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Trinity disAbility Hub

TCD Sense
Think Sensory...

TCD Sense

Dr Kieran Lewis, Occupational Therapy Manager,
Trinity Disability Service, TCD Sense Project Lead

25/03/24

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Outline

1. Background
2. Research
3. Project Description
4. Resources
5. Discussion

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Introduction

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"The experience of being human is embedded in the sensory events of everyday life. When we observe how people live their lives, we discover that they characterize their experiences from a sensory point of view"

(Winnie Dunn, 2001, pp 608-609)

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Why is this important?

- Consistent reports from students of difficulty in managing the sensory environment of Trinity
- Increasing numbers of neurodivergent students connecting with student services
- College can be an overwhelming environment

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What is Sensory Processing?

- Sensory processing is the means by which individuals obtain information about the world and their own bodies (Brown, Steffen-Sanchez, Nicholson, 2019)
- Each of us has an individualised pattern of sensory processing (Dunn, 2007)
- For some individuals, sensory stimuli have a much more significant influence on their perception than others, making for a notably different experience of the world compared to other people whose perception is not as influenced by sensory stimuli.
- We all have different sensory needs that can change depending on neurotype, energy levels, mood, context, and mechanism of perception.

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Our Sensory Systems

Auditory

The auditory system is responsible for hearing and detecting sounds, sound frequency, sound loudness and interpreting language.

Visual

The visual system is responsible for seeing and detecting objects, shapes, colours, orientation and motion.

Tactile

The tactile system helps us process touch sensations from the body and detect light touch, deep pressure, texture, temperature, vibration and pain.

Proprioception

The proprioception system is responsible for sensing position, location, orientation and movement of the body muscles and joints. Detecting where our body parts are in space relative to other parts and how much effort we use to move our body parts.

Olfactory (smell)

The olfactory system is responsible for processing smell and detecting different odours, discriminating between odours, determining the importance of odours and signalling to the brain about their significance.

Vestibular

The vestibular system senses our balance and orientation in space. It informs us about the movement, rotation and position of our head relative to gravity. It influences our posture, head and eye movement and breathing.

Gustatory (Taste)

The Gustatory system is responsible for our sense of taste and detecting safe and harmful foods, and signalling when we need hydration.

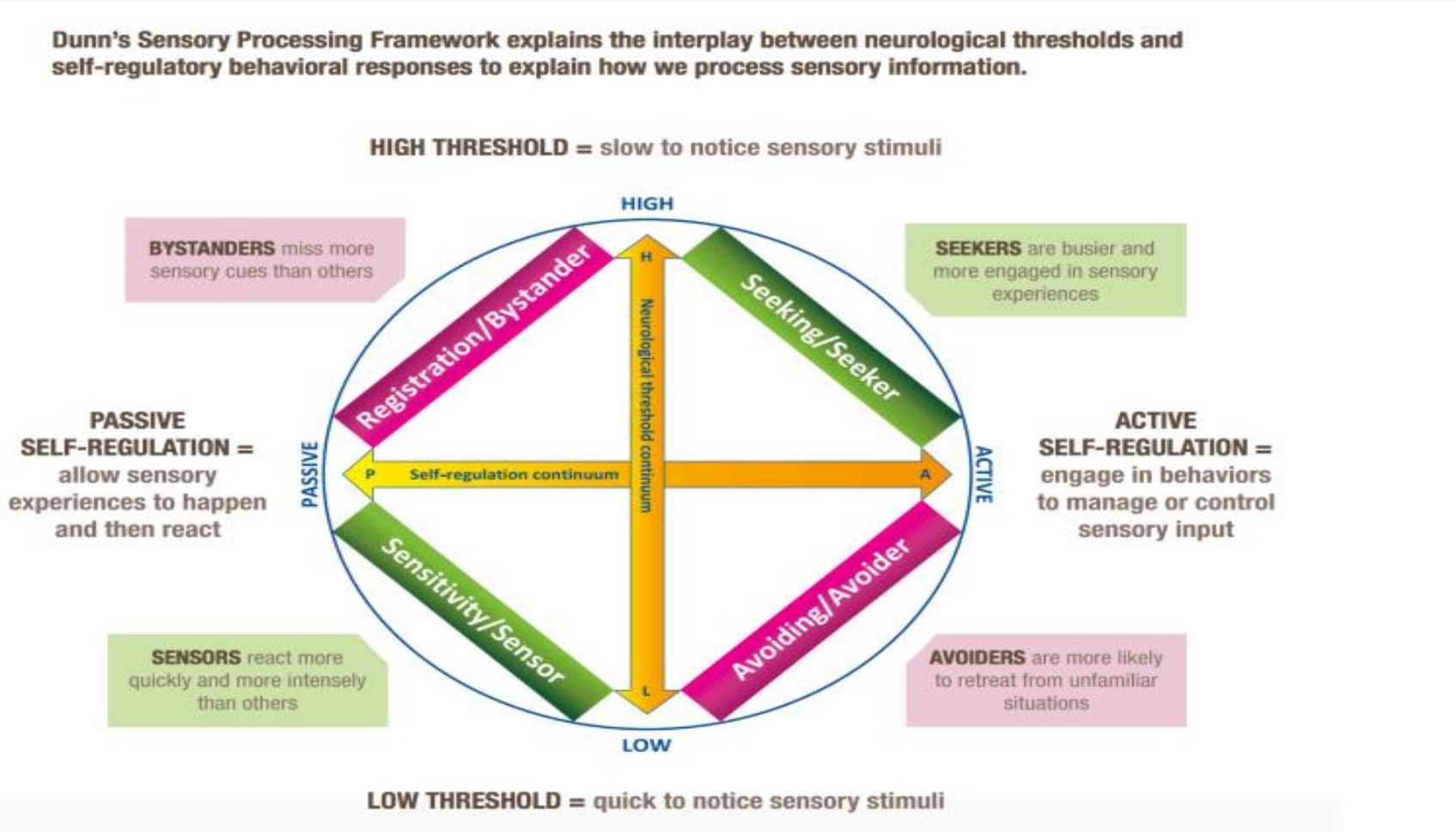
Interoception

Responsible for detecting and interpreting internal senses that inform us about our physiology and what our internal organs are feeling. Reports what is going on inside our bodies. Detects hunger, thirst, tiredness, nausea, heart rate, breathing and other bodily sensations..

Image - Jessica K Doyle, 2021

Dunn's Sensory Processing Framework (Dunn, 2014)

Dunn's Sensory Processing Framework explains the interplay between neurological thresholds and self-regulatory behavioral responses to explain how we process sensory information.



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Research

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Research

- Sensory environment of college can be a barrier to engaging in learning, socialising and activities of daily living and an overwhelming place to be (Johnson and Irving, 2008)
- Gearhart and Bodie (2012) identified that sensory processing sensitivity was related to college stress
- Students can experience a range of issues in managing the sensory environments of college and this can make it difficult to engage in the academic and social elements of college life (Clince, Connolly & Nolan, 2016).
- Thompson et al. (2019) maintain that Autistic students are likely to encounter many sensory challenges including loud or crowded environments and may require assistance in managing these effectively.

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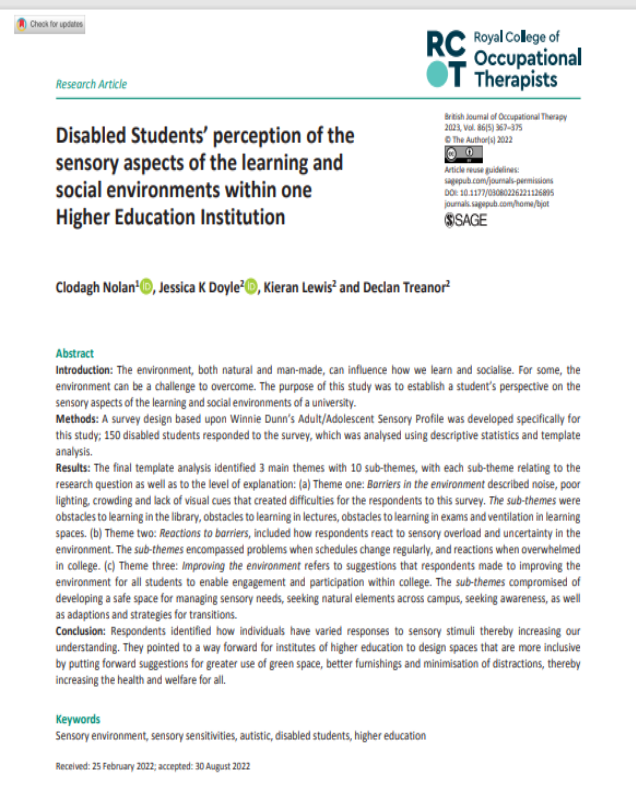
Nolan, C., Doyle, J.K., Lewis, K., & Treanor, D. (2023). Disabled Students' perception of the sensory aspects of the learning and social environments within one Higher Education Institution.



Check for updates

Royal College of Occupational Therapists

Research Article

Disabled Students' perception of the sensory aspects of the learning and social environments within one Higher Education Institution

British Journal of Occupational Therapy
2023, Vol. 86(5) 367–375
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Clodagh Nolan[1], Jessica K Doyle[2], Kieran Lewis[2] and Declan Treanor[2]

Abstract

Introduction: The environment, both natural and man-made, can influence how we learn and socialise. For some, the environment can be a challenge to overcome. The purpose of this study was to establish a student's perspective on the sensory aspects of the learning and social environments of a university.

Methods: A survey design based upon Winnie Dunn's Adult/Adolescent Sensory Profile was developed specifically for this study; 150 disabled students responded to the survey, which was analysed using descriptive statistics and template analysis.

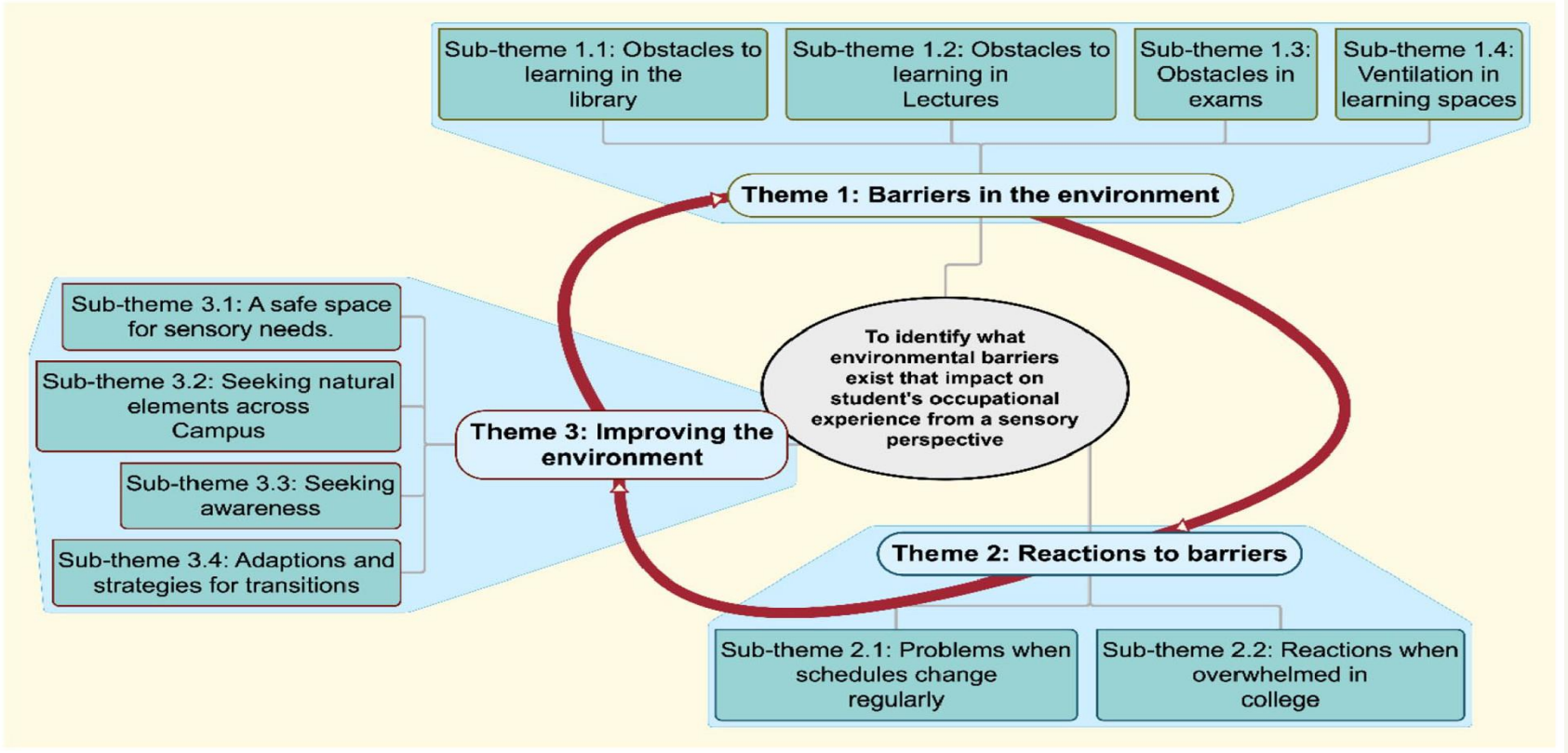
Results: The final template analysis identified 3 main themes with 10 sub-themes, with each sub-theme relating to the research question as well as to the level of explanation: (a) Theme one: *Barriers in the environment* described noise, poor lighting, crowding and lack of visual cues that created difficulties for the respondents to this survey. *The sub-themes* were obstacles to learning in the library, obstacles to learning in lectures, obstacles to learning in exams and ventilation in learning spaces. (b) Theme two: *Reactions to barriers*, included how respondents react to sensory overload and uncertainty in the environment. The *sub-themes* encompassed problems when schedules change regularly, and reactions when overwhelmed in college. (c) Theme three: *Improving the environment* refers to suggestions that respondents made to improving the environment for all students to enable engagement and participation within college. The *sub-themes* compromised of developing a safe space for managing sensory needs, seeking natural elements across campus, seeking awareness, as well as adaptions and strategies for transitions.

Conclusion: Respondents identified how individuals have varied responses to sensory stimuli thereby increasing our understanding. They pointed to a way forward for institutes of higher education to design spaces that are more inclusive by putting forward suggestions for greater use of green space, better furnishings and minimisation of distractions, thereby increasing the health and welfare for all.

Keywords

Sensory environment, sensory sensitivities, autistic, disabled students, higher education

Received: 25 February 2022; accepted: 30 August 2022



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Nolan, C., Doyle, J.K., Lewis, K., & Treanor, D. (2023). Disabled Students' perception of the sensory aspects of the learning and social environments within one Higher Education Institution.

May 2019: Survey of Disabled Trinity Students

- 68% reported that there is no quiet space on campus that they can access easily if feeling overwhelmed.
- Over 50% commented that they go home/leave campus if feeling overwhelmed.
- 93% would use a quiet space if it was available in the library.
- 49% reported difficulty with acoustics (e.g. noises, echoes, humming) in the library.
- 41% reported difficulty with acoustics in lectures.

2018 & 2019: Library UX Study & Library Survey & DS Sensory Audit

- Highlighted issues with wayfinding, lighting, noise, privacy, escape, heating and a lack of people to help

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TCD Sense Project

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Project Statement

The TCD Sense Project aims to make Trinity more inclusive by reviewing and improving new and existing spaces, building sensory awareness, and delivering specialist support to students and staff who experience barriers to managing and adapting to the sensory environments of college.

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Theoretical Underpinnings

- Dunn's Sensory Processing Framework (Dunn, 2014)
- Person Environment Occupation Model (Law et al, 1996)
- Universal Design Principles

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Key Principles

1. **Diverse Sensory Experiences**: Recognising that sensory experiences are unique to each individual, TCD Sense ensures that there isn't a one-size-fits-all approach. Instead, there are a variety of spaces created to cater to different sensory preferences and requirements.
2. **Inclusivity and Accessibility**: TCD Sense is built on the foundation of inclusivity. By considering various sensory needs, we aim to make spaces that are accessible and reflect the neurodiverse student and staff community here in Trinity.
3. **A Holistic Approach**: Trinity is a place where students and staff come to learn, work, socialise and relax. TCD Sense takes a holistic view of college life, by creating spaces for the broad range of activities that make up life here in Trinity.

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Key Principles

4. **Adaptive and Evolving:** As we learn more about sensory needs and gather feedback from the TCD community, TCD Sense will continue to evolve. Spaces might be adjusted, new spaces might be introduced, and old ones might be reimagined.

5. **Education and Awareness:** An integral part of TCD Sense is to raise awareness about the importance of sensory environments and how they impact well-being, learning, and daily functioning. It's about informing and educating the larger community on why these spaces matter.

6. **A Collaborative Effort:** TCD Sense is not an isolated initiative. It involves collaboration with students, faculty, and external experts to ensure the spaces created are genuinely beneficial.

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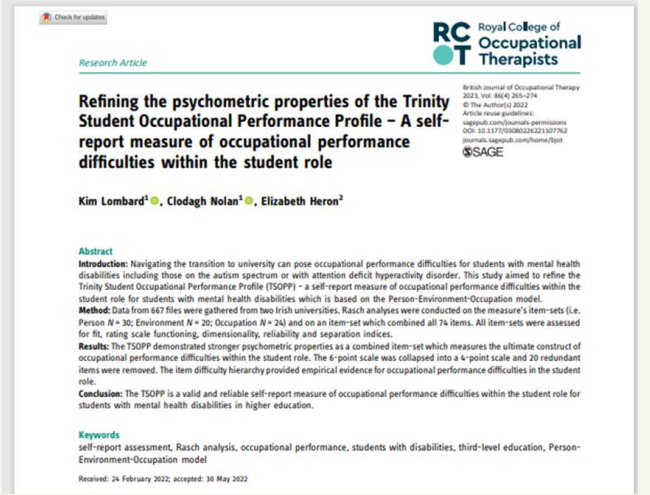
Project Structure

Strand One: Student Approaches with the Disability Service	**Strand Two: College Environment**
Strand Three: Awareness and Training	**Strand Four: Research**

Strand One – Approaches within the Disability Service

- Online resources – Beacons and Disability Service Website
- Sensory-based question included in Disability Service needs assessment process
- Occupational Therapy Process based upon Trinity Student Occupational Performance Profile (Lombard, Nolan, & Heron, 2022) Adolescent / Adult Sensory Profile (Brown and Dunn, 2002) & Sensory Environment Evaluation Tool (adapted with permission from Prof Winnie Dunn).
- Sensory Training delivered to Disability Service staff
- Sensory Tours for staff and students
- Noise Cancelling Headphones and headsets & sensory resources provided to students from needs assessment / OT process.
- Review of low distraction exam venues and purchase of suitable equipment



Research Article

Refining the psychometric properties of the Trinity Student Occupational Performance Profile – A self-report measure of occupational performance difficulties within the student role

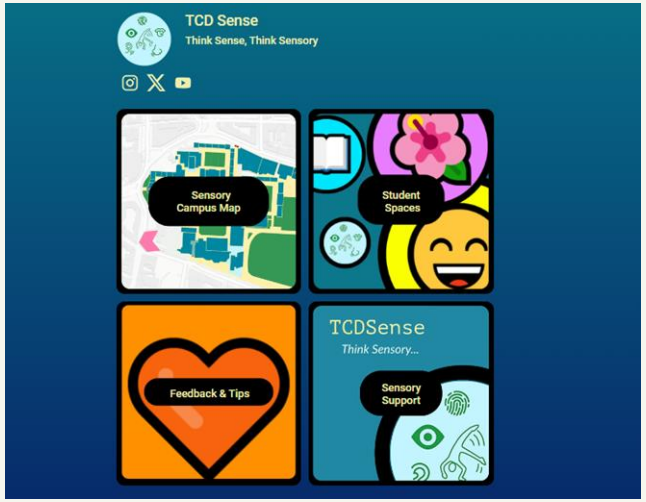
Kim Lombard, Clodagh Nolan, Elizabeth Heron

Abstract

Introduction: Navigating the transition to university can pose occupational performance difficulties for students with mental health disabilities including those on the autism spectrum or with attention deficit hyperactivity disorder. This study aimed to refine the Trinity Student Occupational Performance Profile (TSOPP) – a self-report measure of occupational performance difficulties within the student role for students with mental health disabilities which is based on the Person-Environment-Occupation model.
Method: Data from 667 files were gathered from two Irish universities. Rasch analyses were conducted on the measure's item-sets (i.e. Person N = 30; Environment N = 20; Occupation N = 24) and on an item-set which combined all 74 items. All item-sets were assessed for fit, rating scale functioning, dimensionality, reliability and separation indices.
Results: The TSOPP demonstrated stronger psychometric properties as a combined item-set which measures the ultimate construct of occupational performance difficulties within the student role. The 6-point scale was collapsed into a 4-point scale and 20 redundant items were removed. The item difficulty hierarchy provided empirical evidence for occupational performance difficulties in the student role.
Conclusion: The TSOPP is a valid and reliable self-report measure of occupational performance difficulties within the student role for students with mental health disabilities in higher education.

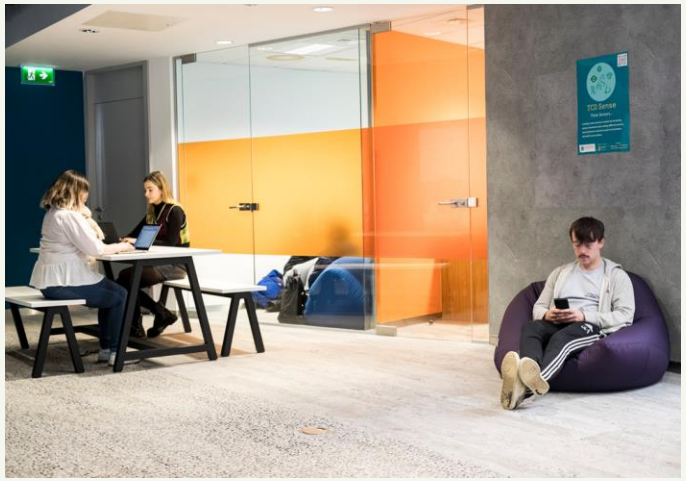
Keywords

self-report assessment, Rasch analysis, occupational performance, students with disabilities, third-level education, Person-Environment-Occupation model



Strand Two – College Environment 21-22

- Eleven Library Areas – used by 100's students daily
- Five social spaces developed with sensory design principles used by hundreds of students daily.
- Three sensory respite spaces

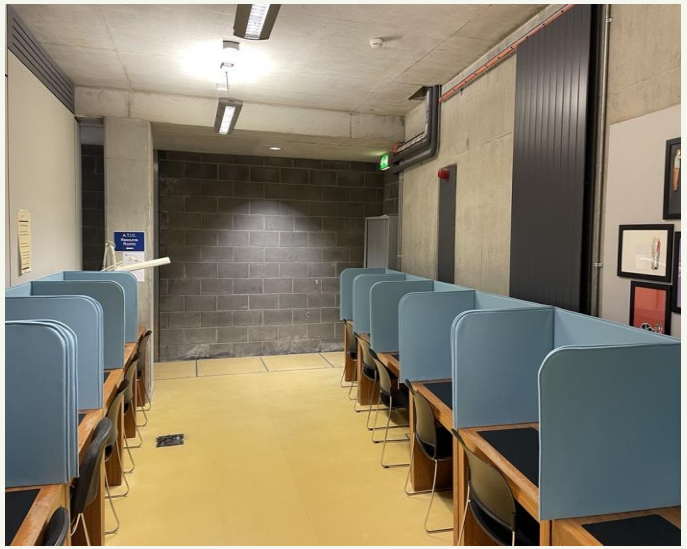


Strand Two – College Environment

- Planting across areas of campus such as student spaces on campus & St James's
- Space set up in Oldham House in Trinity Hall
- Outdoor seating in Trinity Centre Tallaght Hospital

Strand Two – College Environment

- Low Distraction Exam Venues – desktop screens
- Desktop Screens & Headphones available throughout libraries
- Outdoor Areas - Trinity Botanical Garden
- Signage in the Library
- Audit and development sensory spaces on consultancy basis



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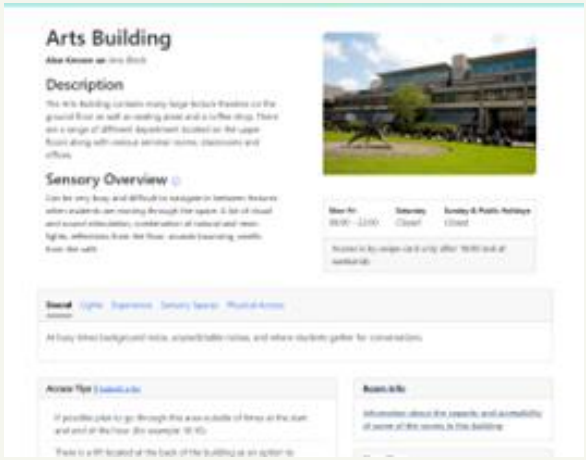
Strand 3: Student and Staff Awareness and Training on-going & Student Engagement

- Communications plan with intern summer – social media
- Sensory Map of Trinity
- Sensory Trails in Trinity Botanical Gardens – online and in-person
- Embed sensory aspect in peer-facilitated tours / orientation
- Workshop delivered to departments, services, and students in PHS



Strand 4: Research & Partnerships

- Research Connection with Disc. of Occupational Therapy in TCD.
- Article British Journal of Occupational Therapy “Disabled Students perception of the sensory aspects of the learning and social environment within one Higher Education Institution." – May 2023.
- Internships in TCD (sensory map, communications, resources and Botanic Gardens). – 27 applications from students
- TCD Sense Volunteers Group, SU, JCR, Ability Co_op, Dublin University Neurodiversity Society
- Further Collaborations – Trinity Botanical Gardens, Healthy Trinity Online Tool, Healthy Trinity, Trinity Centre St James’s User Group, Student 2 Student peer support.

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Resources

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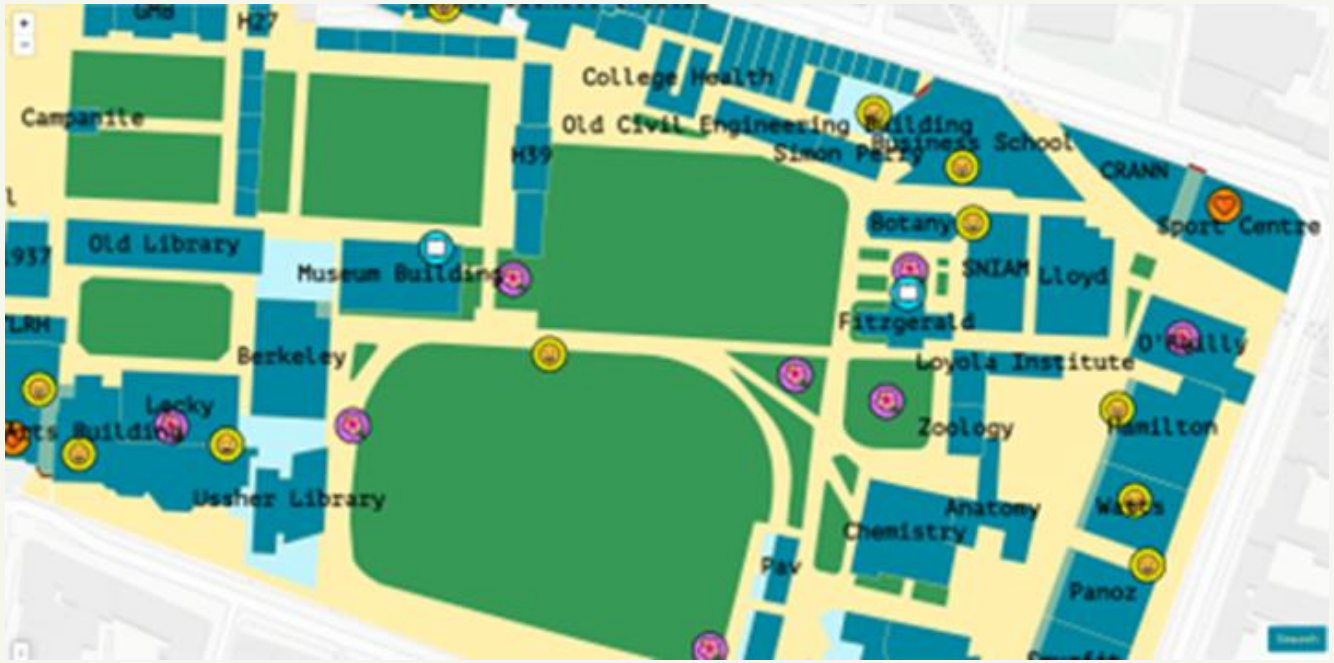
Scan QR Code to see more on TCD Sense

[TCD Sense Beacons]

TCD Sense Map



[TCD Sense Map]

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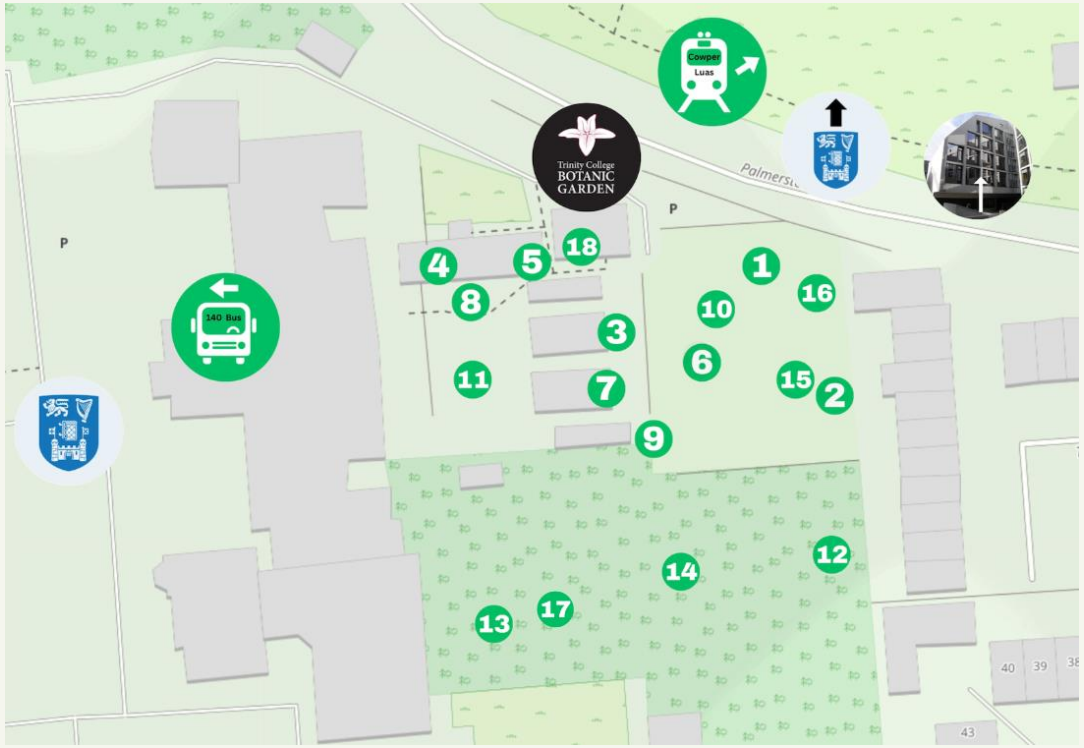
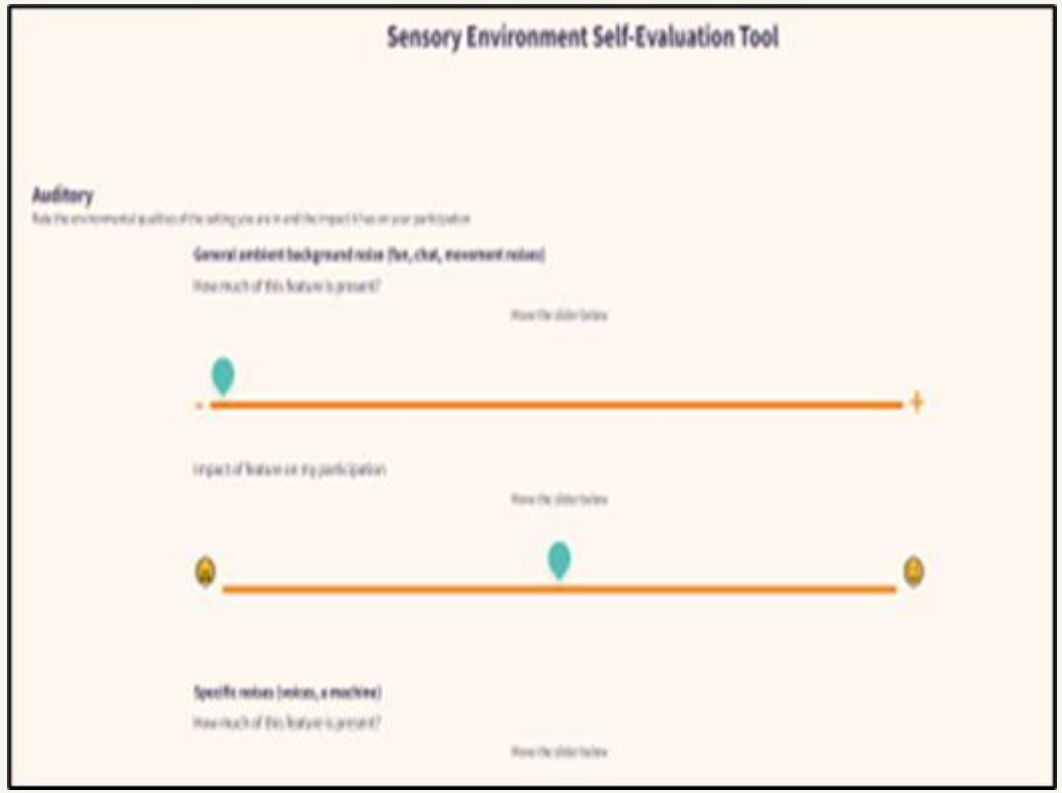
Trinity Botanical Garden Sensory Trail



The Sensory Trail

Sensory Evaluation Tool



Sensory Evaluation Tool

Disability Service Resources

Occupational Therapy:

- Environmental assessment of learning, social and study spaces using Sensory Evaluation Tool
- Individual Sensory Assessment using the Adult Adolescent Sensory Profile
- If you would like to discuss any of these supports / resources, you can book a drop-in appointment

Based upon this assessment process, may recommend some of the following:

- Sensory-based reasonable accommodations for examinations, lectures, work or placement.
- Sensory Spaces for studying, socialising or respite.
- Sensory Items and Furniture to best meet your sensory preferences.

TCD Sense Resources

Activity

1. Get into groups of 3 or4
2. Pick some locations from the Sensory Map – focus either on social, study or quiet (filter) – (outdoor as well if nice)
3. What are some of the sensory characteristics of these spaces?
4. How would this location enable students in engaging in occupation?
5. Meet back here at 11:30 to review and discuss

Activity – Trinity Centre for Health Sciences – St James's

1. Content - https://tcdsensemap.ie/space/old-stone-building-common-room

2. Content - https://tcdsensemap.ie/info/trinity-centre-for-health-sciences

3. Submit a tip on these spaces

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