommodation%20Policy,with%20the%20Student%20Support%20Officer.
National College of Ireland	https://www.ncirl.ie/Students/Student-Services/Support-Services/Disability-Support#:~:text=Educational%20needs%20assessment,library%20supports%2C%20personal%20assistants%20etc.

Table Appendix 5: Compilation of Organisations and College Support Website

Appendix 6: Study on Fields of Study for Students with Disabilities (Healy, 2023)

Healy (2023) suggests that the highest participation by dyslexic students is Business, Administration, and Law, at 18%. He added Dyslexic students are twice as likely to be enrolled in Agriculture, Forestry, Fisheries and Veterinary field of study (4.1%) compared with 1.7% overall of the total student population. Furthermore, Dyslexic students are significantly more likely to be enrolled in Engineering, Manufacturing and Construction (15.7%) relative to students overall at 11.7% (Healy, 2023, p. 57).

Specific Learning Difficulty

Table 10 - Breakdown by field of study for students in the Specific Learning Difficulty Category compared to the breakdown by field of study for all students with disabilities (SWD) and for the student population in general.

32.8% of all SWDs are in Specific Learning Difficulty Category	% of Total Students Studying Field	% of Total SWD Studying Field	Numbers in Specific Learning Difficulty Category Studying Field	% of Students in Specific Learning Difficulty Category Studying Field	% of SWDs Studying Field in Specific Learning Difficulty Category
Generic programmes and qualifications	0.7%	0.3%	14	**0.2%**	29.2%
Education	6.9%	5.3%	443	6.1%	46.0%
Arts and humanities	13.9%	20.2%	1091	15.1%	29.9%
Social sciences, journalism and information	6.4%	9.5%	598	8.3%	35.0%
Business, administration and law	20.6%	16.1%	1300	**18.0%**	44.7%
Natural sciences, mathematics and statistics	10.3%	12.8%	743	10.3%	32.0%
Information and Communication Technologies (ICTs)	6.2%	5.6%	288	4.0%	28.5%
Engineering, manufacturing and construction	11.7%	10.1%	1131	**15.7%**	57.8%
Agriculture, forestry, fisheries and veterinary	1.7%	2.9%	297	4.1%	56.4%
Health and welfare	17.5%	14.2%	1059	14.7%	41.4%
Services	4.1%	2.3%	240	**3.3%**	57.6%
Total			7,204	100.0%	

Figure App 6: Breakdown by field of study for students with SLD such as Dyslexia (Healy, 2023)

Appendix 7: Tertiary Education Commission's (2001) Positive Characteristics

1. Dyslexia support as part of a supportive wider environment, where legislation and reporting explaining the condition, leads to an increased participation; One student (n=1) described negative stereotyping from academic staff when requesting additional time for an assignment, which they perceived as an inconvenience to the lecturer. Another student (n=1) described the lack of a study area, they described as a "*glorified storage area with a desk, that doubled up as a library*". Cultural differences in institutions' approach to students with disabilities was apparent. Overall, 100% (n=5) of students were pleased with the efforts of support staff, but 60% (n=3) were somewhat negative on academic staff, who they felt needed more training and interaction with those registered for support, especially around assessment.
2. Free flowing quality info about dyslexia, where all understand and accept dyslexia as impeding learning and requiring assistance e.g. student handbooks; It was apparent that budgets (often linked with students population size and college priorities), impacted the flow of information. Notably, 40% (n=2) of respondents noted their college, had limited promotion of available supports, available upon request from learning support, while other colleges "tapped-into" external sourced information online and some had ample provision of support and guidance.
3. Holistic response to dyslexia from centralised leadership down regarding policies governing how the organisation responds to dyslexia, requiring knowledge, intervention, and accountability from staff; One college (n=1) from the list of colleges (n=15), indicated "the norm" of provided lecture recordings to all students registered with a disability. In contrast, another college (n=1) puts no obligation on academic staff to record lectures, despite facilities being available to record, citing students were encouraged, instead, "*to turn-up in person to lectures*".
4. Dyslexia support for dyslexia is visible and upfront and easy to access; An estimated 60% (n=9) of institutions' handbooks and access offices, had pictures of visible supports available on-campuses and college websites, including "quiet hubs, study areas, simple guidance on processes and accessible signage, possibly explaining a higher uptake of support in those institutions;

5. Impact of assistive technology and other supports to level the playing field for dyslexic learners e.g. campus-wide Dragon Naturally Speaking, Read & Write; Research findings indicated that budgets within larger institutions permitted more widespread availability of assistive technology and adherence to legislation. One student (n=1) described "having access to the latest technology to help support them", including mind-mapping apps and a "Read and Write Gold app targeted at dyslexic students. At the other extreme, another students (n=1) described "*Blanketed supports*" that were universal in nature, positively impacting all students, such as learning objectives, outlined throughout the course, but "*a lack of targeted supports for neurodivergent students who, for example, struggle to present in class or write-up assessment answers".*
6. Active partnerships with external organisations, like British Dyslexia Association and **signing up to UK Special Educational Needs and Disability" ("SEND") Code of Practice, National Dyslexia Friendly Quality Marks, Dyslexia Smart award etc.,** designed to promote good practice supporting dyslexics & heighten awareness; From research gathered, support staff (n=15) made no reference to partnerships with dyslexia groups or associations, or to any Quality Marks (even to UK standards).
7. Research leads to improved knowledge and understanding e.g. Birmingham City University, have a profile of providing quality tuition for dyslexic students; One support staff member (n=1) referred to Autism friendly campuses. These include DCU, Atlantic Technological University, the National College of Ireland and the National College of Art and Design. However, despite supports and courses studying dyslexia within these institutions, there was no evidence of dyslexia friendly campuses, despite dyslexia being more prevalent amongst students with disabilities in Ireland. The aforementioned UK Complete University Guide (2024), attempts to provide a pan-sectoral document about university studies for dyslexic learners.

Table Appendix 7a: Tertiary Education Commission Positive Practices for Higher Education Organisations

One could argue initiatives need to come from government and agencies, like the Dyslexia Association, rather than expecting education institutions, to drive change. Comparing "Positive Practices from government" to the Irish context, it is noted:

1. Strong sign-posting role by the UK government for learners to access quality plain English info including how to navigate their way around available services e.g. NHS signposting of supports assessments and diagnosis, well before college entry. Ireland has a general scarcity of information for dyslexic learners provided by the state, outside of the Dyslexic Association of Ireland.
2. Collaboration and funding contracts with government delegating authority to advise on dyslexic supports to national dyslexia associations. Department of Higher Education provides funding to Dyslexia Association of Ireland, to provide supports to dyslexic students to access education (Oireachtas, 2022, p. 7);
3. Govt accept dyslexia is a "whole life" condition, not just affecting children; In Ireland, there is scarce detail, on how to obtain a referral for assessment. Reference points are sourced from the NHS and US National Institute of Health;
4. Education agencies are responsible for learner financial support funding - UK Education Ministry's "Disabled Student Allowance" (DSA)" is paid directly to students to fund equipment, non-medical help, transport etc. Higher Education Authority (HEA) manages the "Fund for Students with Disabilities (FSD), paid to institutions, to provide assistance and equipment to students with disabilities;
5. UK Govt agencies adopt the "SEND" Code of practice and Web Content Accessibility Guidelines, allowing for "read aloud", "text magnification" etc. Ireland's "Code of Practice on Accessibility of Public Service" supports public bodies fulfil their statutory obligations under the Disability Act 2005 (NDA, 2005) and must comply with EU Web Accessibility guidelines (NDA, 2021)
6. Scholarship grants for research into dyslexia establishes a knowledge base and quantum of research expertise to move the field forward e.g. Oxford University. This is evident, to a smaller scale in Ireland, as seen in Chapter 2.
7. Government agencies publish data about disabilities, on the basis that what gets measured, gets addressed (Tertiary Education Commission, 2001, pp. 6-14). Ireland's limited data on higher education disability, is largely AHEAD's research.

Table Appendix 7b: Tertiary Education Commission (2001) Positive Practices for Government

Appendix 8: Best Practice Countries for Students with Learning Disabilities

The UNESCO report found, across the countries examined, that:

1. Canada had no **Special Education National Law** to provide access to special education for individuals with disabilities (Wong & Hutchinson, 2001), despite having the Canadian Charter of Rights and Freedoms (1982), an anti-discrimination bill, to ensure that the civil rights of individuals with disabilities are protected. **Regarding learning disabilities,** Canada recognises learning disability, but it is largely dealt with, by provinces, who recognise the LDAC (2016) definition, which refers to "Learning Disabilities as a number of disorders which may affect the acquisition, organisation, retention, understanding or use of verbal or nonverbal information. The push to examine the effectiveness of classroom instruction and students' response to instruction, parallels the growing use of Response to Intervention in the U.S. **Supports and interventions** include inclusive settings, differentiated instruction, assistive technology and direct, corrective social and behavioural skill-building instructions. Separately, Dyslexia Canada (2024) provides higher education dyslexic students with financial assistance by way of grants and scholarships, arranges community connections programs offering peer-to-peer supports and accommodations such as providing extra time for reading and writing and gives students assisted technology such as speech-to-text software to help with writing.

2. Denmark's special education law, the Folkeskole (Amendment) Act, 2012, defines the goals of an inclusive institution, which provide guidelines on how to meet the diverse educational needs of students and on how to differentiate and individualise instruction based on students' needs. **Regarding learning disabilities**, the Ministry of Education recently developed a web-based dyslexia test (Poulsen, Elbro, Møller, Juul, Petersen, Arnbak, 2016) for students, so individuals can access supports (Nobelius & Tidemann, 2015). Experts from the Pedagogical Psychological Counselling Service investigate the nature of the student's needs and offer suggestions (Jandorf et al., 2004). **Supports and interventions** include instructional supports, teaching materials and instructional technology needed by students.

3. Germany's 1994 Recommendation on Special Education Law suggests "Special needs education relating to development is to provide for children and adults with disabilities or who have limited possibilities for education, development and learning" (EASNIE, Germany, 2018, para. 43). **Regarding learning disabilities and dyslexia in Germany**, they provide education supports for students with specific disabilities, students experiencing temporary learning difficulties including reading and writing difficulties are eligible (EASNIE, Country Information for Germany, 2018). **Regarding a definition and identification of dyslexia**, the Federal Association for Dyslexia and Dyscalculia references the World Health Organisation (2005) definition of a specific reading disorder as a significant impairment of reading skills as compared with the expected reading level based on the child's age, grade placement, and general intelligence. Diagnostic assessments may be conducted by psychiatrists, psychotherapists, school psychologists, or teachers (WHO, 2005). **Supports and interventions** emphasise inclusive teaching, where cooperative instruction and collaboration amongst education and support staff is common.

4. Netherlands" special education laws recognised the need for increased integration of students with special needs. The Inclusive Education Act of 2014, requires institutions to provide adequate education for every student regardless of educational needs and support required (EASNIE, Netherlands, 2018). Regarding the **definition and identification of dyslexia**, the Committee on Dyslexia of the Health Council of the Netherlands define dyslexia as being "... present when reading and/or word spelling does not develop or does so with great difficulty" They add the impact on reading accuracy and fluency in individuals who meet this definition of dyslexia is "severe and persistent and resists the usual teaching methods and remedial efforts". **Regarding learning disabilities,** funding for remedial support and the statutory order on final exams provides accommodations, such as extended time, although these provisions within the law are interpreted differently depending on the institution (van den Bos, 2004). **Regarding supports and interventions,** these include both institution-based remediation and speech and language therapists and educational psychologist specialist treatment (Committee on Dyslexia, 1995). The Committee report emphasised the use of scientifically-based approaches along with the need for high quality research that identifies additional models and treatment approaches (Gersons-Wolfensberger & Ruijssenaars, 1997, p. 209).

5) UK Special Education law indicate the “Special Educational Needs and Disability Act (2001) prevented discrimination against students or prospective students with disabilities (Smith et al., 2014). **Regarding the definition and identification**, when the term learning disability is used in the context of education services, it refers to individuals who have specific learning difficulties but do not have significant impairments in intelligence (Emerson & Heslop, 2010). The Rose Report (2009), used by the British Dyslexia Association, provides this definition of dyslexia, as defined in Appendix 1 above, specifying dyslexia occurs across the range of intellectual abilities”. **Regarding supports and interventions,** the Special Education Needs coordinator leads the team in the collection of information regarding the student’s needs (Smith et al., 2014). The British Dyslexia Association Dyslexia Friendly Quality Mark, is seen as “an external sign of approval, seen as a positive statement to learners, parents, staff and stakeholders that an organisation is a place in which dyslexic individuals can thrive” (Dyslexia Association of Ireland, 2024).

Outside of UNESCO’s report, Special Education Law in Australia’s Disability Discrimination Act (1992) defines “Specific learning disability” as “a disorder or malfunction that results in the person learning differently from a person without the disorder or malfunction”. **Regarding the definition**, the tertiary education sector interprets the law to mean people with specific learning disabilities were eligible for academic assistance through organisations disability support programs. Government funded Australian Disability Clearinghouse on Education and Training (“ADCET”) provides guidance for practitioners dealing with students with learning difficulties (Australia Disability Clearinghouse on Education and Training, 2024).

In **New Zealand**, AKO AoteAroa (2024)’s tertiary education sector organisation provides guidance for teachers on how to support dyslexic learners, including proof-reading support, presenting material in multi-modal form and using mind maps. They introduced the Dyslexic-friendly Quality Mark (DFQM), in collaborated with the Tertiary Education Commission, “designed to encourage more inclusive environments for those with dyslexia. The accreditation process will take four areas into account; management, the quality of teaching, the learning environment and the organisation’s relationship with stakeholders (AKO AoteAroa, 2024).

Appendix 9: Table on Research Paradigms - adapted from Denscombe (2021)

Research Paradigm	Aim	Methods	Data	Example of different approaches to the study
Positivist	DISCOVER facts that reveal general patterns, rules and regularities that exist in the real world.	Rigorous measurement of variables using experiments, systematic observation and representative sampling.	Quantitative	A focus on the extent of students that register with support services. In addition, there is a focus on what disabilities exist and what supports or accommodations are available within higher education institutions.
Post-positivist	EXPLAIN the underlying causes/probable consequences of things that shape the social world.	Use of empirical data and statistical analysis to inform and check theories about the social world.	Quantitative (Supplemented with qualitative)	A focus on the causes and consequences of different supports and accommodations, including views of support staff and past students.
Interpretivist	UNDERSTAND the ways in which people construct their social worlds through interaction, communication and perception.	Use of methods such as interviews, observation and documentary sources to interpret interactions, attitudes, feelings and experiences.	Qualitative (Supplemented with quantitative)	A focus on the expectations and views of students and support staff, drawn from their respective questionnaires and looking at how both interact with each other.
Pragmatist	Focus on finding solutions to specific PRACTICAL problems.	Use of the strategies and methods that are found to work best in practice.	Quantitative or qualitative or mixed methods	A focus on how to tackle the problem of funding supports. Quantitative data was drawn from statistics combined with qualitative data from questionnaires. Looking for practical solutions to achieve equality and equity for students, such as supports and accommodations.
Transformative	CHANGE the situation to empower disadvantaged groups. Critical of the status quo.	Use of methods that enable research to work as a tool to change things for the better, including participatory methods.	Quantitative or qualitative or mixed methods	A focus on enhancing the standardisation of support provided to this cohort of student across Higher Education Institutions. Data may be drawn from research already conducted and questionnaires, to identify key issues.

Table Appendix 8: Research Paradigms tailored to this Research (Adapted from Denscombe 2021)[Denscombe (2021)]

Appendix 10: Application of Ethical Principles from Hammersley & Traianou (2012)

Principle	Ethical Description	What ethical issues could arise in this research project?
Minimising Harm	Is a research strategy likely to cause harm, how serious is this, and is there any way in which it could be justified or excused? Note that harm could include consequences for the people being studied (financial, reputational, etc.) and for any researchers investigating the same setting or people in the future.	Participants in this study evaluated supports for higher education students with disabilities across institutions. Caution was exercised with any personal detail used, ensuring none is identifiable to the individual or institution. Safeguards were put in place to minimise any risk. According to BERA, it is necessary for researchers to consider the time and effort required to participate in research and communicate this to their participants, to manage their expectations. Researchers should consider the impact on participants' lives and workloads (British Educational Research Association, 2018). In this study, evaluating supports can be time-consuming as the support staff needs to consider what supports are available and are availed of.
Respecting Autonomy	Does the research process show respect for people, in the sense of allowing them to make decisions for themselves, notably about whether to participate? This principle is often seen as ruling out any kind of deception.	Support staff and past students had to complete an informed consent form, stating their willingness to participate in the research. According to Cohen, Manion and Morrison (2018), the principle of informed consent arises from the participant's right to freedom, and when there are restrictions on that freedom, they must be justified and consented to, as part of the research. Consent protects and respects this right and places some responsibility on the participant, should anything go wrong in the research. The subject can refuse to participate or withdraw once the research has begun (Cohen *et al.*, 2018).
Protecting Privacy	A central feature of research is to make matters public, to provide descriptions and explanations. What does it mean to keep data confidential, and is this always possible or desirable?	In this research project, it was not necessary to provide demographics that could potentially identify individuals (e.g. names, ages, addresses etc;) as this is not relevant to the study. Bryman *et al.*, (2021) state that individuals' identities and records should be kept confidential, even beyond when findings are published**.** Participants should be anonymised within research reports.

Offering Reciprocity	Researchers depend upon being allowed access to data, and this may involve people cooperating in various ways; for example, to fill in a questionnaire. The research process can also disrupt people's lives. Given this, what, if anything, can participants reasonably expect in return from researchers; and what should researchers offer them? Should informants in research be paid?	There was no financial incentive applicable to this research. The objective for this research project is to identify gaps in supports to students with disabilities, in higher education. The outcome was to provide input into recommendations, which will be shared with the institutions, after the research concludes. According to BERA, payment for participation in educational research is generally discouraged, not least because of the extra burden of cost, that the extension of this practice would place on the practice of research (British Educational Research Association, 2018).
Treating People Equitably	It may be argued that the various individuals and groups that a researcher comes into contact, within the course of research should be treated equally, in the sense that no one is unjustly favoured or discriminated against.	In this study, the aim is to ensure all participants have equity in accessing the same educational opportunities as their peers across the education system, so they can meet their potential, partly through Universal Design for Learning, but also by equitably providing supports and accommodations, where needed to students with disabilities.

Table Appendix 9: Ethical Principles tailored to research, adapted from Hammersley & Traianou (2012)