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Coláiste na Tríonóide, Baile Átha Cliath

The University of Dublin

Refining the psychometric properties of the
Trinity Student Profile - A self-report measure of
occupational performance difficulties within the
student role in higher education.

A Thesis submitted to the Trinity College Dublin, the University of Dublin for
the degree of Doctor of Philosophy

Kim Lombard

Discipline of Occupational Therapy, School of Medicine

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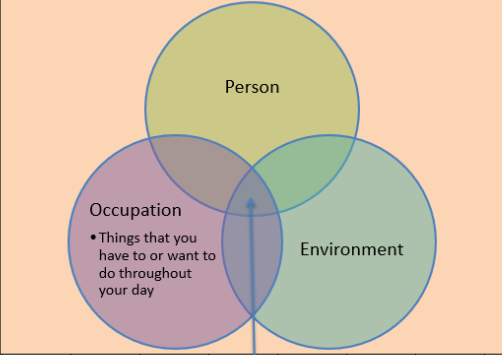
Appendices

Appendix 1.1 2014 version of the Electronic Trinity Student Profile (Nolan, 2011)

'Student Details' section

Trinity Student Profile (e TSP) - Part 1 ©Copyright Nolan C. 2011, 2014.					
Student Name and Number					
Contact Details	Email:				
Date of Referral					
Tutor					
Disability Officer					
Next of Kin and contact details					
Psychiatrist/GP					
Year					
Faculty					
Course					
TSP completed					
Time suitable to meet					
Other services					
Diagnosis					
©Copyright Nolan C.2011, 2014.					
ETSP Last updated 15.6.2017					

‘Experiences & Expectations’ section

Part Two: Present college Life		What are your expectations for your course and college life	
What areas of college life, academic or otherwise do you feel that you are managing well?		What are your academic expectations for this coming year in college?	
What do you like to do outside of academic work, either within or outside college? For Example: Hobbies or Interests			
Do you work outside of college and how many hours do you work?			
Part Three: Previous Experience		What are your expectations socially in this coming college year?	
Have you started any other 3 rd level course?			<div style="background-color: #f4a460; padding: 5px; text-align: center;">Occupational Performance</div>
Did you complete it?			
Have you repeated any years in your present course?			
Have you taken a year out from studying and what did you use the year for?		What are your expectations personally for this college year?	
Tell me about your college experience to date?			
Tell me about your work experience to date			

'Identifying Needs' section (1/2)

©Copyright Nolan C. 2011, 2014.	0 = no Difficulty and 5 = is very Difficult	0 = Not Important and 5 = Very Important	Please explain your answer		0 = no Difficulty and 5 = is very Difficult	0 = Not Important and 5 = Very Important	Please explain your answer		0 = no Difficulty and 5 = is very Difficult	0 = Not Important and 5 = Very Important	Please explain your answer
PERSON – Managing Yourself and Others	Level of Difficulty	Level of Importance		ENVIRONMENT - Managing the University System and its Social Environment	Level of Difficulty	Level of Importance		OCCUPATION – Managing the Job of Being a Student	Level of Difficulty	Level of Importance	
Lectures, Seminars and Tutorials, Lab Work, Attachments/Placements				PHYSICAL - Lectures, Seminars and Tutorials, Library, Lab, Placement/Attachments				Lectures , Seminars and Tutorials			
Being on time for College (lectures, labs etc.)				Tolerating external distractions e.g. noise, light			GSFSKFJ	Participating in discussion			
Concentrating during lectures and tutorials				Managing lab / placement environments				Asking questions			
Understanding the content of lectures				Exams/Support Services				Working in groups			
Using Libraries and Getting Information				Getting to the exam hall				Doing presentations			
Understanding the Library System				Using Computers				Social/Interpersonal			
Retrieving Information/Books				Managing student support services				Talking to lecturers and tutors			
Writing Essays, Projects and Reports				Managing Tutor system				Asking for help			
Understanding topic / question				Social				Life Skills			
Understanding your departments expectations/standards (eg. Length, style etc)				Getting involved in societies				Dealing with time pressures and deadlines			
Understanding the course structure and content				Communicating with people				Goal – setting			
Studying				Communicating with my supervisor				Achieving goals			
Handing up work on time				Communicating with other students				Dealing with work overload			
Maintaining concentration during study				Making friends within college				Balancing college work and life			
Getting started with studying				Making friends outside college				Managing my free time			
Procrastination				Managing flatmates/housemates				Lab Work, Field Trips, Attachments/Placements			

'Identifying Needs' section (2/2)

Procrastination				Managing flatmates/housemates				Lab Work, Field Trips, Attachments/Placements			
Exams				Life Skills A				Doing practical work			
Knowing how best to study				Managing family				Managing work load			
Remembering what I have studied				Managing finances/bills				Completing Reports			
Managing the stress before an exam				Managing nutritional needs				Essays, Projects, Reports and Exams			
Deciding which question to do				Managing any medication				Getting down to writing			
Recalling Material				Managing shopping, housework etc				Continuing writing, avoiding "writer's block"			
Managing panic and "writer's block"				Life Skills B				Finishing the work			
Managing fear that I may fail exams				Managing alcohol intake				Staying and doing the exam			
Life Skills				Managing / avoiding other substances				Studying			
Receiving and coping with bad results				Results ENVIRONMENT	0	0		Taking notes in class			
Managing anxiety								Referencing			
Managing negative thoughts								Writing study notes after class			
Managing stressful situations								Organising information			
Maintaining good mental stamina/endurance								Structuring and planning the essay or project			
Being Confident								Results OCCUPATION	0	0	
Emotional Concerns											
Managing conflict											
Managing anger											
Being a perfectionist											
Switching off and relaxing											
Getting enough good quality sleep											
Score PERSON	0	0									

'Goal Setting' section

Areas Identified	Goals Set	OT intervention Goals	Goals Reviewed
Person	Person Focused Goals		Person Focused Goals
Environment	Environment focused goals		Environment focused goals
Occupation	Occupation focused goals		occupation focused goals
Role Focused	Role Focused Goals		Role Focused Goals

'Further Assessments' section

0				© Copyright Nolan C. 2011, 2014.
Date	Name of Assessment completed	Results of Assessment	Actions/Interventions/Discussion Resulting from Assessment	ETSP Last updated 15.6.2017
	Sensory Profile			
	Interest Checklist			
	Occupational Checklist			

Appendix 1.2 List of item names & codes




Item-set	Item Number	Full item name	Item Code
Person	1	Being on time for College (lectures, labs etc.)	ONTIMECO
	2	Concentrating during lectures and tutorials	CONCENLE
	3	Understanding the content of lectures	UNDERCON
	4	Understanding the Library System	LIBSYSTE
	5	Retrieving information/books	RETRIEVE
	6	Understanding topic/question	TOPIC
	7	Understanding your department's expectations/standards (e.g., Length, style etc.)	DEPARTEX
	8	Understanding the course structure and content	COURSTRU
	9	Handing up work on time	HANDWORK
	10	Maintaining concentration during study	CONCENST
	11	Getting started with studying	GETSTART
	12	Procrastination	PROCRAST
	13	Knowing how best to study	KNOWBEST
	14	Remembering what I have studied	REMSTUDY
	15	Managing the stress before an exam	MANSTREE
	16	Deciding which question to do	DECQUES
	17	Recalling material	RECALLMA
	18	Managing panic and "writer's block"	MANPANIC
	19	Managing fear that I may fail exams	FEARFAIL
	20	Receiving and coping with bad results	RECBADRE
	21	Managing anxiety	MANANXIE
	22	Managing negative thoughts	MANNEGTH
	23	Managing stressful situations	MANSTRES
	24	Maintaining good mental stamina/endurance	MENSTAMI
	25	Being confident	BECONFID
	26	Managing conflict	MANCONFL
	27	Managing anger	MANANGER
	28	Being a perfectionist	PERFECTI
	29	Switching off and relaxing	SWITCHOF
	30	Getting enough good quality sleep	QUALSLEE
Environment	31	Tolerating external distractions e.g., noise, light	TOLERATE
	32	Managing lab/placement environments	MANLABPL
	33	Getting to the exam hall	GETEXAMH
	34	Using computers	USECOMPU
	35	Managing student support services	MANSUPSE
	36	Managing Tutor/Student Adviser system	MANTUTOR
	37	Getting involved in societies	INVOLVES

	38	Communicating with people	COMMPEOP
	39	Communicating with my supervisor	COMMSUPE
	40	Communication with other students	COMMSTUD
	41	Making friends within college	FRIEINCOL
	42	Making friends outside college	RIEOUTCOL
	43	Managing flatmates/housemates	MANHOUSE
	44	Managing family	MANFAMIL
	45	Managing finances/bills	MANFINAN
	46	Managing nutritional needs	NUTRITNE
	47	Managing any medication	MEDICATI
	48	Managing shopping, housework etc.	SHOPHOUS
	49	Managing alcohol intake	MANALCOH
	50	Managing/avoiding other substances	MANSUBST
Occupation	51	Participating in discussion	PARTDISC
	52	Asking questions	ASKQUEST
	53	Working in groups	WORKGROU
	54	Doing presentations	PRESENTA
	55	Talking to lecturers and tutors	TALKLECT
	56	Asking for help	ASKHELP
	57	Dealing with time pressures and deadlines	PRESSDEA
	58	Goal setting	GOALSET
	59	Achieving goals	ACHIEVEG
	60	Dealing with work overload	WORKOVER
	61	Balancing college work and life	BALCOLLI
	62	Managing my free time	MANFREET
	63	Doing practical work	PRACTICA
	64	Managing work load	MANWORKL
	65	Completing reports	COMPLREP
	66	Getting down to writing	GETDOWNW
	67	Continuing writing, avoiding "writer's block"	WRITERSB
	68	Finishing the work	FINISHWO
	69	Staying and doing the exam	STAYDOEX
	70	Taking notes in class	TAKENOTE
	71	Referencing	REFERENC
	72	Writing study notes after class	NOTESAFT
	73	Organising information	ORGANISE
	74	Structuring and planning the essay or project	STRUCTPL

Appendix 2.1 A Scoping Review of the Use of Rasch Analysis Methodology to Strengthen Self-Report Occupational Therapy Mental Health Measures (Lombard, Nolan, & Heron, 2021).



A Scoping Review of the Use of Rasch Analysis Methodology to Strengthen Self-Report Occupational Therapy Mental Health Measures

Kim Lombard^a , Clodagh Nolan^a , and Elizabeth Heron^b 

^aDiscipline of Occupational Therapy, Trinity College Dublin, Dublin, Ireland; ^bDiscipline of Psychiatry, Trinity College Dublin, Dublin, Ireland

ABSTRACT



Self-report measures can be used to accurately assess client outcomes, providing evidence for the effectiveness of occupational therapy. Rasch analysis, a psychometric research methodology, is increasingly being used to validate self-report measures, however, the extent of its use within mental health occupational therapy is unknown. To address this, a scoping review that included twenty articles published between 2001 and 2019 was conducted. This review quantifies the increase in use of Rasch analysis in this field and finds heterogeneity in the analysis techniques implemented. As the use of Rasch analysis increases, it offers benefits to strengthen self-report measures within mental health occupational therapy.


KEY WORDS

Self-assessment; occupation; outcome measures; mental illness; psychometric properties

Introduction

Within mental health occupational therapy, self-report measures help promote client-centred and recovery-oriented (Stoffel, 2011) practice by enabling clients to identify occupational performance strengths and difficulties (Dunn, 2017). Psychometric researchers within occupational therapy aim to investigate and refine the psychometric properties of measures, including self-report measures, so that they can be used confidently within both practice and future research (Taylor et al., 2017). Classical Test Theory has been the predominant methodology within health and social science psychometric research, including occupational therapy (Bond & Fox, 2015). However, Classical Test Theory faces two measurement challenges which raise concerns for measures validated using it (Smith & Wind, 2018). Firstly, self-report measures commonly use Likert-style rating scales which have different categories for clients to select to reflect their level on a particular construct. For example, on a measure of satisfaction, the categories

CONTACT Kim Lombard  klombard@tcd.ie  Discipline of Occupational Therapy, Trinity College Dublin, Dublin, Ireland.

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may be 'very satisfied', 'satisfied', 'neither satisfied or dissatisfied', 'dissatisfied' and 'very dissatisfied'. This raw data is considered ordinal-level data and although it can be meaningfully ordered (Bond & Fox, 2015), it is not linear and cannot be quantified on a scale due to the subjective interpretations imposed by participants, making a scale sample-dependent (e.g., people have varying perceptions of the difference between 'very satisfied' and 'satisfied' etc.; Wright & Masters, 1982). Hence, the first fundamental challenge facing psychometric research of self-report measures using Classical Test Theory is the assumption that raw ordinal-level data can be used to generate indicators of reliability and validity, which are inherently sample-dependent (Bond & Fox, 2015).

Secondly, Classical Test Theory assumes that all items within a tool are of the same level of difficulty rather than establishing an item difficulty hierarchy which accurately reflects the relative difficulty of items from 'less' to 'more' (Wolfe & Smith, 2007). For example, it is acknowledged that items relating to activities of daily living (ADLs) are easier to manage than items relating to more complex instrumental activities of daily living (IADLs; American Occupational Therapy Association [AOTA], 2014). However, if a tool measuring occupational performance includes items relating to basic ADLs and more complex IADLs, Classical Test Theory assumes they are all of the same difficulty level. This makes it challenging to gather a person's precise measure of occupational performance (Bond & Fox, 2015), as we do not truly know the level of difficulty, they are able to manage. As a result, this poses challenges for gathering precise outcome measures to demonstrate the effectiveness of occupational therapy intervention.

Consequently, there is an evolving paradigm shift in health and social science research toward Rasch analysis methodology, which not only presents solutions to these challenges but offers additional benefits for psychometric research and assessment practice (Bond & Fox, 2015). In order to better understand these benefits, let us consider the example of a measure of occupational performance in Figure 1. Firstly, Rasch analysis uses probability and logarithms to convert the ordinal-level data generated from self-report measures into interval-level units of measurement called 'logits' (Wright & Masters, 1982). Logits can be considered as analogous to inches on a ruler, they can be added/subtracted. Due to this, statistical calculations can be performed on the data (Bond & Fox, 2015). Rasch analysis aims to create an item difficulty hierarchy which represent a unidimensional (i.e., measuring only one variable of interest) construct from 'less' to 'more' (Wolfe & Smith, 2007). In Figure 1, the construct of occupational performance is represented with items relating to ADLs being easier to manage toward the lower end of the scale, while items relating to more complex

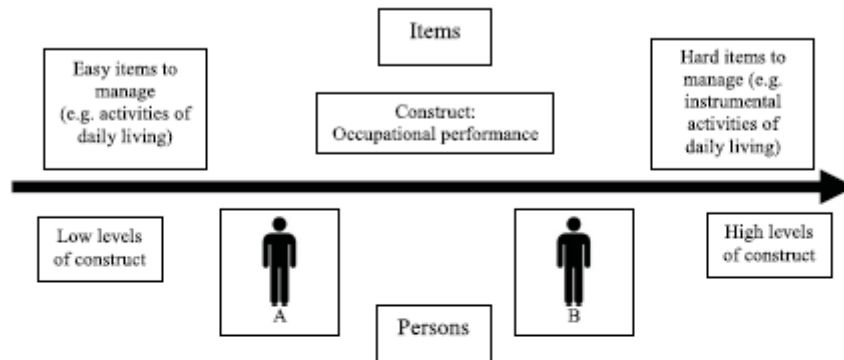


Figure 1. Item difficulty hierarchy/logit scale.

IADLs, which are harder to manage, toward the higher end of the scale. Where an item is located on this hierarchy is called an 'item difficulty measure'. This item difficulty hierarchy acts like a ruler as Rasch analysis attempts to gain an accurate measure of one's level of occupational performance (i.e., a 'person measure'). This hierarchy should be invariant (i.e., act consistently) across measurement contexts (Engelhard, 2012). In this illustrative example, separate measures for Person A and Person B were obtained using the tool, and it is evident that Person B demonstrates higher levels of occupational performance than Person A. Not only can Rasch analysis overcome the measurement challenges facing Classical Test Theory, but the item difficulty hierarchy provides empirical evidence for the relative difficulty of the underlying construct (Wolfe & Smith, 2007). This has benefits for both occupational therapy theory and practice: it adds to our theoretical knowledge regarding a construct of interest (in this example, we can confidently say that IADLs are harder to manage than ADLs), and in practice, this can aid occupational therapists in appropriately grading intervention plans so that they are more achievable depending on a client's person measure.

In addition, Rasch analysis methodology presents other benefits. Firstly, a requirement of Rasch analysis is data-to-model fit (Bond & Fox, 2015). As Rasch analysis is based on probability, the model expects the data to function in a logical manner. Returning to the example in Figure 1, this means that people with low levels of the construct occupational performance are expected to have a low probability of managing items which are higher on the measure, whereas people with high levels of occupational performance are likely able to manage most of the items on the measure. Rasch analysis fit statistics indicate how the observed responses from items and persons fit the model's expectations (Wright & Masters, 1982). As Classical Test Theory uses ordinal-level data, it cannot separate the measure

from a sample, subsequently working only at group-level data (i.e., cannot differentiate between individual persons) and test-level data (i.e., cannot differentiate between items and their relative difficulty; Wright & Masters, 1982). Hence, reliability indicators may be confounded by items which are mis-fitting (i.e., items with unexpected scores, items which do not measure the intended construct) (Smith & Wind, 2018). Whereas Rasch analysis works at item- and person-level data meaning mis-fitting items or items which do not measure the intended construct can be identified and dealt with, improving the measure's reliability.

Furthermore, Rasch analysis can assess rating scale functioning, or rather if the rating scale is appropriately suited to the target population (Linacre, 2004). For example, for the scale of occupational performance, clients may be asked to rate how well they can manage each item on a 6-point scale. As Rasch analysis assumes that data function in a logical manner, it expects that clients with higher person measures are more likely to choose higher rating scale categories and vice versa (Linacre, 2004). Rasch analysis can highlight if this is the case, or if a different scale (e.g., a 3-point or 4-point scale) would be more appropriate to use, producing more reliable results (Smith & Wind, 2018).

Rasch analysis can also provide evidence for structural validity, which assesses if a tool's scoring structure is reflective of the construct of interest (Wolfe & Smith, 2007). A requirement in Rasch analysis is that a measure is unidimensional or only measures one construct at a time (Bond & Fox, 2015). Rasch analysis has the capability of assessing if the items within a tool work well together to measure a unidimensional construct, or if multidimensionality (i.e., measures more than one construct) exists among the items. Furthermore, Rasch analysis can also assess a concept known as local independence (Yen, 1993), which means that the answers one gives to an item are independent from the answers given to other items. Items may violate local independence if they are similarly worded or measuring similar concepts (Yen, 1993), which may indicate redundant items which can be removed from a tool to make it shorter yet still gather appropriate clinical information.

Another advantage of using Rasch analysis to conduct psychometric research is its robustness to missing data (Smith & Wind, 2018). In Classical Test Theory, the raw scores are added together to get one's total score which is used to represent the client's level of the construct. However, clients may not answer every question on a measure, resulting in lower raw scores. It then incorrectly assumes that these clients have lower construct levels, whereas they may have left questions unanswered for a construct-irrelevant reason (e.g., accidentally missing questions). Conversely, as Rasch analysis is probabilistic, it only requires an item's difficulty to

estimate person measure, even if a client has not answered every question (Smith & Wind, 2018).

Lastly, Rasch analysis can assess differential item functioning (Wolfe & Smith, 2007). Differential item functioning determines if an item on a measure functions differently across time, or across samples. Items are said to be invariant across measurement contexts (e.g., different diagnostic groups, different time points) if they do not demonstrate differential item functioning (Engelhard, 2012). If items are invariant over time (i.e., stability), the measure can be used to assess sensitivity (i.e., detecting if a change has occurred; Kielhofner et al., 2010). Wolfe and Chiu (1999) developed a Rasch-based method to assess differential item functioning, the standardized difference formula, which can be used to assess both stability and sensitivity. This can assist in developing reliable and valid outcome measures, thus contributing toward providing evidence for occupational therapy outcomes in mental health.

Rasch models for self-report measures

There have been several expansions of the original Rasch Measurement Model (Rasch, 1960) which are appropriate for validating self-report measures, including the Rating Scale Model (Andrich, 1978) which is useful for measures which use the same Likert-style rating scale across items; and the Partial Credit Model (Wright & Masters, 1982) which can be used if different rating scales are used within a measure. Each of the above models assume that there are only two variables within the measurement: item difficulty and person ability. Whereas the Many-Faceted Rasch Model (Linacre & Wright, 2004) allows for the introduction of other facets into the calculation. For example, for therapist-administered observational and interview tools, a 'rater-severity' parameter can be introduced into the calculation. However, for self-report measures, it can be used if a measure asks about different parameters of the same item, and it is necessary to analyze these parameters together in order to understand the person's level of the construct (e.g., Scanlan and Bundy (2011) sought to gain a measure of meaningful time use by using the Many-Faceted Rasch model to analyze data from three parameters: one's reason for doing a task, the value it had for themselves and the societal value they believe it holds).

Other probabilistic methodologies

Although Rasch analysis is mathematically identical to a 1-parameter Item Response Theory model (Lord & Novick, 1968), the underlying philosophy and objectives of Rasch analysis and Item Response Theory are different.

Rasch analysis is a model which requires data-to-model fit, meaning item difficulty is the only parameter needed for calculating a person measure (Wright & Masters, 1982). Conversely, Item Response Theory aims to find the model which best fits the data by incorporating various item parameters into calculating person measures (Massof, 2002). As this study focuses on Rasch analysis only, researchers wishing to learn more about Item Response Theory are referred to Birnbaum (1967) and Lord and Novick (1968).

Need for this review

Rasch analysis can aid in the development of more precise self-report measures which can accurately assess client outcomes and subsequently provide evidence for the effectiveness of occupational therapy within the field of mental health. However, the extent of its use within the field to-date is unclear. Yuen and Austin (2014) review of instrument development papers published within the *American Journal of Occupational Therapy (AJOT)* between 2009 and 2013 found that 11 studies utilized Rasch analysis. However, Gutman and Raphael-Greenfield (2014) review of mental health specific research published within the *AJOT* during the same timeframe found that only three of the seven psychometric studies utilized Rasch analysis, with two focusing on self-report measures (Chang et al., 2013; Hancock et al., 2011). Furthermore, the *AJOT* was the only occupational-therapy specific journal found to have an impact within the Rasch literature as per Aryadoust et al. (2019) recent scientometric review of the Web of Science. Apart from these reviews, it is difficult to ascertain the extent of psychometric research of occupational therapy mental health self-report measures which has used Rasch analysis before 2009 and after 2013, or within journals other than the *AJOT*. Furthermore, Smith et al. (2016) advocate for future research to determine how Rasch analysis has been used to construct measures and reduce the length of existing tools within mental health, while Aryadoust et al. (2019) highlight how specific fields should identify how Rasch analysis has been utilized within their domains. This is imperative for gaining insight into how Rasch analysis is used in research across disciplines. Therefore, the purpose here is to establish if Rasch analysis is utilized within psychometric research of occupational therapy mental health self-report measures through a scoping review (Arksey, & O'Malley, 2005; Levac, Colquhoun, & O'Brien, 2010), with the ultimate goal of advocating for its use in future research in this field to develop valid and reliable self-report measures.

The aims of this scoping review are to:

1. Determine the extent and range of published psychometric research articles of occupational therapy mental health self-report which have fully or partially utilized Rasch analysis methodology.

2. Identify the purpose and conceptual/theoretical underpinnings of the measures validated in these articles.
3. Outline if the use of the Rasch analysis methodology was justified in the articles.
4. Outline which Rasch analysis techniques were conducted in the articles.

Methods

The scoping review framework established by Arksey and O'Malley (2005) and enhanced by Levac et al. (2010) guided this review. The stages include (1) identifying the research question, (2) identifying relevant articles, (3) article selection, (4) charting the data, (5) collating, summarizing and reporting the results (Arksey, & O'Malley, 2005). The optional sixth stage, consultation, was not conducted for pragmatic reasons.

Stage 1 identifying the research question

The following research questions guided this review's search:

What occupational therapy self-report measures for adults with mental health difficulties have undergone psychometric research using Rasch analysis?

What is the purpose and conceptual/theoretical underpinnings of these measures?

Was the use of Rasch analysis justified within the measure's psychometric study?

Which Rasch analysis techniques were used in the psychometric studies?

Stage 2 identifying relevant articles

Database searching, journal searching, and reference list reviews were used to identify relevant articles. The following search terms were used in various combinations:

(measure* OR scale* OR inventor* OR instrument* OR survey* OR questionnaire* OR tool* OR assess* OR evaluat* outcome*) AND (self report OR self-report) AND (Occupational therapy) AND (Mental health OR mental illness OR psych* OR mental health issues OR mental health concerns OR mental health problems OR mental health difficulties OR mental health disability) AND (Rasch analysis OR rasch rating scale model OR partial credit model OR rasch measurement model OR rasch model) NOT (Item response theory OR IRT OR two parameter OR 2 parameter OR 3 parameter OR three parameter OR 2P OR 3P) AND (psychometric)

A title and abstract search was conducted on Ebscohost (Academic Search Complete, CINAHL, PsychARTICLES and PsychINFO), ProQuest Nursing and Allied Health Source, ScienceDirect and PubMed and the following journals: *American Journal of Occupational Therapy*, *British Journal*

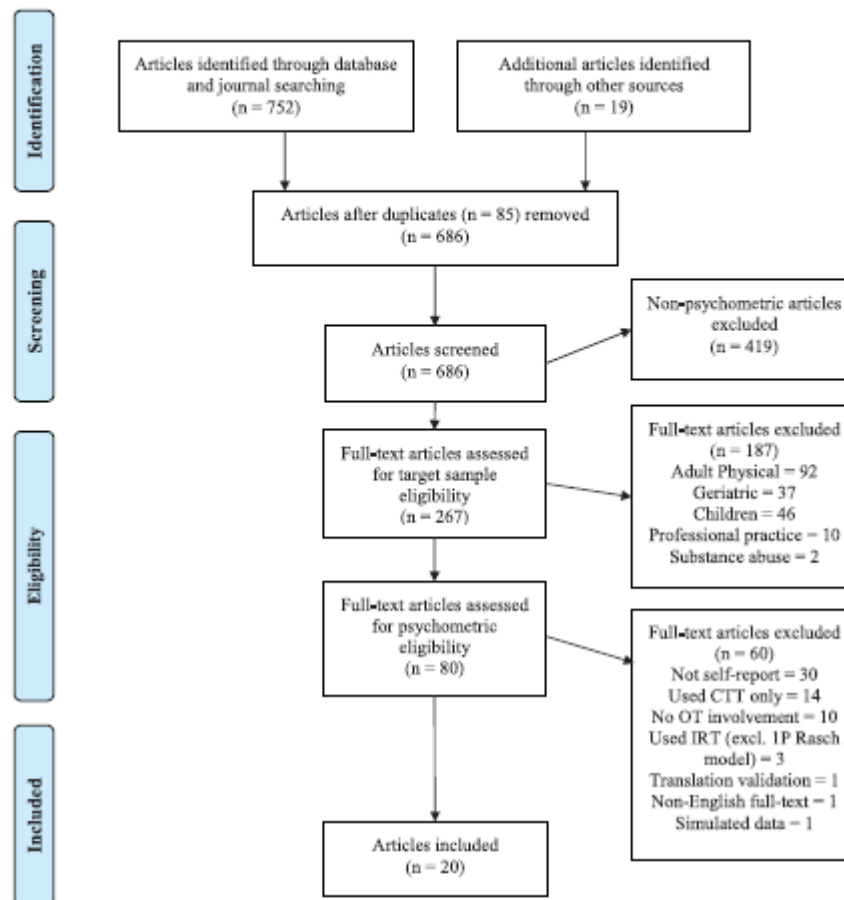


Figure 2. PRISMA chart of article selection and inclusion.

of Occupational Therapy, *Scandinavian Journal of Occupational Therapy*, *Canadian Journal of Occupational Therapy*, *Journal of Occupational Science*, *Occupational Therapy in Mental Health*, *OTJR: Occupation, Participation and Health*, *Health and Quality of Life Outcomes* and the *Journal of Patient Reported Outcomes*. These journals were chosen based on their relevance for mental health occupational therapy and/or because they are considered Rasch-friendly journals (Institute of Objective Measurement, Inc., n.d.). A chart from the Preferred Reported Items for Systematic Reviews and Meta-analyses (PRISMA) was used to demonstrate the process of inclusion from the literature search (Figure 2).

Stage 3 article selection

Table 1 outlines the inclusion and exclusion criteria which were followed to identify relevant articles.

Table 1. Inclusion and exclusion criteria.

Inclusion criteria	Exclusion criteria
<ul style="list-style-type: none"> Measures which were self-report in nature with the aim of gathering client-centred data (e.g., gathering client's perceptions etc.). Measures which related to occupational therapy constructs and/or models of practice or were fully/partially developed by occupational therapists (i.e., at least one author of the study was an occupational therapist or educator within the field of occupational therapy). Studies in which the measure was validated with a sample which fully/partially consisted of adults over 18 years of age and were experiencing mental health difficulties (including depression, anxiety, schizophrenia, psychosis, autism spectrum disorder, attention deficit hyperactivity disorder etc.) or a sample which fully/partially consisted of those from the general population in which the tool's construct was relevant within the field of mental health occupational therapy. Studies which identify the use of a Rasch analysis model (e.g., Rasch Rating Scale, Partial Credit, Rasch Measurement Model [Wright & Mok, 2004]). The Many-Faceted Rasch Model would be considered if the score of a self-report measure is dependent on several questions or parameters. Studies which were published in English in peer-reviewed journals before November 2019. 	<ul style="list-style-type: none"> Measures which were not directly completed by the client (e.g., therapist-administered observation/performance/functional measure, semi-structured interview, tools assessing professional practice). Measures which were not directly related to occupational therapy concepts and/or models of practice or in which an occupational therapist or educator within the field of occupational therapy was not involved in the psychometric study. Studies in which the sample fully consisted of people with intellectual disabilities, substance abuse disorders, musculoskeletal/neurological conditions, geriatric psychiatry (e.g., dementia, Alzheimer's) or pediatric samples (i.e., persons under the age of 18 years of age). Studies in which an Item Response Theory model was utilized. Studies which utilized the Many-Faceted Rasch Model which were therapist-administered were excluded. Studies which were not published in English in peer-reviewed journals. Studies which were not psychometric studies (e.g., systematic reviews, intervention effectiveness studies, case report studies etc.).

Stage 4 charting the data

In order to chart the data (Arksey, & O'Malley, 2005) and achieve the research aims, it was imperative to extract the appropriate information from the included articles. Hence, a data extraction matrix was developed to extract the appropriate data. The categories of data in the matrix were influenced by the study's aims and evolved as the articles were being reviewed. The categories in the final data extraction matrix included: journal and country in which article was published, the article's purpose, the tool's original format, the tool's underpinning theory/conceptual model, a description of the sample, if there was a justification given for using Rasch analysis, what Rasch model was used in the article, if any rationale was given for using this Rasch model and what Rasch analysis techniques were used within the article (e.g., rating scale functioning, item and person fit statistics, etc.).

Stage 5 collating, summarizing, and reporting the results

Once all the appropriate data was extracted, this data was then collated and summarized to achieve each of the study's aims. Where appropriate, the

results were reported using proportions and percentages (e.g., ‘50% ($N=10$) articles used X technique ...’) (Arksey, & O’Malley, 2005). A summary table (Colquhoun et al., 2014) was created to collate and report the results pertaining to the first three aims of the study, see Table 2. Furthermore, a second summary table was created to demonstrate the use of various Rasch analysis techniques across the articles to achieve the fourth aim, see Table 3.

Results

In total, 771 articles were identified through title and abstract searching on databases, journals, and reference lists (Figure 2). After duplicates were removed and screening and eligibility criteria were applied, 20 articles remained (see Supplementary Information for full details of a tool’s original format and sample description from the included articles). As can be seen in Table 2, the studies reported in the included articles were conducted between 2001 and 2019. There was a gap in research between 2001 and 2009, but then activity in this area picked up again between 2009 and 2019 when at least one article using Rasch analysis was published per year except for 2017 where there was no publication. The purpose of the research within the included articles varied and the constructs measured by the assessment tools included recovery, participation, meaningful time use and occupational balance, occupational competence, mastery, performance skills (e.g., time management skills) and body functions (e.g., sensory responsiveness and psychiatric symptoms).

Nine (45%) articles explicitly stated the measure’s underlying theoretical/conceptual model, which included the Model of Human Occupation (MOHO, Kielhofner, 2008), the Value and Meaning in Occupations Model (ValMO, Persson et al., 2001), the Life Balance Model (Matuska & Christiansen, 2008), Young and Ensing (1999) recovery model, Ayre’s (1972) theory of sensory integration, Chang and Coster (2014) Model of Participation and White et al. (2013) ten components of effective time management behavior. Four (20%) articles stated that the measure was developed from another measure. For example, Scanlan and Bundy (2011) state that the Modified Occupational Questionnaire under investigation in the study was based on the Occupational Questionnaire (Smith et al., 1986). Four (20%) stated that the measure was based on literature or previous research. In three (15%) articles, the measures’ underlying theoretical/conceptual model was unclear or not stated.

A clear justification for the use of Rasch analysis methodology over other methodologies such as Classical Test Theory and Item Response Theory or explaining the benefits of Rasch analysis methodology for their research

Table 2. Main characteristics of included articles & justification for using Rasch analysis (chronological order).

Measure (Author, Year)	Journal, Country	Purpose	Theory/Model	Justification for Rasch	Rasch Model	Rationale for Rasch Model
Occupational Self-Assessment (OSA; Kielhofner & Forsyth, 2001)	SJOT, Mixed global data	"elicit client's perceptions and values concerning their own occupational competence and of the impact of their environment on their occupational behaviour" (p.132)	Model of Human Occupation (Kielhofner, 2008)	No clear justification	RMM	No clear justification
OSA (Kielhofner et al., 2009)	BJOT, Mixed global data	"guide collaborative treatment planning and to document therapy outcomes from the client's perspective" (p.94)	Model of Human Occupation (Kielhofner, 2008)	Yes, explained benefits of Rasch analysis only	RMM	Partial rationale, stated that RMM addresses issues with rating scales
Occupational Value instrument with predefined items (OVal-pd; Eklund et al., 2009)	SJOT, Sweden	"Targets overall perceptions of occupational value in everyday life" (p.119)	Value and Meaning in Occupations Model (ValMO; Persson et al., 2001)	Yes, explained benefits of Rasch analysis only	PCM	Yes, appropriateness of PCM for polytomous data
OSA (Kielhofner et al., 2010)	OTJR, United States	"guide collaborative treatment planning and measure client-reported change to document therapy outcomes" (p.11)	Model of Human Occupation (Kielhofner, 2008)	Yes, explain benefits of Rasch analysis and difference approach for assessing sensitivity	RSM (calibrated twice)	Yes, appropriateness of RSM for rating scales
Modified Occupational Questionnaire (MOQ; Scanlan & Bundy, 2011)	AJOT, Australia	"a measure of meaningful time use" (p.e11)	Based on another tool: Occupational Questionnaire (Smith et al., 1986)	Partially, stated assumptions of the Rasch model	MFRM	Yes, MFRM appropriate as several parameters of time across day combined into one analysis
Evaluation of Perceived Meaning in Day Centers (BPMDC; Nilsson et al., 2011)	SJOT, Sweden	"generate descriptive profiles concerning degree of perceived meaningfulness among visitors attending a day centre" (p.314)	Based on literature of daily life meaningfulness for those with mental illness and from a workshop	Partially, stated assumptions of the Rasch model	RSM	No clear justification

(continued)

Table 2. Continued.

Measure (Author, Year)	Journal, Country	Purpose	Theory/Model	Justification for Rasch	Rasch Model	Rationale for Rasch Model
Recovery Assessment Scale (RAS; Hancock et al., 2011)	AJOT, Australia	"emphasizes personal recovery, it has items relating to other domains (i.e. symptom or clinical recovery, social recovery and, to a lesser extent, functional recovery) (p.278)	Unclear	Partially, state Rasch analysis used increasingly in occupational therapy research	RSM	Yes, appropriateness of RSM for rating scales
Engagement in Meaningful Activities Survey (EMAS; Eakman, 2012)	AJOT, United States	"reflect the construct of meaningful activity participation" (p.22)	Based on occupational therapy and human occupation literature	Yes, explained benefits of Rasch analysis only	RSM	No clear justification
Life Balance Inventory (LBI; Matuska, 2012)	OTJR, United States	"assess perceived congruence between how people want to spend their time in various activity categories and how they actually spend their time in those categories" (p.221)	Life Balance Model (Matuska & Christiansen, 2008)	Partially, briefly state that Rasch analysis can provide information which Classical Test Theory cannot	Not specified	No clear justification
Mental Health Recovery Measure (MHRM; Chang et al., 2013)	AJOT, United States	"capture the complete recovery perspective" (p.470)	Young and Ensing (1999) recovery model	Yes, explained the benefits of Rasch analysis over Classical Test Theory	RSM	Yes, appropriateness of RSM for rating scales
Mastery Scale-Chinese Version (MS-C; Chen et al., 2013)	SJOT, Taiwan	"measure people's sense of mastery" (p.405)	Unclear	No clear justification	PCM	Yes, appropriateness of PCM to allow items to take on own unrestricted response structure

Occupational Gaps Questionnaire (OGQ; Eriksson et al., 2013)	SJOT, Sweden	"measures how individuals themselves perceived their participation in everyday occupations" (p. 152)	Based on another tool: Activity Card Sort	No explicit justification for Rasch analysis in current study, previously validated using Rasch analysis	RMM	Partial rationale, stated that data was dichotomous which is appropriate for RMM
Adult Sensory Processing Scale (ASP); Blanche et al., 2014)	AJOT, United States	"measure different patterns of responsiveness" (p.532)	Ayre's (1972) theory of sensory integration	No clear justification	Not specified	No clear justification
Taita Symptom Checklist (TSLC; Chen et al., 2015)	Journal of the Formosan Medical Association, Taiwan	"measure the perceived disturbance of psychiatric symptoms for patients" (p.222)	Based on Symptom Distress Checklist-90 (Derogatis et al., 1973) and Psychoneurotic Symptom Checklist (Tsai et al., 1978)	Yes, explained the benefits of Rasch analysis over Classical Test Theory	PCM	Yes, appropriateness of PCM to allow items to take on own unrestricted response structure
Recovery Assessment Scale – Domains and Stages (RAS-D); Hancock, Scanlan, Honey, Bundy, & O'Shea, 2015)	Australian & New Zealand Journal of Psychiatry, Australia	"measure recovery-focused outcomes" (p.624)	Based on above RAS tool	No explicit justification for Rasch analysis in current study, previously validated using Rasch analysis	Not specified	No clear justification
Community Participation Domains Measure (CPDM; Chang et al., 2016)	Disability and Rehabilitation, United States	"multidimensional measure of participation" (p.697)	Chang and Coster (2014) model of participation	No clear justification	Multi-dimensional PCM	Partial rationale, using multidimensional model for tool which intends to be multidimensional
Assessment of Time Management Skills (ATMS-S; Janeslätt et al., 2018)	SJOT, Sweden	"measure how the clients actively uses tools, and time use strategies and relative levels of self-awareness concerning time management skills" (p.154)	White et al. (2013) ten components of effective time management behavior	No clear justification	RSM	Yes, appropriateness of RSM for rating scales

(continued)

Table 2. Continued.

Measure (Author, Year)	Journal, Country	Purpose	Theory/Model	Justification for Rasch	Rasch Model	Rationale for Rasch Model
Self-reported Activities of Daily Living (Sf-ADL); Pan et al., 2018)	Hong Kong Journal of Occupational Therapy, Taiwan	"Client's self-report their perceived level of difficulties (the level of assistance required)" (p.117)	Based on AOTA's uniform terminology-III (American Occupational Therapy Association, 1994) and the Practice Framework (2014)	Yes, explained the benefits of Rasch analysis over Classical Test Theory	PCM	Yes, appropriateness of PCM to allow items to take on own unrestricted response structure
Occupational Balance Questionnaire (OBQ; Håkansson et al., 2020)	SJOT, Sweden	"a generic instrument to evaluate occupational balance of individuals and groups" (p.2)	Based on results from previous research	Yes, explained the benefits of Rasch analysis over Classical Test Theory	PCM	Yes, appropriateness of PCM for polytomous data
PROMIS Depression Items (PROMIS; Cleathous et al., 2019)	Journal of Patient-Reported Outcomes, United States	Patient reported depression	Unclear	Yes, explained the benefits of Rasch analysis over Classical Test Theory and Item Response Theory	RSM	Partial rationale, identified need for model for polytomous data

SJOT: Scandinavian Journal of Occupational Therapy; BJOT: British Journal of Occupational Therapy; AJOT: American Journal of Occupational Therapy; OTJR: Occupation, Participation and Health; RMM: Rasch Measurement Model; PCM: Partial Credit Model; RSM: Rating Scale Model; MFRM (Many-Faceted Rasch Model).

Table 3. Rasch analysis techniques used (chronological order).aa

Measure (Author, Year)	Rating scale			Principal component analysis			Local independence	Hierarchy (person-item map)	Cronbach's alpha	PRI	PSI	IRI	ISI	Differential item functioning	Stability analysis	Sensitivity analysis
	functioning	Item fit	Person fit	Person fit	Item fit	Local independence										
OSA (Kiehlhner & Forsyth, 2001)		✓	✓					✓		✓	✓	✓	✓			
OSA (Kiehlhner et al., 2009)		✓	✓				✓		Reported PRI instead					✓		
OWal-pd (Eklund et al., 2009)																
OSA (Kiehlhner et al., 2010)									Reported PRI instead							
MOQ (Scantán & Bundy, 2011)		✓	✓													
EPAM-DG (Nilsson et al., 2011)		✓	✓													
RAS (Hancock et al., 2011)		✓	✓						Reported PRI instead							
EMAS (Eskman, 2012)		✓	✓													
LBI (Matuska, 2012)									✓							
MHRM (Chang et al., 2013)		✓	✓													
MS-C (Chen et al., 2013)		✓	✓													
OGQ (Eriksson et al., 2013)																
ASPS (Blanche et al., 2014)																
TSCL (Chen et al., 2015)		✓	✓													
RAS-DS (Hancock et al., 2015)		✓	✓													
CPDM (Chang et al., 2016)																
ATMS-5 (Janeslätt et al., 2018)		✓	✓													
si-ADLs (Pan et al., 2018)		✓	✓													
OIBO (Häkansson et al., 2020)		✓	✓													
PROMS (Cleathous et al., 2019)		✓	✓													

Only results from Rasch analyses are included in this review (i.e., if an article conducted both Rasch analysis and Classical Test Theory, Classical Test Theory results are not included in this review). Readers are advised to consult an article directly for a detailed explanation of the techniques used. Ticks indicate that a technique was conducted in the study, dark shaded areas indicate that a technique was not conducted. PRI: Person Reliability Index; PSI: Person Separation Index; IRI: Item Reliability Index; ISI: Item Separation Index.

was provided in nine (45%) articles. Four (20%) articles were deemed to have partially justified the use of Rasch analysis with reasons outlined in Table 2. Two (10%) articles validated measures which were validated previously using Rasch analysis and hence did not give an explicit justification for using Rasch analysis again, whereas five (25%) articles did not provide any justification for its use.

Furthermore, the review investigated the extent of the justification for utilizing a specific Rasch model (e.g., Rasch Measurement Model, Rating Scale Model, Partial Credit Model, Many-Faceted Rasch Model). Articles were classified with partial rationale if they did not explain why a model was chosen but it was an appropriate application according to Khosravi (2019) and Masters and Wright (1984). For example, the RSM can be used when the same rating scale structure is used for all items in the tool (e.g., a 4-point scale for all items), hence an article was considered to have partial rationale if it appropriately used this model for a tool that has the same rating scale structure across the items, but it did not explicitly state this rationale in the article. Half ($n = 10$, 50%) of the articles provided a clear rationale for choosing a specific Rasch model. Four (20%) articles were considered to provide partial rationale for choosing a model with reasons outlined in Table 2. The remaining six (30%) articles did not provide a clear justification for the chosen Rasch model.

As can be seen in Table 3, the Rasch analysis techniques used in the included articles varied, with certain techniques being employed more frequently than others. Rating scale functioning (Linacre, 2004) can determine how well a Likert-style rating scale is being used by the intended users of the scale. Over half ($n = 13$, 65%) of the articles conducted an in-depth analysis on rating scale functioning using Rasch analysis, while a quarter ($n = 5$, 25%) did not assess rating scale functioning at all. Two (10%) articles on the *Occupational Self Assessment (OSA)* (Kielhofner & Forsyth, 2001; Kielhofner et al., 2009) reviewed only the frequency in which the rating scale categories were used which is not considered an in-depth Rasch analysis of rating scale functioning (Linacre, 2004).

For data-to-model fit, every article investigated item fit, with the exception of Kielhofner et al. (2010) on the OSA, as item fit of the OSA was investigated in earlier studies (Kielhofner et al., 2009; Kielhofner & Forsyth, 2001). However, only nine (45%) articles investigated person fit. The decision-making process for dealing with mis-fitting items or persons included consulting fit statistics only, reviewing the clinical relevance of items, reviewing a measure's purpose/target construct, consulting experts or considering other measurement issues such as differential item functioning. Furthermore, fourteen (70%) articles produced person-item maps, which

visually demonstrate the item difficulty hierarchy in relation to the ability distribution of the sample (Wolfe & Smith, 2007).

The structural validity (i.e., tool's scoring structure is reflective of the construct of interest; Wolfe & Smith, 2007) can be assessed using principal component analysis of residuals and local independence. Although these two techniques can be used to provide evidence for structural validity, the purpose of each technique varies slightly and hence they should be considered separate techniques. A principal component analysis of residuals assesses unidimensionality (i.e., tool is only measuring one construct) and can indicate if there is multidimensionality (i.e., items measuring more than one construct) within a tool (Bond & Fox, 2015). On the other hand, local independence indicates if the items within the tool are independent. Some items may be similarly worded or measuring very similar concepts, leading to local independence violations and ultimately redundancy in some items, some of which may be removed from a tool (Yen, 1993). Eleven (55%) articles conducted a principal component analysis of residuals, whereas four (20%) articles investigated local independence. Janeslätt et al. (2018) article on the *Assessment of Time Management Skills* was the only article to investigate principal component analysis of residuals and local independence separately.

As for reliability, the main statistics reported were Cronbach's alpha ($n=7$, 35%) or the analogous Person Reliability Index ($n=11$, 55%) or Person Separation Index ($n=15$, 75%). Person Reliability Index determines if persons in a new sample would be ordered in a similar way, whereas Person Separation Index is concerned with how well the items can separate persons into various levels of the construct (Bond & Fox, 2015). A small proportion of articles reported on the Item Reliability Index ($n=7$, 35%) and Item Separation Index ($n=4$, 20%) which are unique to Rasch analysis (Bond & Fox, 2015). The Item Reliability Index demonstrates if items would be expected to have a similar hierarchy across samples, whereas the Item Separation Index indicates how many difficulty levels exist among the items (Bond & Fox, 2015).

Differential item functioning can be used to investigate if a measure is invariant over time and across samples (Engelhard, 2012). Twelve (60%) articles conducted at least one differential item functioning study (e.g., between health status groups, gender, age). The only study to investigate both stability and sensitivity was Kielhofner et al. (2010) study of the OSA, using the standardized difference formula (Wolfe & Chiu, 1999). Hancock et al. (2015) used a paired *t*-test to investigate the sensitivity of the *Recovery Assessment Scale – Domains and Stages*, which is not a Rasch-specific technique.

Discussion

Prior to this scoping review, the full extent of psychometric research articles which utilized Rasch analysis methodology to validate occupational therapy mental health self-report measures was not known. In this review, we found 20 articles in which Rasch analysis was wholly or partially used in the validation of a self-report mental health occupational therapy measure. These articles were published between 2001 and 2019, a span of 18 years, with a noticeable gap in research between 2001 and 2009. Much of the pioneering research within this area was focused on the *Occupational Self Assessment* (Kielhofner et al., 2009; 2010; Kielhofner & Forsyth, 2001). Kielhofner was an early advocate for the use of Rasch analysis to develop rehabilitation assessment tools within occupational therapy (Veloza et al., [1999]). As well as Veloza et al. (1999) paper, previous papers have promoted the use of Rasch analysis to validate functional measures (Fisher, 1993) and measures of rehabilitation (Veloza et al., 2012) within occupational therapy. Although there is no specific paper promoting the use of Rasch analysis for research of occupational therapy mental health self-report measures, this scoping review has highlighted the growing utilization of the methodology in the field over the last decade which is reflective of the increasing use of the methodology within the field of medicine and rehabilitation found in Aryadoust et al. (2019) scientometric review.

Furthermore, Smith et al. (2016) systematic review of item reduction methods for mental health measures in psychiatry found that no study justified the use of Rasch analysis over other methodologies such as Classical Test Theory or Item Response Theory. However, our review demonstrated that nearly half of the articles justified why Rasch analysis was used, such as explaining its use over Classical Test Theory and/or Item Response Theory or explaining the methodology's benefits. Hence, this paper details how previous researchers have justified and utilized Rasch analysis to improve occupational therapy mental health self-report measures, which may encourage future researchers to consider using the methodology within their own research. Nevertheless, the review also highlighted areas for potential improvement to strengthen the research within this field which are outlined below.

Many of the measures which were validated in the articles targeted constructs such as recovery, participation, meaningful time use and occupational balance, occupational competence, and mastery. Fewer measures investigated performance skills such as time management skills and body functions such as psychiatric symptoms. This reflects how mental health practice is moving away from reductionistic theories and toward that of recovery, empowerment and participation despite experiencing mental health difficulties (Stoffel, 2011). Interestingly, no measures focused on

occupational roles, such as the worker, student, or family role (American Occupational Therapy Association, 2014). Rasch analysis is ideally suited for developing measures of occupational roles, as item difficulty hierarchies (Wright & Masters, 1982) allow both researchers and practitioners to gain insights into the relative difficulty of the tasks, activities and occupations associated with these roles. Less than half of the articles explicitly stated the measure's underlying conceptual/theoretical model, while the remaining articles did not report the underlying model or were based on other measures, literature or research. De Vet et al. (2011) highlight the importance of measures being underpinned by a conceptual model for construct validity, as this upholds how the construct under investigation is manifested through the measure's items. Furthermore, not having a clear model can lead to unwarranted multidimensionality (Wright & Masters, 1982). Concurrently, if a measure intends to be multidimensional, it is imperative that it is underpinned by a multidimensional model. An example of this identified in this review is the *Community Participation Domains Measure* (Chang et al., 2016) which is underpinned by a multidimensional model of participation (Chang & Coster, 2014). To improve psychometric research within the field, future instrument developers and researchers could clearly define the conceptual or theoretical model which underpins a measure.

This review found that there was variation in the Rasch analysis techniques used within psychometric research of occupational therapy mental health self-report measures. The majority of articles investigated the functioning of the rating scale to improve its validity for the target population. Smith et al. (2003) explain how clients may use rating scales idiosyncratically, particularly if categories are unlabeled, or if there are too many categories to differentiate between. This increases error variance (i.e., noise), leading to less valid and reliable measurements (Smith et al., 2003). Hence, assessing and optimizing the rating scale using Rasch analysis can enhance a measure's psychometric properties as well as making it easier for clients to use the tool in practice.

Considering the Rasch requirement of data-to-model fit (Bond & Fox, 2015), it is encouraging that every article assessed item fit (except for Kielhofner et al., [2010]). Conversely, over half of the articles did not assess person fit. Person fit assesses the internal consistency of response patterns against the model's expectation (Wright & Masters, 1982). For example, a person with lower construct levels is expected to choose lower rating scale categories compared to someone with higher construct levels and vice versa. If client's response patterns 'fit' the model's expectations, this provides evidence that the target population is validly measured (Wright & Masters, 1982). Investigations of person fit could be reported more frequently in future research as large proportions of mis-fitting persons highlight issues

with the rating scale or between the underlying model and the measure's items (Wolfe & Smith, 2007), potentially indicating the need for further development.

Although unidimensionality (i.e., that a tool is measuring only one construct of interest) and local independence (i.e., response on one item is independent of the response on another) are requirements of Rasch analysis, the methods used to investigate these, namely principal component analysis of residuals and local independence, were not used frequently in the articles considered. Within research, unidimensionality is an important concept for making accurate measurement inferences from a measure's results (Bond & Fox, 2015). Accompanying the previous recommendation for future researchers and instrument developers to clearly outline a measure's underpinning conceptual/theoretical model, researchers could consider conducting a principal component analysis of residuals to provide further evidence of the measure's structural validity. As for local independence, researchers may find that some items violating this principle have similar content or wording, indicating some items may be redundant and could potentially be removed (Christensen et al., 2017; Yen, 1993). Hence, if item reduction of a self-report measure is the aim of one's research, Rasch analysis is a suitable methodology for this purpose (Smith et al., 2016).

Nearly every article reported a reliability indicator such as Cronbach's alpha or the analogous Person Reliability Index. On the other hand, Item Reliability Indices and Item Separation Indices were not reported as frequently. Item Reliability Indices and Item Separation Indices are unique to Rasch analysis (Bond & Fox, 2015) and respectively demonstrate the reliability of items being ordered in the same difficulty hierarchy across samples and identifying how many difficulty levels exist within the items. A true measure acts consistently across measurement events, such as a ruler (e.g., 6 inches is always greater than 5 inches regardless of the object measured). When developing outcome measures within mental health occupational therapy, it is important that items within a measure retain their difficulty ordering across time and samples for measures to be confidently used in investigating the effectiveness of intervention in both research and practice. Hence, future studies in this field could consider reporting the Item Reliability Index and Item Separation Index.

Interestingly, this review found that only Kielhofner et al. (2010) utilized a Rasch-based method to determine the stability and sensitivity of the OSA over time, namely the standardized difference formula (Wolfe & Chiu, 1999). This formula can be used to assess differential item functioning, particularly between estimates at different time points. A Rasch assumption is that items are invariant (Engelhard, 2012), meaning that their location on

the difficulty hierarchy should be consistent across time. If item difficulty estimates demonstrate stability, this means that the measure is sensitive to detecting change in person measures (Wolfe & Smith, 2007). If a self-report tool is to be used as an outcome measure, it is imperative that its sensitivity across time is validated to reliably demonstrate the effectiveness of occupational therapy intervention, both in practice and research (Laver-Fawcett, 2012). Hence, future self-report outcome measure research within mental health occupational therapy may consider the use of the standardized difference formula (Wolfe & Chiu, 1999) to facilitate this.

Limitations

Although Arksey and O'Malley's (2005) framework was followed here to identify relevant literature, the review did not include literature which was not published in English or gray literature. As this review solely focused on Rasch analysis, articles which utilized Item Response Theory models were excluded. Much like the current study, it would be beneficial to elicit if and how Item Response Theory is used in research to validate mental health occupational therapy measures.

The methodological quality of the articles was not assessed as this is not a requirement of scoping reviews (Arksey & O'Malley, 2005). Future studies could assess the methodological quality of these measures using the COSMIN Risk of Bias Checklist (Mokkink et al., 2018) which provides guidelines for studies utilizing Classical Test Theory or Rasch analysis.

Finally, this review was only concerned with self-report measures which are applicable to adults with mental health difficulties within the field of occupational therapy. Rasch analysis is robust for validating measures other than self-report measures, particularly as the Many-Faceted Rasch Model can account for rater-severity. The *Assessment of Motor and Process Skills* (and its accompanying semi-structured interview *Assessment of Awareness of Ability* [Kottorp, 2006]) is a notable therapist-administered measure which has been extensively validated using Rasch analysis with different populations (Fisher, 2006). Conducting similar scoping reviews of research utilizing Rasch analysis to validate measures with various targeted populations (e.g., pediatrics, musculoskeletal, older adults etc.) would give a broader picture of the extent to which Rasch analysis is being utilized within occupational therapy research.

Conclusion

Rasch analysis methodology supports the development of valid and reliable self-report measures that can be used to provide evidence for the

effectiveness of mental health occupational therapy. Hence, the purpose of this scoping review was to shed light on the extent to which Rasch analysis was being used within this field with the ultimate goal of further advocating for its use within this field. This review found that research wholly or partially using Rasch analysis to develop self-report measures within mental health occupational therapy spans over 18 years, with the majority of research published within the last decade. The Rasch techniques used within this research varies, with person fit statistics, local independence analysis and sensitivity analysis being the least investigated areas within the research. Investigating self-report measures using these techniques in future research can highlight areas for shortening a tool, provide evidence for the use of a tool as an outcome measure and making it easier to use in practice. Psychometric researchers developing self-report measures within mental health occupational therapy should consider the benefits that Rasch analysis possesses when making methodological decisions, while occupational therapy practitioners should be cognizant about fundamental Rasch analysis terminology and approaches to appropriately appraise evidence underlying the self-report measures they seek to use in practice. Increasing the use of Rasch analysis can create more robust self-report measures that can be used to capture the effectiveness of occupational therapy within the field of mental health.


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
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ORCID

Kim Lombard  <http://orcid.org/0000-0003-3641-7126>

Clodagh Nolan  <http://orcid.org/0000-0002-0014-2004>

Elizabeth Heron  <http://orcid.org/0000-0003-2219-4005>

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Appendix 2.2 Original Format and Sample Descriptions of Included Articles

Measure (Author, Year)	Original Format	Sample
<i>Occupational Self-Assessment (OSA)</i> ; Kielhofner, & Forsyth, 2001)	4 scales: 'Myself': 21 items rated on 3-point 'Competence' scale and 3-point 'Value' scale 'My Environment': 8 items rated on 3-point 'Environment Support' scale and 'Value' scale	302 adults with either no disability or various physical or psychiatric conditions
<i>OSA</i> (Kielhofner, Forsyth, Kramer, & Iyenger, 2009)	Study 1: original OSA [state above] Study 2: Expanded 'Myself' scales to 4-point scales Study 3: Three formats investigated (two 3-point scales or new 4-point scale)	Study 1: 512 adults with either no disability, medical/chronic, physical or psychiatric conditions Study 2: 86 adults with either no disability or medical/chronic conditions Study 3: 542 adults with either no disability, medical/chronic, psychiatric, physical, neurological, other or non-specified conditions
<i>Occupational Value instrument with predefined items (OVal-pd)</i> ; Eklund, Erlandsson, Persson, & Hagell, 2009)	26 items, 4-point scale	-103 adults with mental illness from psychiatric outpatient unit with schizophrenia or other psychosis, mood or neurotic disorder or another condition such as personality disorder to Asperger's -122 adults from the general population
<i>OSA</i> (Kielhofner, Forsyth, & Kramer, 2010)	21 items on two scales: 4-point Competence scale 4-point Value scale	112 with various conditions (contexts unspecified) such as fatigue post cancer, multiple sclerosis, bipolar disorder or no condition
<i>Modified Occupational Questionnaire (MOQ)</i> ; Scanlan, & Bundy, 2011)	Time use diary with 4 scales: -Activity category: 13 -Reasons for doing: 3-point -Value to self: 5-point -Societal value: 5-point	228 unemployed 18-25 year olds from general population
<i>Evaluation of Perceived Meaning in Day Centers (EPM-DC)</i> ; Nilsson, Argentzell, Sandlund, Leufstadius, & Eklund, 2011)	60 items, 4-point rating scale	149 adults with psychiatric disabilities attending day centres (conditions not specified)
<i>Recovery Assessment Scale (RAS)</i> ; Hancock et al., 2011)	41 items, 5-point Likert scale	92 adults with mental illness who are members of the Pioneer Clubhouse with schizophrenia or schizoaffective disorder, bipolar disorder, depression, or anxiety disorder
<i>Engagement in Meaningful Activities Survey (EMAS)</i> ; Eakman, 2012)	12 items, 5-point Likert scale	-154 older adults from senior & supported living centres -122 college students
<i>Life Balance Inventory (LBI)</i> ; Matuska, 2012)	53 items rated on 2 scales: Dichotomous scale if they engage in the activity. Polytomous scale to rate satisfaction	Pilot 1: 282 adults from general population Pilot 2: 458 adults from general population
<i>Mental Health Recovery Measure (MHRM)</i> ; Chang et al., 2013)	30 items, 5-point Likert scale	156 adults from recovery-oriented community mental health agency with bipolar disorder, schizophrenia, major depression, schizoaffective disorder, or other diagnoses

<i>Mastery Scale-Chinese Version (MS-C; Chen, Hsiung, Chung, Chen, & Pan, 2013)</i>	7 items, 4-point Likert scale	2009 adults from outpatient clinics with depressive disorders, schizophrenia, or HIV/AIDS
<i>Occupational Gaps Questionnaire (OGQ; Eriksson, Tham, & Kottorp, 2013)</i>	28 items rated on 2 dichotomous scale: if they perform the activity and if they want to perform it	601 adults from inpatient and outpatient rehabilitation units with acquired brain injury, stroke, stress-related disorders, and concussion
<i>Adult Sensory Processing Scale (ASPS; Blanche, Parham, Chang, & Mallinson, 2014)</i>	71 items (59 Sensory Processing, 12 Arousal), 5-point Likert scale	491 adults from general population
<i>Taita Symptom Checklist (TSCL; Chen, Pan, Chung, & Chen, 2015)</i>	44 items (excluding 'lie' questions used to test consistency of answers), 5-point Likert scale	-479 adults with mental illness from psychiatric hospitals and halfway houses with schizophrenia, affective disorder, anxiety disorder, eating disorder, somatoform disorder, personality disorder, drug/alcohol abuse, other, a combination or unknown disorders -583 adults from the general population
<i>Recovery Assessment Scale – Domains and Stages (RAS-DS; Hancock, Scanlan, Honey, Bundy, & O'Shea, 2015)</i>	38 items, 4-point Likert scale	298 consumer participants provided 324 datasets (26 re-administrations) from Partners in Recovery programme with anxiety/PTSD/OCD, affective disorder, schizophrenia/ schizoaffective disorder, personality disorder or unknown conditions
<i>Community Participation Domains Measure (CPDM; Chang, Coster, Salzer, Brusilovskiy, Ni, & Jette, 2016)</i>	25 items, 3-point polytomous scale	235 adults with community mental health centres with either schizophrenia-spectrum disorder or major affective disorder (proportions unknown)
<i>Assessment of Time Management Skills (ATMS-S; Janeslätt, Holmqvist, White, & Holmefur, 2018)</i>	30-items, 4-point rating-scale	-94 adults with cognitive disability from outpatient psychiatric clinic, Conditions: ADHD, neuro-psychiatric & psychiatric disabilities, intellectual disability -144 adults from general population
<i>Self-reported Activities of Daily Living (sf-ADLs; Pan, Wu, & Chen, 2018)</i>	20 items, 4-point Likert scale	-224 adults with mental illness from in/outpatient centres with schizophrenia, affective disorder, anxiety disorder, eating disorder, somatoform disorder, personality disorder, other or a combination of disorders -231 adults from general population
<i>Occupational Balance Questionnaire (OBQ; Håkansson, Wagman, & Hagell, 2019)</i>	13 items, 6-point ordered response categories	Group 1 (6-point scale): 168 adults from general population Group 2 (4-point scale): 207 adults from general population
<i>PROMIS Depression items (PROMIS; Cleathous, Barbic, Smith, & Regnault, 2019)</i>	Comparing 28-item bank and 56-item bank, 5-point Likert scale	825 adults from the general population and a clinical sample (conditions unspecified)

Appendix 3.1 Stage One Ethical Approval Letters



Coláiste na Tríonóide, Baile Átha Cliath
Trinity College Dublin
Ollscoil Átha Cliath | The University of Dublin

7th of December 2017

Re: Application 20171105

Dear Kim Lombard,

Your revised application has been reviewed by the School of Medicine Research Ethics Committee and we are pleased to inform you that the above project has been approved.

Applicants must submit an *annual report* for ongoing projects and an *end of project report* upon completion of the study. You will find these forms on the School of Medicine Research Ethics website.

Yours sincerely,

Dr. Laure Marignol

Chairperson

School of Medicine Research Ethics Committee

Laure Marignol B.Sc. PG DIPSTATS, M.Sc, PhD
Leas-Chéann an Disciplín
Ceann Taighde

Disciplín na Teiripe Radaíochta
Scoll an Leighis,
Ionad Choláiste na Tríonóide
do na hEolaíochtaí Sláinte,
Campas Ospidéal San Séamas,
Baile Átha Cliath 8, Éire.

Laure Marignol B.Sc. PG DIPSTATS, M.Sc, PhD
Deputy Head of Discipline
Head of Research

Discipline of Radiation Therapy
School of Medicine,
Trinity Centre for Health Sciences,
St. James's Hospital Campus,
Dublin 8, Ireland.

T: +353 1 896 3255
F: +353 1 896 3246
marignl@tcd.ie
www.medicine.tcd.ie/radiation-therapy



Coláiste na Tríonóide, Baile Átha Cliath
Trinity College Dublin

Ollscoil Átha Cliath | The University of Dublin

17th October 2018

Att: Ms Kim Lombard

Re: Application 20180905

Title: Using rasch analysis to investigate the psychometric properties of the Trinity Student Profile (TSP) as a valid and reliable self-report assessment tool in evaluating the occupational difficulties and occupational priorities of students with disabilities engaging in an occupational therapy service in higher education.

Dear Ms Lombard,

Further to a meeting of the School of Medicine Research Ethics Committee held in October 2018, we are pleased to inform you that the above project (Amendment request to application 20171105) has been approved, from 17/10/2018 as per this letter.

Applicants must submit an *annual report* for ongoing projects and an *end of project report* upon completion of the study. You will find these forms on the School of Medicine Research Ethics website.

Yours sincerely,

Dr. Tadhg Stapleton.
Chairperson,
School of Medicine Research Ethics Committee.

An tOllamh Michael Gill MD FTCD MRCPsych
Ceann Scoil an Leighis

Dr. Alex McKee
Riarthóir na Scoile

Scoil an Leighis
Institiúid Eolaíochtaí Bithleighis Choláiste na Tríonóide
152-160 Sráid an Phiarsaigh
Coláiste na Tríonóide,
Baile Átha Cliath,
Ollscoil Átha Cliath
Baile Átha Cliath 2, Éire.

Professor Michael Gill MD FTCD MRCPsych
Head of School of Medicine

Dr. Alex McKee
School Administrator

School of Medicine
Trinity Biomedical Sciences Institute
152-160 Pearse Street
Trinity College Dublin,
the University of Dublin
Dublin 2,
Ireland

T: +353 1 896 1476
medicine@tcd.ie
www.tcd.ie/medicine

Exemptions <exemptions.ethics@ucd.ie>
to me, Clodagh ▾

22 Dec 2017, 10:19 ★ ↶ ⋮

Dear Kim

Thank you for submitting your application for exemption to the Human Research Ethics Committee - Sciences (HREC-LS). Your application was reviewed and approved by the Chair of the Committee. Should the nature of your research change and thereby alter your exempt status you will need to submit an application form for full ethical review. Please note for future correspondence regarding this study and its exemption that your Research Ethics Exemption Reference Number (REERN) is: **EXR-E-17-04-Lombard-TCD**. **This exemption from full ethical review is being accepted by the Office of Research Ethics on the condition that you observe the following:**

- **Access to UCD Students or Student Data:** Researchers requesting permission to access students or their data must seek approval from person/unit before data collection begins.
- **Insurance Requirement:** Thank you for providing a copy of your public liability insurance.

- **Researcher Duty of Care to Participants:** please ensure that ethical best practice is considered and applied to your research projects. You should ensure that participants are aware of what is happening to them and to their data whether a study is de-identified or not. All researchers have a duty of care to their participants who have the right to be informed, the right to consent to participate and the right to withdraw from the study.

Any additional documentation should be emailed to exemptions.ethics@ucd.ie quoting your assigned reference number (provided above) in the subject line of your email.

Please note that your research does not require a committee review and also note that this is an acknowledgment of your declared exemption status. All Exemptions from Full Review are subject to Research Ethics Compliance Review.

Regards

Jan

Janette Stokes
Administrator
UCD Research Ethics & Integrity
Roebuck Castle
Belfield
Dublin 4

T: + 353 1 716 8762

E: research.ethics@ucd.ie

W: www.ucd.ie/researchethics

hrec@ucd.ie

to Exemptions, [REDACTED] me, Clodagh ▾

7 Jan 2019, 09:25

Dear Kim

The Chair has reviewed your request to amend and notes that the proposed amendments do not alter the status of the exemption and is approved. No further action required.

Regards

Jan

Janette Stokes
Research Ethics & Integrity
Roebuck Castle
Belfield
Dublin 4

t: 01 716 8762

w: www.ucd.ie/researchethics

Appendix 3.2 Rating Scale & Questionnaire Design and Analysis – University of Illinois at Chicago Transcript



**THE UNIVERSITY OF ILLINOIS
AT CHICAGO**

Page: 1

Name: Lombard, Kim

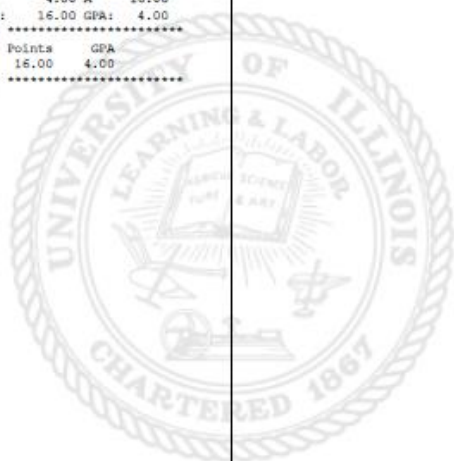
University Number: 674531616

Date Issued: 29 - JUL - 19

Course Level: Graduate Non-Degree Chicago

Day/Month of Birth: 10 - OCT

SUBJ NO.	COURSE TITLE	CRED	GRD	PTS	R
INSTITUTION CREDIT:					
Spring 2019 - Chicago					
UIC Extended Campus					
Nondegree-CE					
EPSY 550	Rate Scales/ques DessAnaly	4.00	A	16.00	
Ehrs: 4.00 GPA-Hrs: 4.00 QPts: 16.00 GPA: 4.00					
***** TRANSCRIPT TOTALS *****					
Earned Hrs GPA Hrs Points GPA					
TOTAL INSTITUTION		4.00	4.00	16.00	4.00
***** END OF TRANSCRIPT *****					



KIM LOMBARD
klombard@tcd.ie
REFNUM: 20012756637



RAISED SEAL NOT REQUIRED. This official university transcript is contained in a secured electronic file.

Robert R. Dixon

Robert R. Dixon, J.D., Registrar

Appendix 3.3 Letter of Invitation

Using Rasch Analysis to refine the psychometric properties of the *Electronic Trinity Student Profile (eTSP; Nolan, 2011)*

Letter of Invitation to Research Study

Dear Occupational Therapist,

You are invited to take part in a research study utilising a training and focus group technique, which forms part of a research project being undertaken by Kim Lombard, a postgraduate research student within the Discipline of Occupational Therapy, Trinity College Dublin. This project is under the supervision of Dr Clodagh Nolan (Discipline of Occupational Therapy) and Dr Elizabeth Heron (Psychiatry), Trinity College Dublin.

The *Electronic Trinity Student Profile (eTSP; Nolan, 2011)* is a self-report measure which can be used by occupational therapists working within an occupational therapy service for students with disabilities in higher education to identify the occupational performance difficulties experienced within their student role. However, apart from its development and pilot in 2011, the *eTSP* has not undergone extensive psychometric research to determine its validity and reliability.

Phase One of this research project involved refining the psychometric properties of the *eTSP* using a methodology known as Rasch analysis. Phase Two of the study, for which you are being invited to participate, involves occupational therapists being trained in how to use the refined tool in practice, and to engage in a focus group to share experiences of using the refined tool in practice. This project has been approved by the School of Medicine Research Ethics Committee in Trinity College Dublin.

Purpose:

The study aims to investigate the impact which the Rasch analysis has made on the *eTSP* and the implications of using the refined *eTSP* tool in occupational therapy practice with students with disabilities in higher education.

Participants:

Occupational therapists who are practicing within an occupational therapy service within higher education during the Academic year 2020/2021 and who utilise the *eTSP* with their students currently.

Data Collection:

Participation in this study involves:

- Participating in a 1-hour training session on how to use the refined *eTSP* tool in practice towards the beginning of the Academic Year 2020/2021 (i.e., August/September).
- Participating in a 1-hour semi-structured focus group to exploring experiences of using the refined *eTSP* tool in practice during the second semester of the Academic Year 2020/2021 (i.e., March).

Please note: Due to the relevant social distancing measures which will be implemented by the Irish Government and Trinity College Dublin during the time of each section of the study, the training and/or focus group may need to be held virtually via MS Teams. Should any part of this research be permitted to be held in-person, this will be held on Trinity College Dublin campus. Please see the attached Participant Information Leaflet for more information on this, and how data will be securely stored in both instances.

Expressing Interest in this Study:

If you wish to participate in this study, please read the attached Participant Information Leaflet carefully. Once you have made the decision to participate, please sign the attached Consent Form and return this form to the necessary gatekeeper (i.e., person who has sent you the notification of this study). The gatekeeper will provide a reminder to participate in this study seven days after the initial announcement. Participants can submit their Consent Forms prior to this reminder announcement.

Researcher Contact Details:

Ms Kim Lombard (BSc)

Third Year PhD Candidate in Occupational Therapy

Discipline of Occupational Therapy
Trinity Centre for Health Sciences,
St James's Hospital,
Dublin 8.

If you have any questions about this research, Kim Lombard can be contacted at klombard@tcd.ie.

Supervisor Contact Details:

Dr Clodagh Nolan
Assistant Professor and Clinical Director of the Unilink Service
Discipline of Occupational Therapy
Trinity Centre for Health Sciences,
St James's Hospital,
Dublin 8.
nolancl@tcd.ie

Dr Elizabeth Heron
Assistant Professor
Department of Psychiatry
Trinity Centre for Health Sciences,
St James's Hospital,
Dublin 8.
eaheron@tcd.ie

Appendix 3.4 Participant Information Leaflet (PIL)

Participant Information Leaflet

Name of Study: Using Rasch Analysis to Refine the Psychometric Properties of the *Electronic Trinity Student Profile (eTSP; Nolan, 2011)*

Site	Discipline of Occupational Therapy, School of Medicine, Trinity College Dublin.
Principal Investigator(s) and Co-Investigator(s)	Kim Lombard (BSc) (klombard@tcd.ie)
Study Supervisors	Dr Clodagh Nolan (nolancl@tcd.ie) Dr Elizabeth Heron (eaheron@tcd.ie)
Data Controllers	Trinity College Dublin
Data Protection Officer	Data Protection Officer Secretary's Office Trinity College Dublin Dublin 2

You are being invited to take part in a research study involving occupational therapists who are practicing within an occupational therapy service for students with disabilities in higher education. Ethical Approval for this study has been granted by the Trinity College Dublin School of Medicine Research Ethics Committee. Before you decide whether or not you wish to participate, you should read the information provided below carefully. Ask Kim Lombard any questions you may have before consenting to participate in the research. You should clearly understand the risks and benefits of taking part in this study. This process is known as 'Informed Consent'.

This leaflet has four main parts:

- Part 1: The Study
- Part 2: Data Protection
- Part 3: Costs, Funding and Approval
- Part 4: Future Studies
- Part 5: Further Information

Part 1 – The Study

Why is this study being done?

We are conducting this study to determine the impact using a refined *Electronic Trinity Student Profile (eTSP)* tool within practice. Phase One of the research project involved psychometric research using Rasch analysis to refine the *eTSP* tool with the aim of making it a more valid and reliable tool, and an easier tool to use in practice with students. Phase Two, for which you are being invited, aims to train occupational therapists in using the refined *eTSP* tool in practice and subsequently engaging in a focus group to explore the perceptions and experiences of using the tool since the changes were made.

Why have I been invited to take part?

You have been asked to take part in this study because based on the nature of your work you may have had experiencing working within an occupational therapy service for students with disabilities in higher education and may have had experience using the *eTSP* within your practice. The researcher hopes to recruit approximately 5-6 occupational therapists who meet this description.

Do I have to take part? Can I withdraw?

Participation in this study is completely voluntary. There is no obligation to participate and there will be no adverse consequences should you choose not to participate. Should you decide to participate, you can withdraw and have your individual data destroyed up to the point of data anonymisation (i.e., transcripts from the training session and focus groups are transcribed and anonymised within one month of recording). If you wish to opt out, please contact Kim Lombard at klombard@tcd.ie.

What happens if I change my mind?

You can change your mind at any time by contacting the principal researcher Kim Lombard at klombard@tcd.ie. Withdrawing from this study will not result in any adverse consequences. If you wish, you can have your individual data destroyed up to the point of data anonymisation (i.e., transcripts from the training session and focus groups are transcribed and anonymised within one month of recording). However, it will not be possible to destroy data after it is anonymised, or data which has been used in publications prior to the point of withdrawal.

How will the study be carried out?

The study is due to be carried out in two sections: section one involving an approximately 1-hour training session on how to use the new *eTSP* tool at the start of Semester Two of the Academic Year 2020/2021, and second session involving an approximately 1-hour focus group on your experiences of using the new tool in practice towards the end of Semester Two of the Academic Year 2020/2021. Ideally, both sessions would be held in-person on Trinity College Dublin campus. However, due to the current social distancing measures being implemented in response to COVID-19, and the uncertainty regarding the status of these public health measures in Semester two of the Academic Year 2020/2021, this research must be carried out in such a manner which complies with these measures at the particular point in time. Below will outline the measures which would be put in place to carry out each section of the study, depending on the public health measures being implemented at that time.

Section:	When it is due to take place	Method in which section will be conducted
1. Training in how to use the <i>TSP</i>	January 22 nd 2021	In line with the Trinity College Dublin's recommendations for semester one of the Academic Year 2020/2021, this training will be held virtually over video conferencing software . Information on how to use the video conferencing software can be provided to you should you choose to participate in the study.

<p>2. Semi-structured focus groups on experiences using the new <i>TSP</i></p>	<p>April/May 2021 (date to be agreed with participants)</p>	<p>Method in which this section will be conducted is dependent on the public health measures being implemented at this time which are currently not known.</p> <p>If Trinity College Dublin are continuing social distances measures in semester two, this focus group will be held virtually over video conferencing software. Information on how to use video conferencing software will be provided to you should you choose to participate in the study.</p> <p>If Trinity College Dublin have lifted restrictions by this point, this focus group will be held in-person in a classroom on the Trinity College Dublin campus. The classroom will be large enough to ensure that the recommended social distancing can be adhered to at the time of the focus group.</p>
<p>By consenting to participate, you are consenting to participate in both sections of the research (i.e., training and focus group) and are consenting to participate virtually or in-person, depending on the Trinity College Dublin’s social distancing measures during the Academic Year 2020/2021.</p>		

What will happen to me if I decide to take part?

If you agree to participate in the research, you will be invited to:

- Engage in a virtual training session on how to use the refined *eTSP* tool in practice, with a duration of approximately 1 hour at the start of Semester Two of the Academic Year 2020/2021.

- Engage in a semi-structured focus group exploring your experiences on your use of the *eTSP* in practice for approximately 1 hour, either virtually or in-person on Trinity College Dublin campus depending on the relevant social distancing measures in place towards the middle of the end of Semester Two of the Academic Year 2020/2021.

The training session will involve the researcher explaining the changes which have been made to the *eTSP*, why these changes were made and how to use the tool in practice. You will have the opportunity to ask any questions on how to use the new tool during this training session. The semi-structured focus group will involve the researcher asking you to describe your use of the new *eTSP* tool in practice during the Academic Year. Both the training session and the focus group will be recorded, as outlined below.

<p>What will happen to my Data?</p>
--

Both the training session and the focus groups will be recorded.

- For any elements which are held virtually via Video conferencing software, the session(s) will be audio-recorded. Once the session(s) are completed, the recording(s) will be saved to cloud storage. The video conferencing software generates an associated speech-to-text transcript. In accordance with Trinity College Dublin's Data Protection Officer's recommendations, the recording(s) will be downloaded to a double encrypted computer with the researcher only having knowledge of the password within one week of the session(s) and will be deleted from storage at this point. The researcher will then verify the transcript generated from the Video conferencing software, ensuring accuracy and anonymised (i.e., participants' names will not be included and will be referred to as participant 1, 2 etc.). The recording(s) will be deleted from the researcher's computer after one month of being downloaded. You may request access to the transcript of the focus group to check the transcript for accuracy.
- For any elements which are held in-person, the session(s) will be audio-recorded using a digital recorder. Immediately after the session(s), the researcher will transfer the audio file(s) to a double encrypted computer with the researcher only having knowledge of the password and will delete the audio-files from the digital recorder. The researcher will transcribe the recording(s) within one month of the session(s),

after which the recordings will be deleted from the researcher's computer, ensuring accuracy and anonymised (i.e., participants' names will not be included and will be referred to as participant 1, 2 etc.). You may request access to the transcript of the focus group to check the transcript for accuracy.

Neither your name nor place of work will be included in any publication of research findings. The data collected will be discussed at research supervision meetings between the researcher and the research supervisors. In accordance with best practice, any data collected will be securely retained for 7 years after which it will be destroyed. Any paper copies will be shredded and disposed of, while electronic files will be wiped and destroyed. You can withdraw permission for the researcher to use your data within two weeks after any recording(s) are completed, in which case the material will be deleted.

Are there any benefits to taking part in this research?

You may not benefit directly from participating in this research. However, you may benefit from being trained in how to use the refined *eTSP* tool in practice. Moreover, by engaging in the focus group, you will assist in establishing the impact of the refinement process of the *eTSP* by providing valuable information regarding its use in practice.

Are there any risks to me or others if I take part?

This study will involve an exploration of professional practice experience using the *eTSP* and will not involve gathering any sensitive personal data (e.g., data related to physical and mental health, financial information, biometric data, religious beliefs etc.) about either yourself or your clients.

Please be advised that although the researcher will take every precaution to maintain confidentiality of the data, the nature of focus groups prevents the researcher from guaranteeing confidentiality within the group itself, particularly in the case where participants who decide to participate are work colleagues. If you decide to participate in this study, you are kindly asked to respect the privacy of fellow participants and not repeat what is said in the focus groups to others.

Will I be told the outcome of the study?

Summary findings will be shared with you during data analysis for checking. Once analysis is completed the results of the research will be disseminated in peer-reviewed scientific journals and scientific conferences. No information which reveals your identity or place of work will be disclosed.

Part 2 – Data Protection

Your privacy is important. Many steps will be taken to make sure that your confidentiality is protected and that your data is safe, in accordance with the General Data Protection Regulation (GDPR).

What information about me (personal data) will be used as part of this study? Will my medical records be accessed?

Your name and email address will be collected in order to contact you to arrange participation in this study. No identifiable information relating to your name, email address, workplace etc. will be used in the analysis of this study. To protect your confidentiality, data will be transcribed by the researcher and will be anonymised. Your name will not be included, and participants will be referred to as participant 1, 2 etc. Your place of work will not be recorded in the transcript, nor will your name or place of work be included in any publication of the research findings. All data will be stored in an electronic format on a double encrypted computer.

What will happen to my personal data?

Your name and email address will only be used to confirm that you provide consent to participate in the research and to contact you to arrange the training and focus group. The information you provide during the training and focus groups will be audio-recorded and transcribed, but will be anonymised and will not include your name, email address, workplace etc.

Who will access and use my personal data as part of this study?

Only the principal investigator, Kim Lombard, and the research supervisors, Dr Clodagh Nolan and Dr Elizabeth Heron will have access to your personal data as part of this study. Disguised

portions of the anonymised transcripts may be used in publications, however, no identifiable information will be included.

Will my personal data be kept confidential? How will my data be kept safe?

Your privacy is important to us. We take many steps to make sure that we protect your confidentiality and keep your data safe. Here are some examples of how we do this:

- Electronic data will be stored anonymously on a double encrypted computer accessed by the researcher only. Passwords and encryption key will only be known to the researcher. Hard-copy data (i.e., consent forms) will be kept in a locked cabinet in Dr Clodagh Nolan's office within the Trinity Centre for Health Sciences.
- Only the researcher and research supervisors will access data. Your data will not be shared outside of the researcher and researcher supervisors.
- Your data will not be shared outside of the EU. Only the findings (which will not include any identifiable information) will be included in publications.
- All data will be kept for up to 7 years in line with best practice before being destroyed. Following this all-paper copies will be shredded and disposed of. Electronic files will be wiped and destroyed.
- The researcher is bound by a professional code of secrecy that would mean disciplinary action for disclosure or facilitation of unauthorised access to the personal data. Training in data protection law and practice has been provided to the researcher.

What is the lawful basis to use my personal data?

Prior to participating in this study, you will be asked to give explicit consent that your participation and contributions can be used in the analysis as outlined in this PIL. The data gathered will not be used in any unrelated future studies. By law,¹ we can use your personal information for scientific research² (in the public interest³).

What are my rights?

You are entitled to:

¹ The European General Data Protection Regulation (GDPR)

² Article 9(2) (j)

³ (Article 6(1)(e))

- The right to access to your data and receive a copy of it, you will be supplied with summary findings of the analysis for checking and may request a copy of the anonymised focus group transcript if you wish.
- The right to restrict or object to processing of your data up to the time that the transcripts are anonymised.
- The right to object to any further processing of the information we hold about you (except where it is de-identified).
- The right to have inaccurate information about you corrected or deleted.
- The right to receive your data in a portable format and to have it transferred to another data controller.
- The right to request deletion of your data. Please note that individual contributions cannot be deleted from the anonymised focus group transcript as there is no method of identifying individual participant contributions.

By law you can exercise the above rights in relation to your personal data unless the request would make it impossible or very difficult to conduct the research. You can exercise these rights by contacting the Trinity College Data Protection Officer, Secretary's Office, Trinity College Dublin, Dublin 2, Ireland. Email: dataprotection@tcd.ie. Website: www.tcd.ie/privacy.

Part 3 – Costs, Funding and Approval

Has this study been approved by a research ethics committee?

This study has been approved by the School of Medicine Research Ethics Committee at Trinity College Dublin. Approval was granted on 2nd September 2020. The researcher submits annual reports to the ethics committee to ensure adherence to the ethical approval.

Who is organising and funding this study? Will the results be used for commercial purposes?

This research study is being undertaken by Kim Lombard in the Discipline of Occupational Therapy, School of Medicine, Trinity College Dublin, under the supervision of Dr Clodagh Nolan and Dr Elizabeth Heron.

There is no funding for this study. The results will not be used for commercial purposes.

Is there any payment for taking part? Will it cost me anything if I agree to take part?

There is no payment offered to participants to take part in the study.

Part 4 – Future Research

Will my personal data be used in future studies?

No, the data gathered will not be used in any future studies. Your consent will be sought in order to use any of your personal data in future studies.

Part 5 – Further Information

Who should I contact for information or complaints?

If you have any concerns or questions, you can contact:

- Principal Investigator: Kim Lombard, Discipline of Occupational Therapy, Trinity Centre for Health Sciences, St. James Hospital, James's Street, Dublin 8 klombard@tcd.ie.
- Data Protection Officer, Trinity College Dublin: Data Protection Officer, Secretary's Office, Trinity College Dublin, Dublin 2, Ireland. Email: dataprotection@tcd.ie. Website: www.tcd.ie/privacy.

Under GDPR, if you are not satisfied with how your data is being processed, you have the right to lodge a complaint with the Office of the Data Protection Commission, 21 Fitzwilliam Square South, Dublin 2, Ireland. Website: www.dataprotection.ie.

Will I be contacted again?

If you would like to take part in this study, you will be asked to sign the Consent Form on the next page. You will be notified again in three weeks to submit the signed Consent Form should you wish to participate. However, you may submit the signed Consent Form at any point before this notification if you wish. You will be given a copy of this information leaflet and the signed Consent Form to keep.

Appendix 3.5 Consent form

CONSENT FORM:

<p>STUDY NAME: Using Rasch Analysis to Refine the Psychometric Properties of the <i>Electronic Trinity Student Profile (eTSP; Nolan, 2011)</i></p> <p>Identification Number for study: 20171105</p>

Consent Form

<p>There are 2 sections in this form. Each section has a statement and asks you to initial if you agree. The end of this form is for the researchers to complete.</p> <p>Please ask <u>any</u> questions you may have when reading each of the statements.</p> <p>Thank you for participating.</p> <p>Please <u>Initial</u> the box if you agree with the statement. Please feel free to ask questions if there is something you do not understand.</p>	
1. General	Initials
I confirm I have read and understood the Information Leaflet for the above study. The information has been fully explained to me and I have been able to ask questions, all of which have been answered to my satisfaction.	
I understand that this study is entirely voluntary, and if I decide that I do not want to take part, I can stop taking part in this study at any time without giving a reason. I understand that deciding not to take part will not result in consequences of any kind.	
I understand that participation involves engaging in a training session on how to use the refined <i>Electronic Trinity Student Profile (eTSP)</i> tool towards the start of Semester Two of the Academic Year 2020/2021 (i.e., January 22 nd 2021) and engaging in a focus group towards the end of Semester Two of the Academic Year 2020/2021 (i.e., April/May TBC)	
I understand that I will not be paid for taking part in this study.	

I know how to contact the research team if I need to.	
I agree to take part in this research study having been fully informed of the risks, benefits and alternatives which are set out in full in the Participant Information Leaflet which I have been provided with.	
I agree to being contacted by researchers by email as part of this research study.	
2. Data collection, processing, storage, retention, and erasure	Initials
I understand that my data will not be shared outside of the researcher and researcher supervisors and that that anonymised extracts from the training and focus groups may be quoted in the researcher's dissertation, published papers and/or conference presentations.	
I understand that personal information about me, including the transfer of this personal information about me outside of the EU, will be protected in accordance with the General Data Protection Regulation.	
I understand that there may be no direct benefits to me from participating in this study. I understand that I will be provided with summary findings for checking, and that I may request a copy of my transcript.	
I understand that I can stop taking part in this study at any time without giving a reason and this will not result in consequences of any kind.	
I understand that my personal data will not be used in any future research without my explicit consent being gathered to do so.	

<p>I understand that either or both sessions (i.e., training session and focus group) will be carried out virtually (via video conferencing software) or in-person (on Trinity College Dublin campus). I understand that this is dependent on the appropriate COVID-19 social distancing measures which will be implemented at the time of these sessions, and by consenting to participate in this research I am agreeing to participate virtually and/or in-person.</p>	
<p>I agree to my focus group interview being audio-recorded.</p>	
<p>I understand that in any report on the results of this research my identity will remain anonymous. This will be done by changing my name and disguising any details of my interview which may reveal my identity or the identity of people I speak about.</p>	
<p>I understand that signed consent forms and data collected will be stored on a double encrypted computer accessed by the researcher only. I understand the researcher may discuss the data with their research supervisors. I understand that any video conferencing software recordings will be downloaded to the researcher's secure computer and deleted from cloud storage within one week of recording. I understand that any recordings taken on a digital recorder will be immediately transferred to the researcher's secure computer and will be deleted from the digital recorder. I understand that the researcher will transcribe and anonymise the data within one month of the recording, and will delete the audio recordings (either video conferencing recording or digital recording) within one month of recording.</p>	
<p>I understand that I will need to respect the privacy of fellow focus group participants and to not repeat what is said within the focus groups to others.</p>	
<p>I understand that if I inform the researcher that myself or someone else is at risk of harm, they may have to report this to the relevant authorities - they will discuss this with me first but may be required to report with or without my permission.</p>	

<p>I understand that disguised extracts from the training and focus groups may be quoted in the researcher’s dissertation, published papers and/or conference presentations.</p>	
<p>I understand that any transcripts from the training and/or focus groups in which all identifying information has been removed will be retained for up to 7 years in line with best practice before being completely destroyed.</p>	
<p>I understand that under freedom of information legalisation I am entitled to access the information I have provided at any time while it is in storage as specified above.</p>	
<p>I understand that the researcher will be unable to delete or cease processing data which is de-identified/anonymised as there is no method of identifying individual contributions to the focus group.</p>	
<p>I confirm that the researcher has informed me of my data protection rights within the Participant Information Leaflet.</p>	

To participate in this study, please sign below (electronic signature accepted) and return to the researcher at klombard@tcd.ie:

Participants Name (Block Capitals)	Participants Signature	Date
------------------------------------	------------------------	------

Participants email address (Block capitals): _____

To be completed by the Principal Investigator or nominee.

I, the undersigned, have taken the time to fully explain to the above participant the nature and purpose of this study in a way that they could understand. I have explained the risks and possible benefits involved. I have invited them to ask questions on any aspect of the study that concerned them.

I have given a copy of the information leaflet and consent form to the participant with contacts of the study team.

Kim Lombard

BSc Occupational Therapy, PhD Candidate Occupational Therapy



18th December 2020

Appendix 3.6 Interview Guides

3.6.1 Initial Focus Group (FG1) Interview Guide

1. Student details section ~10 mins

- How long have you had experience in using the *TSP/eTSP*?
- How are demographic details being collected?
- At what point do you get students to complete the *eTSP*? Do you uniformly get students to complete it as a screening tool?
- Do you self-select who completes the *eTSP*? What is the rationale for not giving the *eTSP* to a student?
- Do you find the instructions useful and do you adhere to them?

2. Previous & Current experience section ~10 mins

- How have you found using this section in practice?
- What is your understanding of the PEO model and its relationship to the TSP?
- The current *eTSP* does not include a 'course demands' section like the paper-based version of the TSP. Are you asking students about their course demands each semester?

3. Identifying Needs section ~20 mins

- Please tell me about your experience of using the 'Identifying Needs' section in practice to-date.
- What are your thoughts on the usability and accessibility of this section?
- How have you found the length and layout of this section (i.e., the number of items)?
- How are students using the 0-5 Likert 'Difficulty' and 'Importance' scales? Does the Importance scale help to form goals/priorities with students?

4. Goal Setting section ~10 mins

- How do you find using this section in practice?

5. Stop screen sharing to ask final questions ~10 mins

- Now that we have gone through the main sections of the *eTSP*, are there parts not getting used? If so, why might this be?
 - Have you had experience in using a tool that was validated using Rasch analysis methodology? (For example, the *Occupational Self Assessment*)
 - Do you have any other thoughts/ideas you would like to add?
 - What are your thoughts on how the OT approach marries with disability services?
-

3.6.2 Follow-up Focus Group (FG2) Interview Guide

To Start

- Tell me about how you have found using the new *eTSP* over the last semester.

Course Demands section

- The paper-based TSP included a Course demands section which did not make it into the original Excel version of the *eTSP*. **The 'Module Matrix' section was reintroduced into this refined *eTSP*.** How have you found using this section with students the semester?

Identifying Needs section (Rasch analysis refinements):

- Please tell me about your overall experience of using the refined 'Identifying Needs' section this semester.
- This section was originally made up of separate Person, Environment and Occupation scales. The Rasch analysis **merged all the items together into one scale**. Having had the opportunity to use the refined tool, do you have any thoughts/perceptions on this change?
- At the first focus group, it was highlighted that the **length of the *eTSP* and time it takes to complete the tool** especially at busy times during the semester can pose challenges. Have you noticed any difference with this after using the refined tool?
- At the first focus group, it was highlighted that there was an **element of repetition in some of the items**. The Rasch analysis reduced the scale from 74 items to 54 items. Have you noticed any difference with this after using the refined tool?
- Looking at the 'Difficulty' Likert-style scale, have you noticed any difference since the scale was **reduced from a 6-point scale to a 4-point scale** with a 'Not applicable' option and the labels being displayed on the tool?
- Looking at the 'Importance' Likert-style scale, have you noticed any difference since the scale was **reduced from a 6-point scale to a 3-point scale** with a 'Not applicable' option and the labels being displayed on the tool?
- Overall, what is your experience of the **usability and applicability of the refined *eTSP***?
- Do you have any other **thoughts/comments you would like to add**?

Appendix 3.7 Stage Two Ethical Approval Letters



Coláiste na Tríonóide, Baile Átha Cliath
Trinity College Dublin
Ollscoil Átha Cliath | The University of Dublin

2nd September 2020

Application No: 20200701

Re: Using Rasch Analysis to refine the psychometric properties of the Electronic Student Profile (eTSP; Nolan, 2011)

Dear Ms Lombard,

Your revised application has been reviewed by the School of Medicine Research Ethics Committee (REC) and we are pleased to inform you that the above project has been approved.

Please note that documents submitted for GDPR purposes within your ethics application are approved by the REC from an ethical perspective only and this approval does not confirm GDPR compliance. Where a Data Protection Impact Assessment (DPIA) is required please submit the DPIA to the Data Protection Office (DPO) and seek comment from the DPO prior to commencing your study.

It is the responsibility of the researcher/research team to ensure all aspects of the study are executed in compliance with the General Data Protection Regulation (GDPR), Health Research Regulations and Data Protection Act 2018.

Yours sincerely,

Dr. Tadhg Stapleton,
Chairperson,
School of Medicine Research Ethics Committee,
Trinity College Dublin.

An tOllamh Michael Gill MD FTCD MRCPsych
Ceann Scoil an Leighis

Dr. Alex McKee
Riarthóir na Scoile

Scoil an Leighis
Institiúid Eolaíochtaí Bithleighis Choláiste na Tríonóide
152-160 Sráid an Phlarsaigh
Coláiste na Tríonóide,
Baile Átha Cliath,
Ollscoil Átha Cliath
Baile Átha Cliath 2, Éire.

Professor Michael Gill MD FTCD MRCPsych
Head of School of Medicine

Dr. Alex McKee
School Administrator

School of Medicine
Trinity Biomedical Sciences Institute
152-160 Pearse Street
Trinity College Dublin,
the University of Dublin
Dublin 2,
Ireland

T: +353 1 896 1476
medicine@tcd.ie
www.tcd.ie/medicine

hrec@ucd.ie
to me, Clodagh, Elizabeth, [REDACTED]

Tue, 20 Oct 2020, 17:13 ☆ ↶ ⋮

Dear Kim

Thank you for your request to amend and extend (09/10/20) which has been **granted approval**. The Chair has reviewed your request and grants approval as there is no alteration to your low risk exemption status. No further action is required.

This is for the work and time period specified in your original submission and subsequent requests to amend and extend, and is subject to the conditions below:

- The time period of the ethical approval for this study has been extended until **September 30th, 2023**.
- The details of the approvals for **EXR-E-17-04-Lombard-TCD** to date are as follows:

Approval Granted: 22/12/17

1. **Amendment & Extension Approval: 07/01/19**
2. **Amendment & Extension Approval: 20/10/20**

- Please note that the granting of this ethical approval is premised on the assumption that the research will be carried out within the limits of the law;
- Please also note that approved applications and any subsequent amendments are subject to a Research Ethics Compliance Review.

If you have any queries regarding the above please contact the Office of Research Ethics and please quote your reference in all correspondence.

Regards

Jan

Janette Stokes
Research Ethics Officer
Belfield
Dublin 4
t: 353 1 716 8762
w: www.ucd.ie/researchethics
t: @EthicsUCD



Research Ethics Committee researchethics@tudublin.ie via tudublin.onmicrosoft.com

20 May 2020, 09:23 ☆ ↶ ⋮

to me ▾

Hi Kim,

Can you send us a copy of the insurance and the approval letter so I can have the chair of the committee have a look at.

Regards

Daphne



Kim Lombard <klombard@tcd.ie>

20 May 2020, 11:31 ☆ ↶ ⋮

to Research ▾

Hi Daphne,

Many thanks for your email.

I have attached here the original approval letter and 1st amendment approval letter from TCD School of Medicine Research **Ethics** Committee. These approvals were in relation to Phase One of the project, which involved the collection of irrevocably anonymised existing data.

For Phase Two, I am just about to apply for another amendment to conduct 'interviews (consensual) with non-vulnerable adults', which is occupational therapists being interviewed in their professional capacity. I am applying both from TCD and UCD. I do not foresee an issue with this amendment going through, but the committees are not meeting until start of June. I would be looking to conduct similar Phase Two activities with occupational therapist(s) working within the disability services of **TU Dublin**. I am not seeking to gather any irrevocably anonymised existing data from **TU Dublin**.

I have also attached a copy of TCD's public liability insurance.

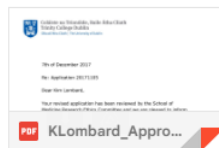
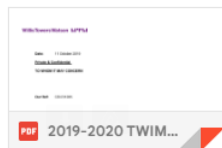
Please do let me know if there is anything else you require at this point.

Best wishes,

Kim



3 attachments • Scanned by Gmail ⓘ





Research Ethics Committee researchethics@tudublin.ie [via](mailto:researchethics@tudublin.ie) [tudublin.onmicrosoft.com](mailto:researchethics@tudublin.ie)

to me ▾

Hi Kim,

Thank you for your email. I suggest that you might want to talk to the Disability Services themselves regarding your Focus Groups.

Regards

Daphne

22 May 2020, 12:26



Appendix 4.1 Refining the psychometric properties of the Trinity Student Occupational Performance Profile – A self-report measure of occupational performance difficulties within the student role (Lombard, Nolan, & Heron, 2023 – first published online 2022)

For updates

Research Article



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

Kim Lombard¹ , Clodagh Nolan¹ , Elizabeth Heron²

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

Received: 24 February 2022; accepted: 30 May 2022

Introduction

It is estimated that globally, one third of newly entered college students experience difficulties with their mental health (Auerbach et al., 2018). Transitioning to higher education requires students to make academic, social and personal adjustments as they navigate the autonomous institutional environment of university (Baker and Siryk, 1984), all of which impact on a student's occupational performance (Keptner and Rogers, 2018) and satisfaction with occupational performance (Keptner, 2018). These occupational performance difficulties can include difficulties with social-related occupations, time management, academic-related occupations, sleep, managing stress and managing money (Keptner and Rogers, 2018). Furthermore, the transition to higher education may be accompanied by additional occupational performance difficulties for students with disabilities such as mental health difficulties (Storrie et al., 2010) including autism spectrum disorder (ASD; Nuske et al., 2019) and attention deficit hyperactivity disorder (ADHD; Jansen et al., 2017). Supporting the transition of students with mental health disabilities is an emerging area of practice for occupational therapists (Spencer et al., 2018).

Hence, it is imperative that assessment practices reliably and efficiently identify students' occupational performance difficulties within their student role so that appropriate reasonable accommodations and interventions can be implemented in a time-sensitive manner. However, widely used measures of occupational performance do not specifically investigate the nuanced occupational performance difficulties experienced within the student role. For example, the *Occupational Self-Assessment* (Kielhofner and Forsyth, 2001) refers to the student role alongside other roles such as the worker, volunteer or family member role but does not examine this role in detail. Moreover, Keptner and Rogers (2018) used the *Canadian Occupational Performance Measure* (Law et al., 2005) to investigate the occupational performance concerns of the

¹Discipline of Occupational Therapy, Trinity College Dublin, Dublin, Ireland

²Department of Psychiatry, Trinity College Dublin, Dublin, Ireland

Corresponding author:

Kim Lombard, Discipline for Occupational Therapy, Trinity Centre for Health Sciences, St James's Hospital, James's Street, Dublin 8, Ireland.
Email: klombard@tcd.ie

general student population but needed to adapt the measure to include questions which were more relevant to university students. Keptner (2018) further highlighted the need for a tool which accurately identifies a student's occupational performance concerns and self-perceptions of performance.

A tool that fulfils this need is the Trinity Student Occupational Performance Profile (TSOPP), previously known as the Trinity Student Profile (TSP; Nolan, 2011), which is a self-report measure of occupational performance difficulties for students with mental health disabilities in higher education. The measure was developed in response to the increasing academic, social and personal difficulties experienced by students with mental health disabilities in managing their student role in higher education (Nolan, 2011). The tool has not been published in a peer-review journal to-date but has been utilised in several occupational therapy services in higher education in Ireland (Nolan, 2011). The TSOPP is underpinned by the Person-Environment-Occupation model (PEO; Law et al., 1996) which provides an appropriate framework for students to identify their occupational performance difficulties and understand the transactive relationship between person factors (e.g. cognitive and affective factors; physical factors will not be discussed in this article), their university environment (e.g. physical, social, cultural and institutional environments) and the occupational demands of being a student (e.g. academic, social and personal occupations). The TSOPP consists of the following five parts, of which the first three are self-reported by the student and parts four and five are completed in collaboration with the therapist:

- Part One 'Student Details' captures demographic details including contact details, course, year of study, next of kin and psychiatrist/GP details if applicable.
- Part Two 'Experiences and Expectations' asks open-ended questions regarding a students' strengths, hobbies/interests, college and work experience followed by what their expectations are academically, socially and personally for the year. Furthermore, the PEO-model (Law et al., 1996) diagram is displayed to inform students of the conceptual model underlying the approach to the self-report measure.
- Part Three 'Identifying Needs' enables students to self-report their occupational performance difficulties within the student role. There are 74 items split over Person ($N = 30$), Environment ($N = 20$) and Occupation ($N = 24$) itemsets and students rate how difficult an item is to manage on a 6-point Likert-style 'Difficulty' scale.
- Part Four 'Course Demands (Module Matrix)' allows students and therapists to identify the demands which they are expected to meet within each module of the student's course (e.g. assignments, exams and placement/internship).
- Part Five 'Goal-setting' enables students and therapists to identify priorities for therapy and collaboratively set goals.

As the scope of this study was on refining the psychometric properties of the TSOPP, this article will only discuss

the 6-point Likert-style 'Difficulty' scale in Part Three 'Identifying Needs' from here on.

In establishing preliminary psychometric properties of Part Three's 6-point 'Difficulty' scale, Nolan (2011) used a mixed-methods approach to develop and pilot the original paper-based measure. During Nolan's (2011) pilot, data from 140 'Difficulty' scales were analysed using Classical Test Theory. Following a clinical audit to improve fidelity and adherence of the service to standards of practice, the paper-based measure was converted to an electronic Excel-based format without modifying item content. The new version was known as the *eTSP* and was fully rolled out in 2015 (Creaner and Nolan, 2016).

Although this version of the self-report TSOPP has been used in practice, the psychometric properties of Part Three 'Identifying Needs' require further rigorous validation and refinement. This is especially important as the construct it intends to measure (i.e. self-reported occupational performance difficulties within the student role) is latent, meaning it is abstract and cannot be easily observed (Bond and Fox, 2015). Furthermore, Paulhus and Vazire (2007) raise concerns regarding the credibility and sources of bias of self-report measures such as the TSOPP, arguing that clients may choose socially desirable answers or may lack self-awareness. Smith et al. (2003) also highlight how some clients are prone to choose extreme scores on a Likert-style scale while others may only choose middle categories. Self-report measures which have poorly defined category labels or have too many categories to discriminate between may lead to clients using the scale idiosyncratically which can affect the measure's validity (Smith et al., 2003). For the TSOPP to be robust in measuring a latent construct such as occupational performance difficulties, the items should be well-defined and act as a ruler or hierarchy, representing 'less' to 'more' of the construct (Bond and Fox, 2015). Consequently, this ruler or hierarchy would enable the identification of where a student sits on this hierarchy (i.e. a student's level of occupational performance difficulties) and would subsequently assist in developing graded intervention plans. Therefore, the aim of this study was to improve the reliability and validity of the TSOPP by refining the psychometric properties of the self-report 'Difficulty' scale in Part Three 'Identifying Needs' using Rasch analysis (Bond and Fox, 2015; Lombard et al., 2021).

Method

Sample

This study retrospectively collected 667 irrevocably anonymised Part Threes created between 2007 and 2017 from the disability services in two large Irish universities using purposive and convenience sampling. Ethical approval was obtained from both universities, and written consent was deemed unnecessary by the ethics boards as the data was irrevocably anonymised. Sample demographics are outlined in Table 1. The occupational therapy service was established in University One (85.3%, $N = 569$) in 2004, whereas the

Table 1. Sample demographics ($N = 667$).

Sample demographic	$N = 667$
Gender	
Male	323 (48.4%)
Female	341 (51.1%)
Missing	3 (0.5%)
University	
One	569 (85.3%)
Two	98 (14.7%)
Format	
Paper (trinity student profile)	444 (66.6%)
Excel (etrinity student profile)	223 (33.4%)
Age (years)	
Range	17-46
Mean (SD)	22.85 (5.7)
Mode	19
Level of degree	
Undergraduate	594 (89.1%)
Postgraduate	68 (10.2%)
Missing	5 (0.7%)
Disability	
Depression	170 (25.5%)
Asperger's syndrome/autism spectrum disorder	114 (17.1%)
Attention Deficit Disorder (ADD)/Attention Deficit Hyperactivity Disorder (ADHD)	76 (11.4%)
Anxiety	67 (10.0%)
Mental health other	101 (15.1%)
Dyspraxia/Developmental Coordination Disorder (DCD)/specific learning difficulty	61 (9.2%)
Other (physical, sensory, significant ongoing illness, neurological, speech and language)	75 (11.2%)
Missing	3 (0.5%)
Repeating (e.g. modules, entire year)	
No	505 (75.7%)
Yes	115 (17.2%)
Missing	47 (7.1%)
Faculty	
Arts, humanities, Social science and law, business	401 (60.2%)
Science, engineering, mathematics and architecture	163 (24.4%)
Health and agricultural sciences	95 (14.2%)
Missing	8 (1.2%)
Year of study	
1 st year/access course	312 (46.8%)
2 nd year	116 (17.4%)
3 rd year	99 (14.8%)
4 th year/5 th year medicine	64 (9.6%)
Postgrad masters/PhD/diploma	68 (10.2%)
Missing	8 (1.2%)

service was only established in 2012 on a part-time basis in University Two (14.7%, $N = 98$).

Instrument

Part Three 'Identifying Needs' consists of 74 items split over three item-sets based on the Person ($N = 30$), Environment ($N = 20$) and Occupation ($N = 24$) model (Law et al., 1996). The original author of the self-report measure (Nolan, 2011) intended for students to indicate how difficult each item is to manage by rating them on a 6-point Likert-style 'Difficulty' scale (i.e. 0 = no difficulty; 5 = extreme difficulty). However, the adjectival descriptors of the middle categories are not displayed on the measure (i.e. 1 = some difficulty, 2 = small difficulty, 3 = medium difficulty and 4 = moderate difficulty). It is acknowledged that the ultimate construct of the underlying PEO-model is occupational performance (Law et al., 1996). Hence, in addition to the separate Person, Environment and Occupation item-sets, this study evaluated

a combined item-set in which all 74 'Difficulty' items were analysed together to determine if the TSOPP demonstrates stronger psychometric properties as one combined scale of occupational performance difficulties or as separate Person, Environment and Occupation scales.

Data analysis

The Rasch model is a probabilistic model which assumes that the responses a student gives to each item on the TSOPP are a function of the item's 'difficulty' and the person's 'ability' (Wright and Masters, 1982). Rasch analysis is a person-centred measurement model (Veloza, 2021) which enables the relative difficulty of each item (i.e. item difficulty measure) to be reflected on a hierarchy from 'less' to 'more', similar to a ruler (Bond and Fox, 2015). Simultaneously, Rasch analysis can determine where a student is situated (i.e. person measure) on the 'occupational performance difficulty' hierarchy (Veloza, 2021), even if there is missing data

(Smith and Wind, 2018). This is advantageous over traditional total raw scores which may suggest that a student has lower levels of occupational performance difficulty when in fact they have just left several items unanswered. The data was inputted on site of both disability services and analysed using WINSTEPS version 4.7.0.0 (Linacre, 2020a). As all 74 items share a common 6-point scale, it was determined that the Rating Scale Model was the most appropriate model to use for the analysis (Andrich, 1978; Wright and Masters, 1982).

Item and person fit. The Rasch model has expectations for how students respond to TSOPP items. For example, it expects students with high levels of occupational performance difficulties to choose higher rating scale categories for most items, whereas students who are managing well are expected to choose lower rating scale categories. Fit statistics (i.e. mean square fit statistics [*MnSq*] and standardised mean square fit statistics [*Zstd*]) indicate how well item-related data or person-related data fits these expectations. Data which has a *MnSq* > 1.4 and a *Zstd* > 2.0 are considered to be misfitting (Bond and Fox, 2015). An item might misfit if it is measuring a different construct to the rest of the items (i.e. multidimensionality). A person might misfit if they have an erratic response pattern, such as choosing '0 = no difficulty' for very difficult items and '5 = extreme difficulty' for very easy items. It is expected that 5% of data misfits by chance (Smith, 2002) and can be dealt with by removal if warranted. This study also sought to determine the impact that misfitting persons had on item difficulty measures by assessing displacement (Linacre, 2020b). This process involves calibrating item difficulty measures while excluding misfitting persons, re-instating the misfitting persons into the analysis, re-calibrating the item difficulty measures and then determining by how much the item difficulty measures were moved or displaced by the misfitting persons. Any displacement between ± 0.5 logits is considered inconsequential, while displacements >0.5 logits or <-0.5 logits are considered significant (Linacre, 2020b), with the logit being the unit of measurement used in Rasch analysis (Bond and Fox, 2015).

Rating scale functioning. Within the context of the TSOPP, the Rating Scale Model (Andrich, 1978; Wright and Masters, 1982) assumes that students with increasingly higher levels of occupational performance difficulties will choose increasingly higher rating scale categories to reflect this. This is known as ordered categories. Disordering of categories can occur if there are too many categories for people to adequately differentiate between (Weng, 2004), or if some categories are not used frequently in practice (Linacre, 2001). Linacre (2004) outlines guidelines for assessing the functioning of a rating scale: assessing if each category satisfies the following (a) has >10 observations, (b) the average person measure increases as the categories increase, (c) the *MnSq* < 2.0 and (d) that the threshold between each category (i.e. the point at which a student has equal probability of choosing adjacent categories) increases as the categories increase. Categories may be collapsed together to remedy category disordering (Bond and Fox, 2015).

Dimensionality. Unidimensionality indicates that items work together to measure one construct (Bond and Fox, 2015), such as occupational performance difficulty for the TSOPP. Two methods of assessing dimensionality include conducting a principal component analysis of the residuals and assessing local independence. The principal component analysis of residuals is used to determine if there were any unexpected patterns which would indicate multidimensionality, this would be indicated if there was >5% unexplained variance with an eigenvalue >2.0 (Bond and Fox, 2015). For TSOPP items to be locally independent (Yen, 1993), the response a student gives to one item should not influence the response they give to another item. Items may violate local independence if they are similarly worded or measure similar concepts and these violations can be remedied by removing redundant items (Bond and Fox, 2015). Item pairs with an inter-item correlation >0.4 were investigated (Linacre, 2020c).

Reliability and separation. In Classical Test Theory, the reliability of a measure is represented by Cronbach's alpha, as in Nolan's (2011) pilot study of the TSOPP. In Rasch analysis a similar indicator, the person reliability index, which ranges from 0 to 1, is used (Bond and Fox, 2015). Similarly, an item reliability index, which also ranges from 0 to 1, indicates the extent to which the item difficulty hierarchy would be perceived consistently across different samples (Bond and Fox, 2015). For separation, the person separation index indicates how well a measure can distinguish between differing levels of the construct among the sample, while the item separation index indicates how many levels of difficulty exist among the items (Wolfe and Smith, 2007). For this study, a person reliability index >0.80 with a person separation index >2 and an item reliability index >0.90 with an item separation index >3 is considered acceptable (Bond and Fox, 2015). Cronbach's alpha between 0.7 and 0.95 was considered acceptable (Terwee et al., 2007).

Item difficulty hierarchy and targeting. In Rasch analysis, an item difficulty hierarchy can be generated which empirically orders items from 'less' to 'more' of a construct (Wolfe and Smith, 2007). For the TSOPP, the item difficulty hierarchy is ideal for providing insight into the relative difficulty of the items which reflect occupational performance difficulties associated with the occupational role of being a student (Lombard et al., 2021). The item difficulty hierarchy can be displayed using a person-item map. This map allows for the identification of ceiling or floor effects and to determine if the range of difficulty of the items sufficiently captures the range of occupational performance difficulties experienced by the students in the sample, also known as targeting (Bond and Fox, 2015).

Results

Using Rasch analysis, the TSOPP underwent a six-step iterative refinement process outlined below.

Step One

Initial Rasch analyses of the respective Person, Environment and Occupation item-sets as well as the combined TSOPP item-set were conducted (Table 2). The 6-point rating scale did not function optimally across any of the item-sets, with evidence of disordering between categories '1 = some difficulty' and '2 = small difficulty'. Furthermore, the Environment item-set demonstrated an inadequate person reliability index (0.76) and person separation index (1.80). Greater than 5% of items misfit in the separate Person (2/30, 6.7%), Environment (1/20, 5%) and Occupation (2/24, 8.3%) item-sets, indicating multidimensionality. However, the combined item-set demonstrates no evidence of item misfit, indicating that all 74 items are working well together to measure the construct of occupational performance difficulty in the student role. Person misfit appears to be an issue for each item-set.

The principal component analysis of the residuals of the separate item-sets indicates multidimensionality, whereas the combined TSOPP item-set demonstrates unidimensionality with no contrasts having an eigenvalue >2.0 with unexplained variance >5%. For local independence, by combining the TSOPP items together, it is possible to identify the local independence issues which arise between items across the Person, Environment and Occupation item-sets due to the transactive nature of the PEO, which would otherwise not have been identified. For example, 'Handing up work on time [HANDWORK]' (Person item-set) violated local independence with 'Dealing with time pressures and deadlines [PRESSDEA]' (Occupation item-set). Considering the item content, this violation of local independence is not surprising. This supports the argument that the TSOPP 'Difficulty' scale demonstrates stronger psychometric properties as one combined scale of occupational performance of the student role in comparison to separate Person, Environment and Occupation scales because of the transactive relationship between the person, environment and occupation within the PEO-model (Law et al., 1996). Hence, subsequent analyses focus on remedying the issues associated with this combined scale.

Step Two

The 6-point Likert-style 'Difficulty' rating scale demonstrated evidence of category disordering (see Supplementary Table 1). Figure 1 outlines how the 6-point Likert scale was collapsed into a 4-point Likert scale which meets Linacre's (2004) rating scale functioning requirements. A 'not applicable' option has been added to give students the ability to indicate items which are not applicable to their specific course (e.g. placement/lab items for students in Arts & Humanities; exam-related items for postgraduate students who do not have exams).

Step Three

After the rating scale was remedied, 104 (15.6%) persons misfit (Table 2). A descriptive analysis did not highlight

major differences between these misfitting persons and the remainder of the sample. When determining the impact of misfitting persons on the item difficulty measures, it was found that the item difficulty measure displacements ranged from -0.28 logits to 0.16 logits which is considered inconsequential (Linacre, 2020b). This indicates that misfitting persons did not substantially change the item difficulty measures; hence, all misfitting persons were retained for subsequent analyses.

Step Four

The first contrast in the principal component analysis of the residuals of the 4-point 74-item 'Difficulty' scale had an eigenvalue of 5.85 with unexplained variance of 5.0% (Table 2), indicating potential multidimensionality (Bond and Fox, 2015). Thirty-four item pairs violated local independence with inter-item correlations ranging from 0.4 to 0.71 which contributed to this multidimensionality. To remedy these violations, redundant items were removed stepwise. A total of 20 items (see Supplementary Table 2) were removed resulting in a 54-item scale. Items from two pairs which violated local independence were retained as they were deemed to be clinically relevant (i.e. 'Managing alcohol intake [MANALCOH]' and 'Managing/avoiding other substances [MANSUBST]' and 'Participating in discussion [PARTDISC]' and 'Doing presentations [PRESENTA]'). Remedying the local independence violations subsequently remedied the potential multidimensionality, with the principal component analysis of the residuals of the 54-item TSOPP being within acceptable ranges. All 54 items fit the model's expectations (see Supplementary Table 3).

Step Five

The 4-point 54-item TSOPP 'Difficulty' scale had a person reliability index of 0.91 and person separation index of 3.15, while the item reliability index was 0.99 and item separation index was 13.90, all indicating excellent reliability and separation (Bond and Fox, 2015). Cronbach's alpha was 0.91 which is considered strong (Terwee et al., 2007).

Step Six

The item difficulty hierarchy is illustrated using a person-item map (Figure 2). This map demonstrates the relative level of occupational performance difficulties of students in the sample on the left-hand side and the relative difficulty of the items on the right-hand side. The example provided demonstrates that student A is experiencing high levels of occupational performance difficulties in comparison to student B. Student A is finding the item 'Understanding the Library System' difficult to manage and hence it is likely that they are experiencing difficulty with all items that fall below this item. However, student B is managing most of the items but is having difficulty managing some of the most difficult items such as 'Concentration during study [CONCENSIT]'. The item difficulty hierarchy for the TSOPP confirms that items

Table 2. Initial Rasch analysis of 'Difficulty' scale.

	Person (N = 30)	Environment (N = 20)	Occupation (N = 24)	Combined (N = 74)	Combined w/4-point scale (N = 74)	Refined 4-point scale (N = 54)
Item-set	665	662	661	667	667	667
Sample size	6	6	6	6	4	4
Rating scale categories						
Rating scale (Linacre 2004)	Yes	Yes	Yes	Yes	Yes	Yes
>10 observations/category	Yes	Yes	Yes	Yes	Yes	Yes
Average measure increases	Yes	Yes	Yes	Yes	Yes	Yes
MinSq <2.0	No	No	No	No	No	No
Andrich threshold increases	0.88	0.76	0.86	0.94	0.93	0.91
Person reliability	2.65	1.80	2.49	3.91	3.79	3.15
Person separation	0.02	0.02	0.02	0.01	0.02	0.02
SE of person mean	0.90 (SEM 7.59)	0.84 (SEM 6.29)	0.91 (SEM 6.97)	0.95 (SEM 12.40)	0.93 (SEM 7.14)	0.91 (SEM 6.06)
Cronbach's alpha	0.99	0.99	0.99	0.99	0.99	0.99
Item reliability	12.4	9.80	10.55	13.46	13.25	13.90
Item separation	0.07	0.07	0.07	0.05	0.08	0.10
SE of item mean	2.70 (6.7%)	1.70 (5%)	2.74 (8.3%)	0	0	0
Misfitting items (MinSq>1.4, Zstd>2.0)	75 (11.3%)	60 (9.1%)	69 (10.4%)	98 (14.7%)	104 (15.6%)	102 (15.3%) (accepted)
Person fit	9 item pairs	5 item pairs	7 item pairs	37 item pairs	34 item pairs	2 item pairs (accepted)
Dimensionality and local independence	3	1	3	0	1	0
Inter-item correlation >0.40						
PCA: Unexplained variance >5% and eigenvalue >2.0						

Key: Bold = issues with psychometric properties; MinSq = mean square fit statistic; Zstd = standardised mean square fit statistic; SE = standard error; SEM = standard error of measurement; PCA = principal component analysis

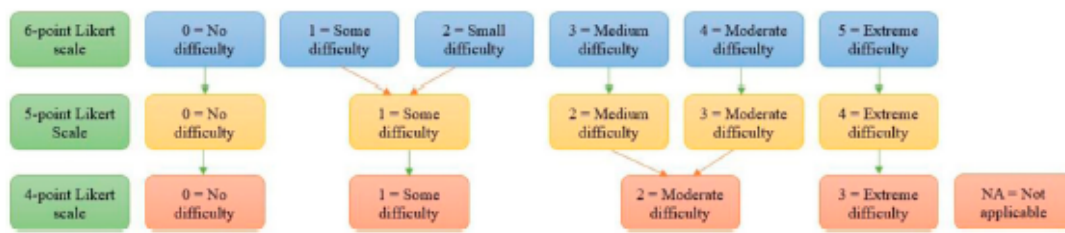


Figure 1. Refinement of 6-point ‘Difficulty’ Likert scale to a 4-point Likert scale.

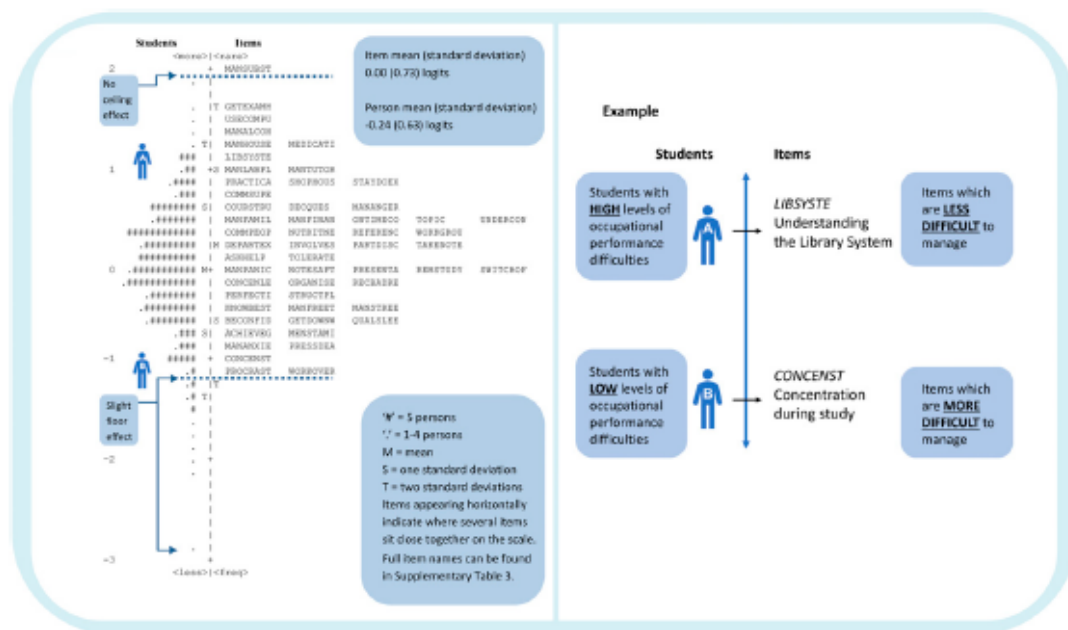


Figure 2. Person-item map of the 54-item 4-point Trinity Student Occupational Performance Profile ‘Difficulty’ scale.

relating to affective factors (e.g. ‘Managing anxiety [MAN-ANXIE]’, ‘Maintaining mental stamina and endurance [MENSTAMI]’) and executive functioning (e.g. ‘Procrastination [PROCRAS]’ and ‘Dealing with work overload [WORKOVER]’) are some of the most difficult to manage within the student role.

This person-item map demonstrates that the TSOPP is well targeted to the sample as there is a sufficient spread of items along the scale (i.e. right-hand side) to adequately capture the range of occupational performance difficulties experienced by students in the sample (i.e. left-hand side). There is no evidence of a ceiling effect in the items as the item ‘Managing/avoiding other substances [MANSUBST]’ is calibrated higher than the person with the highest level of occupational performance difficulties. Although there is a slight floor effect, it is likely that students falling at this end of the scale are experiencing low levels of occupational performance difficulties and would not require occupational

therapy intervention. Hence, this slight floor effect is not a concern from a clinical perspective.

Discussion and implications

Using Rasch analysis, this study investigated and refined the psychometric properties of Part Three ‘Identifying Needs’ of the TSOPP. This investigation indicated that there were issues residing with the separate Person, Environment and Occupation item-sets which were mitigated in the combined item-set. Item fit and dimensionality were an issue for the separate item-sets which suggests potential multidimensionality (Bond and Fox, 2015). Considering the components of the underlying PEO-model (Law et al., 1996), this multidimensionality is not unexpected. The ‘Person’ consists of cognitive and affective components; the ‘Environment’ encompasses the physical, social, cultural and institutional components and the ‘Occupation’ consists of tasks, activities

and occupations (Canadian Association of Occupational Therapy, 1997). One method of remedying item misfit is item removal (Wright and Masters, 1982). However, the items which misfit in the Person ('*Understanding the Library System [LIBSYSTE]*'; '*Handing up work on time [HAND-WORK]*'), Environment ('*Tolerating external distractions [TOLERATE]*') and Occupation ('*Staying and doing the exams [STAYDOEX]*'; '*Doing practical work [PRACTICA]*') item-sets are all clinically relevant and if these items were removed with the only aim of remedying item misfit, valuable clinical information would be lost. Conversely, when the items were combined, there was evidence of item fit and unidimensionality, meaning the items were working well together to measure the ultimate construct of the PEO-model, namely, difficulties with occupational performance (Law et al., 1996). Furthermore, there were local independence violations in each item-set with evidence of violations between items from across the original Person, Environment and Occupation item-sets in the combined item-set. This makes sense as there is an overlapping transactive relationship between the person, environment and occupation concepts within the PEO-model (Law et al., 1996). However, these violations would not have been highlighted if the TSOPP items were not combined. As for reliability and separation, the combined item-set demonstrated stronger person and item reliability and separation as well as Cronbach's alpha than the separate item-sets (Table 2). In Nolan's (2011) original pilot study of the measure, Cronbach's alpha ranged from 0.518 to 0.887 with the Environment item-set demonstrating the weakest reliability. In this study, the Environment item-set demonstrated inadequate person reliability and separation. However, by combining all items into a combined scale of occupational performance difficulty, these issues were mitigated. Consequently, it is evident that the TSOPP demonstrates stronger psychometric properties as one combined scale measuring occupational performance difficulties within the student role.

Nevertheless, the combined item-set posed some measurement challenges which were resolved in this study. In relation to the rating scale functioning, the 6-point scale had evidence of disordered categories. Although Preston and Colman (2000) demonstrated that increasing the rating scale categories may increase reliability, Weng (2004) argues that having too many categories makes it more complex as it is difficult to discriminate between adjacent categories. This was the case for the TSOPP's 'Difficulty' scale as six categories appeared to be too many for students to adequately discriminate between and the scale was collapsed to a 4-point scale. In practice, this shorter scale should make it easier for students to accurately identify their occupational performance difficulties. Nevertheless, future research should validate this refined rating scale (Smith et al., 2003) using a new sample of students with mental health disabilities in higher education.

In addition to the reduction in the rating scale categories, the number of items in the TSOPP was reduced from 74 to 54. Local independence violations may occur due to potential multidimensionality or items which are measuring similar concepts or have similar wording (Yen, 1993). As local independence between items is an assumption of the Rasch

model (Bond and Fox, 2015), these violations needed to be remedied even though the TSOPP demonstrated strong person and item reliability and Cronbach's alpha as a 74-item scale. Prior to removing the redundant items, Cronbach's alpha was 0.93 while after it was 0.91. However, Terwee et al. (2007) describe how Cronbach's alpha is impacted by the number of items in the scale and that extremely high indicators can be the result of high correlations and redundancy between items. Hence, Cronbach's alpha of 0.91 is still considered excellent (Terwee et al., 2007). As for person and item reliability and separation, although there were slight reductions in some of these indicators, all were within acceptable ranges (Bond and Fox, 2015). Moreover, all 54 items demonstrated appropriate fit statistics, meaning they are working well together to measure the construct of occupational performance difficulties within the student role (Wright and Masters, 1982). In practice, this shortening of the scale will reduce the length of time for students to complete the TSOPP, minimising the burden of response (Prieto et al., 2003). As for person misfit, although it was demonstrated that misfitting persons did not substantially impact the item difficulty measures or hierarchy, a larger proportion ($N = 104$, 15.6%) of persons misfit than the 5% that was expected by chance (Smith, 2002). Hence, future research should further investigate person fit with another sample of students with mental health disabilities in higher education, both investigating person fit statistics and clarifying response patterns with students qualitatively to better understand the cause of the misfit.

This study illustrated the item difficulty hierarchy of occupational performance difficulties within the student role, a novel finding which is beneficial both theoretically and clinically. Although literature exists regarding the occupational performance difficulties experienced by students with mental health disabilities in university (Jansen et al., 2017; Nuske et al., 2019; Storrie et al., 2010), this study has been able to provide novel evidence regarding the relative difficulty of these challenges. For example, items relating to affective factors and executive functioning were the most difficult to manage, which reflects the continuing brain development occurring between adolescence and adulthood as young people try to attain the necessary independence skills (Spear, 2000). This hierarchy not only adds to theory and understanding regarding the relative difficulty of occupational performance within the student role but also enables therapists to better grade intervention plans with students. For example, therapists and students may discuss this hierarchy and a student's level of reported occupational performance difficulties and start intervention with a just-right challenge (Christie, 1999; Velozo, 2021).

Limitations

The results must be considered within the study's methodological limitations. Although using existing anonymised data allowed a large sample to be gathered easily to conduct Rasch analysis, it was not possible to clarify response patterns with students to better understand erratic response patterns and hence identify potential sources of person

misfit. Furthermore, as the data was gathered from only two Irish universities, this limits the generalisability of the results to other universities in Ireland or internationally. Moreover, the sample consisted of TSOPPs completed by students who were formally registered with the university disability services and hence may not fully reflect the occupational performance difficulties experienced by students with mental health disabilities who are not registered with these services.

Recommendations for future research

As mentioned previously, further research should look to validate this study's findings using an independent sample of students with mental health disabilities in higher education. Moreover, future research may determine the validity of using the TSOPP with the general student population, especially in determining if any differences with occupational performance difficulties exist between the general student population and those who have identified with a mental health disability. Rasch analysis also enables the creation of keyforms, paper-and-pencil forms which allow therapists to estimate a student's level of occupational performance difficulty without the need for complex Rasch analysis software (Linacre, 2020a). Keyforms ensure that the numbers generated by a measure are relevant and useful in practice by supporting the identification of just-right challenges for intervention as well as enhancing a student's self-awareness about their occupational performance difficulties (Veloza, 2021). Furthermore, to provide evidence for the generalisability (Wolfe and Smith, 2007) of the TSOPP, future research should investigate if the TSOPP can be used as an outcome measure (e.g. is it sensitive to detecting change over time) or if the item difficulty hierarchy is interpreted the same across different groups (e.g. university, disability, culture, gender, year and faculty). Finally, conducting qualitative research to gather the perceptions of occupational therapists in using the refined TSOPP in practice can provide evidence for its usability.

Conclusion

The refined TSOPP presented here is a valid and reliable self-report measure which adequately captures the occupational performance difficulties of students with mental health disabilities within their student role in university. The refined 4-point 54-item 'Difficulty' scale enables students to self-identify their level of occupational performance difficulties. The item difficulty hierarchy is beneficial both theoretically and clinically as it furthers knowledge regarding the relative difficulty of the tasks, activities and occupations associated with managing the student role in higher education. The refined TSOPP provides occupational therapists seeking to support students with mental health disabilities in university with a credible measure to guide their practice. Future validation research will add to the evidence base of the TSOPP, while developing a user manual will assist therapists unfamiliar with the measure in how to appropriately administer it in practice.

Key findings

- The TSOPP demonstrates strong psychometric properties as one scale measuring occupational performance difficulties within the student role.
- The Rasch analysis refinement process resulted in a 54-item 4-point TSOPP 'Difficulty' scale.

What the study has added

Rasch analysis enabled the refinement of the TSOPP's psychometric properties and provided novel insight into the item difficulty hierarchy of occupational performance difficulties within the student role in higher education.

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Research ethics

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Contributorship


KL and CN conceived the study, and CN created the original TSP tool in 2011. KL led on gaining ethical approval, data gathering and data analysis under the supervision of CN and EH. KL wrote the first draft of the manuscript. All authors reviewed and edited the manuscript and approved the final version of the manuscript.

Patient and public involvement data

During the development, progress, and reporting of the submitted research, Patient and Public Involvement in the research was Not included at any stage of the research.

ORCID iDs

Kim Lombard  <https://orcid.org/0000-0003-3641-7126>

Clodagh Nolan  <https://orcid.org/0000-0002-0014-2004>

Supplemental material

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Appendix 4.2: Data Completion for Full TSP Dataset - Difficulty (N=667)

Item-set	Item Number	Item Name	Count	%
Person	1	ONTIMECO	659	98.8
	2	CONCENLE	652	97.8
	3	UNDERCON	649	97.3
	4	LIBSYSTE	643	96.4
	5	RETRIEVE	636	95.4
	6	TOPIC	632	94.8
	7	DEPARTEX	629	94.3
	8	COURSTRU	636	95.4
	9	HANDWORK	642	96.3
	10	CONCENST	655	98.2
	11	GETSTART	655	98.2
	12	PROCRAST	642	96.3
	13	KNOWBEST	638	95.7
	14	REMSTUDY	629	94.3
	15	MANSTREE	627	94.0
	16	DECQUES	619	92.8
	17	RECALLMA	621	93.1
	18	MANPANIC	623	93.4
	19	FEARFAIL	623	93.4
	20	RECBADRE	639	95.8
	21	MANANXIE	655	98.2
	22	MANNEGTH	655	98.2
	23	MANSTRES	650	97.5
	24	MENSTAMI	643	96.4
	25	BECONFID	651	97.6
	26	MANCONFL	643	96.4
	27	MANANGER	652	97.8
	28	PERFECTI	651	97.6
	29	SWITCHOF	650	97.5
	30	QUALSLEE	651	97.6
Environment	31	TOLERATE	650	97.5
	32	MANLABPL	535	80.2
	33	GETEXAMH	587	88.0
	34	USECOMPU	633	94.9
	35	MANSUPSE	606	90.9
	36	MANTUTOR	565	84.7
	37	INVOLVES	639	95.8
	38	COMMPEOP	653	97.9
	39	COMMSUPE	596	89.4
	40	COMMSTUD	646	96.9
	41	FRIEINCOL	649	97.3
	42	RIEOUTCOL	636	95.4

	43	MANHOUSE	552	82.8
	44	MANFAMIL	650	97.5
	45	MANFINAN	638	95.7
	46	NUTRITNE	645	96.7
	47	MEDICATI	615	92.2
	48	SHOPHOUS	637	95.5
	49	MANALCOH	638	95.7
	50	MANSUBST	632	94.8
Occupation	51	PARTDISC	637	95.5
	52	ASKQUEST	641	96.1
	53	WORKGROU	625	93.7
	54	PRESENTA	614	92.1
	55	TALKLECT	639	95.8
	56	ASKHELP	640	96.0
	57	PRESSDEA	652	97.8
	58	GOALSET	640	96.0
	59	ACHIEVEG	637	95.5
	60	WORKOVER	643	96.4
	61	BALCOLLI	643	96.4
	62	MANFREET	645	96.7
	63	PRACTICA	467	70.0
	64	MANWORKL	482	72.3
	65	COMPLREP	459	68.8
	66	GETDOWNW	634	95.1
	67	WRITERSB	625	93.7
	68	FINISHWO	633	94.9
	69	STAYDOEX	598	89.7
	70	TAKENOTE	634	95.1
	71	REFERENC	599	89.8
	72	NOTESAFT	620	93.0
	73	ORGANISE	638	95.7
	74	STRUCTPL	625	93.7

Appendix 4.3: Demographics of 104 Misfitting Persons (i.e., *Outfit MnSq* >1.4 and *Zstd* >2.0) in 74-Item 4-Point *TSP* Item-set

Misfitting persons demographics	N=104
Gender	
Male	45 (43.3%)
Female	58 (55.8%)
Missing	1 (0.9%)
University	
TCD	82 (78.9%)
UCD	22 (21.2%)
Format	
Paper (<i>TSP</i>)	75 (72.1%)
Excel (<i>eTSP</i>)	29 (26.9%)
Age	
Mean (SD) in years	24.12 years (6.9 years)
Level of degree	
Undergraduate	90 (86.5%)
Postgraduate	12 (11.5%)
Missing	2 (1.9%)
Disability	
Depression	24 (23.0%)
Autism	18 (17.3%)
Attention Deficit Hyperactivity Disorder	11 (10.6%)
Anxiety	15 (14.4%)
Mental Health Other	12 (11.6%)
Dyspraxia/Specific Learning Difficulty	11 (10.6%)
Other (physical, sensory, significant ongoing illness, neurological, speech & language)	13 (12.5%)
Missing	-
Repeating (e.g., modules, entire year)	
No	82 (78.8%)
Yes	13 (12.5%)
Missing	9 (8.7%)
Faculty	
Arts, Humanities, Social Science, Law, Business	58 (55.7%)
Science, Engineering, Mathematics, Architecture	23 (22.2%)
Health, Agricultural Sciences	21 (20.2%)

Missing	2 (1.9%)
Year of study	
Junior Fresh/1 st year/Access course	47 (45.3%)
Senior Fresh/2 nd year	15 (14.4%)
Junior Sophistor/3 rd year	15 (14.4%)
Senior Sophistor/4 th year/5 th year medicine	12 (11.5%)
Postgrad Masters/PhD/Diploma	12 (11.5%)
Missing	3 (2.9%)

Appendix 4.4: Full Rasch analysis after each item removal iteration

Iteration	1	2	3	4	5	6	7	
Item removed	COMMSTUD removed (N=73)	RETRIEVE removed (N=72)	ASKQUEST removed (N=71)	FRIEINCOL removed (N=70)	GETSTART removed (N=69)	MANWORKL & COMPLREP removed (N=67)	RECALLMA removed (N=66)	
Sample size	667	667	667	667	667	667	667	
Rating scale categories	6	4	4	4	4	4	4	
Rating scale (Linacre 2004)	>10 observations/category	Yes	Yes	Yes	Yes	Yes	Yes	
	Average measure increases	Yes	Yes	Yes	Yes	Yes	Yes	
	<i>MnSq</i> <2.0	Yes	Yes	Yes	Yes	Yes	Yes	
	Andrich Threshold increases	Yes	Yes	Yes	Yes	Yes	Yes	
Reliability & Separation	Person reliability	0.93	0.93	0.93	0.93	0.93	0.93	
	Person separation	3.75	3.74	3.7	3.68	3.65	3.61	
	SE of person mean	0.02	0.02	0.02	0.02	0.02	0.02	
	Cronbach's alpha	0.95 (SEM 7.90)	0.95 (SEM 7.04)	0.95 (SEM 6.99)	0.95 (SEM 6.93)	0.94 (SEM 6.89)	0.94 (SEM 6.74)	0.94 (SEM 6.69)
	Item reliability	0.99	0.99	0.99	0.99	0.99	0.99	
	Item separation	13.3	13.25	13.33	13.4	13.29	13.54	13.62
	SE of item mean	0.08	0.08	0.08	0.08	0.08	0.09	0.09
Item fit	Misfitting items (Outfit <i>MnSq</i> >1.4, <i>Zstd</i> >2.0)	0	0	0	0	0	0	
Person fit	Misfitting persons (Outfit <i>MnSq</i> >1.4, <i>Zstd</i> >2.0)	108 (16.2%)	110 (16.5%)	108 (16.2%)	106 (15.9%)	105 (15.7%)	102 (15.3%)	11 (15.0%)
Dimensionality & Local independence	Inter-item correlation >0.40	31 item pairs	30 item pairs	29 item pairs	26 item pairs	25 item pairs	22 item pairs	21 item pairs
	PCA: Unexplained variance >5% and eigenvalue >2.0	0	0	0	0	0	0	0

Key: Bold = issues with psychometric properties; *MnSq* = mean square fit statistic; *Zstd* = standardised mean square fit statistic; SE = standard error; SEM = standard error of measurement; PCA = principal component analysis

Iteration		8	9	10	11	12	13
Item removed		TALKLECT removed (N=65)	MANNEGTHO removed (N=64)	MANSTRES removed (N=63)	FEARFAIL removed (N=62)	FINISHWOR removed (N=61)	HANDWORK removed (N=60)
Sample size		667	667	667	667	667	667
Rating scale categories		4	4	4	4	4	4
Rating scale (Linacre 2004)	>10 observations/category	Yes	Yes	Yes	Yes	Yes	Yes
	Average measure increases	Yes	Yes	Yes	Yes	Yes	Yes
	<i>MnSq</i> <2.0	Yes	Yes	Yes	Yes	Yes	Yes
	Andrich Threshold increases	Yes	Yes	Yes	Yes	Yes	Yes
Reliability & Separation	Person reliability	0.93	0.92	0.92	0.92	0.92	0.92
	Person separation	3.55	3.51	3.46	3.42	3.39	3.36
	SE of person mean	0.02	0.02	0.02	0.02	0.02	0.02
	Cronbach's alpha	0.94 (SEM 6.64)	0.94 (SEM 6.60)	0.94 (SEM 6.56)	0.94 (SEM 6.51)	0.94 (SEM 6.45)	0.94 (SEM 6.38)
	Item reliability	0.99	0.99	0.99	0.99	0.99	0.99
	Item separation	13.68	13.57	13.49	13.55	13.62	13.72
	SE of item mean	0.09	0.09	0.08	0.09	0.09	0.09
Item fit	Misfitting items (Outfit <i>MnSq</i> >1.4, <i>Zstd</i> >2.0)	0	0	0	0	0	0
Person fit	Misfitting persons (Outfit <i>MnSq</i> >1.4, <i>Zstd</i> >2.0)	103 (15.4%)	102 (15.3%)	110 (16.5%)	106 (15.9%)	105 (15.7%)	107 (16.0%)
Dimensionality & Local independence	Inter-item correlation >0.40	19 item pairs	16 item pairs	14 item pairs	12 item pairs	10 item pairs	9 item pairs
	PCA: Unexplained variance >5% and eigenvalue >2.0	0	0	0	0	0	0

Key: Bold = issues with psychometric properties; *MnSq* = mean square fit statistic; *Zstd* = standardised mean square fit statistic; SE = standard error; SEM = standard error of measurement; PCA = principal component analysis

Iteration		14	15	16	17	18	19	20
Item removed		FRIEOUTCOL removed (N=59)	BALCOLLI removed (N=58)	MANCONFL removed (N=57)	MANSUPSE removed (N=56)	GOALSET removed (N=55)	<i>MANALCOH & MANSUBS retained (N=55)</i>	WRITERSB removed (N=54)
Sample size		667	667	667	667	667	667	667
Rating scale categories		4	4	4	4	4	4	4
Rating scale (Linacre 2004)	>10 observations/category	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Average measure increases <i>MnSq</i> <2.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Andrich Threshold increases	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Reliability & Separation	Person reliability	0.92	0.92	0.91	0.91	0.91	0.91	0.91
	Person separation	3.34	3.29	3.26	3.22	3.19	3.19	3.15
	SE of person mean	0.02	0.02	0.02	0.02	0.02	0.02	0.02
	Cronbach's alpha	0.94 (SEM 6.31)	0.93 (SEM 6.27)	0.93 (SEM 6.21)	0.93 (SEM 6.16)	0.93 (SEM 6.11)	0.93 (SEM 6.11)	0.93 (SEM 6.06)
	Item reliability	0.99	0.99	0.99	0.99	0.99	0.99	0.99
	Item separation	13.82	13.76	13.85	13.81	13.85	13.85	13.9
	SE of item mean	0.09	0.09	0.1	0.1	0.1	0.1	0.1
Item fit	Misfitting items (Outfit <i>MnSq</i> >1.4, <i>Zstd</i> >2.0)	0	0	0	0	0	0	0
Person fit	Misfitting persons (Outfit <i>MnSq</i> >1.4, <i>Zstd</i> >2.0)	106 (15.9%)	105 (15.7%)	102 (15.3%)	102 (15.3%)	104 (15.6%)	104 (15.6%)	102 (15.3%)
Dimensionality & Local independence	Inter-item correlation >0.40	8 item pairs	7 item pairs	6 item pairs	4 item pairs	3 item pairs	3 item pairs	2 item pairs (accepted)
	PCA: Unexplained variance >5% and eigenvalue >2.0	0	0	0	0	0	0	0

Key: Bold = issues with psychometric properties; *MnSq* = mean square fit statistic; *Zstd* = standardised mean square fit statistic; SE = standard error; SEM = standard error of measurement; PCA = principal component analysis

Appendix 4.5: Polytomous person-item map – 54-item 4-point TSP ‘Difficulty’ item-set

MEASURE		BOTTOM P=50%	MEASURE	TOP P=50%	MEASURE
<more>	PERSON	ITEM	ITEM	ITEM	<rare>
4		+	+	+	4
				X	
3		+	+	+	3
				X	
				X	
				X	
				XX	
				X	
				XX	
2		+	+	+ XXX	2
			X	X	
	.			XXX	
				XXXXX	
	.		X	XXXX	
	.		X	XXXX	
	.		X	XX	
1	.	+ XX	+ XX	+ XXXXX	1
	###		X	XXX	
	.##		XX	XX	
	.###	X	XXX	XXX	
	.###		X	XXX	
	#####		XXX	XX	
	.#####	X	XXXXX	XX	
	#####	X	XXXX	X	
0	.#####	+ X	+ XXXX	+ XX	0
	#####	XX	XX		
	.#####	X	XXXXX		
	.#####	XX	XXX		
	.#####	XXX	XX		
	.#####	X	XXX		
	.#####	XXX	XXX		
	.###	XXXXX	XX		
-1	.###	+ XXXX	+ XX	+	-1
	####	XXXX	X		
	.#	XX	XX		
	.#	XXXXX			
	.#	XXX			
	#	XX			
	.	XXX			
	.	XXX			
-2	.	+ XX	+	+	-2
	.	XX			
	.	X			
		XX			
-3	+	+	+	+	-3
	.				
-4	+	+	+	+	-4
<less>	PERSON	ITEM	ITEM	ITEM	<freq>

EACH "#" IN THE PERSON COLUMN IS 5 PERSON; EACH "." IS 1 TO 4

Appendix 5.1: Preliminary Differential Item Functioning Analyses

This appendix includes the WINSTEPS DIF Table 30.1 outputs for University context (appendix 5.1.1), Gender (appendix 5.1.2), Level of degree (appendix 5.1.3), and Administration format (appendix 5.1.4). Red font highlights Rasch-Welch t-test, Mantel chi-square and Size CUMLOR indicators that were of note, whereas Green font highlights that an indicator did not meet the criteria as per 'Chapter 3. Only items that met all three criteria are presented in 'Chapter 5'. For full item names please refer to Appendix 1.2.

5.1.1 University Context (i.e., TCD/UCD)

TABLE 30.1 C:\Users\kimlo\Desktop\Whole eTSP Dif ZOU777WS.TXT Nov 9 2020 20:19age and dis
 INPUT: 667 PERSON 74 ITEM REPORTED: 667 PERSON 54 ITEM 4 CATS WINSTEPS 4.7.0.0

 DIF class/group specification is: DIF= @TCDUCD

	PERSON	Obs-Exp	DIF	DIF	PERSON	Obs-Exp	DIF	DIF	DIF	JOINT	Rasch-Welch	Mantel	Size	Active	ITEM				
	CLASS/	Average	MEASURE	S.E.	CLASS/	Average	MEASURE	S.E.	CONTRAST	S.E.	t	d.f.	Prob.	Chi-squ	Prob.	CUMLOR	Slices	Number	Name
1		.04	.22	.05	2	-.24	.62	.12	-.40	.13	-3.01	129	.0032	4.3133	.0378	-.59	53	1	ONTIMECO
1		-.01	-.39	.05	2	.04	-.45	.12	.06	.13	.46	132	.6493	.7515	.3860	.22	53	2	CONCENLE
1		.01	.21	.05	2	-.05	.28	.12	-.07	.13	-.54	132	.5902	.5322	.4657	-.21	52	3	UNDERCON
1		-.01	.84	.05	2	.06	.76	.13	.09	.14	.63	130	.5278	1.7424	.1868	.39	51	4	LIBSYSTE
1		-.02	.29	.05	2	.11	.12	.12	.17	.13	1.30	131	.1958	1.5240	.2170	.37	51	6	TOPIC
1		.00	.02	.05	2	.02	.00	.12	.02	.13	.18	128	.8594	.2949	.5871	-.15	51	7	DEPARTEX
1		-.01	.44	.05	2	.05	.36	.12	.07	.13	.58	133	.5660	.9962	.3182	.29	51	8	COURSTRU
1		-.01	-1.09	.06	2	.07	-1.24	.14	.15	.15	.97	125	.3341	.3282	.5667	.18	51	10	CONCENST
1		.00	-1.28	.06	2	-.02	-1.25	.14	-.03	.15	-.22	127	.8238	.4950	.4817	-.19	52	12	PROCRAS
1		.02	-.67	.05	2	-.14	-.44	.12	-.24	.13	-1.76	128	.0801	3.2266	.0725	-.54	49	13	KNOWBEST
1		-.01	-.32	.05	2	.06	-.40	.12	.09	.13	.65	125	.5159	1.1203	.2898	.30	48	14	REMSTUDY
1		-.01	-.62	.05	2	.05	-.70	.13	.08	.14	.56	131	.5787	.0822	.7744	.08	52	15	MANSTREE
1		.01	.36	.05	2	-.08	.49	.12	-.13	.13	-.95	126	.3446	.4979	.4804	-.22	50	16	DECQUES
1		.01	-.31	.05	2	-.05	-.24	.12	-.07	.13	-.53	125	.5988	.5246	.4689	-.19	49	18	MANPANIC
1		.00	-.33	.05	2	-.01	-.33	.12	.00	.13	.00	127	1.000	.0000	.9988	.00	52	20	RECBADRE
1		.01	-1.09	.06	2	-.06	-.98	.13	-.11	.14	-.73	133	.4646	1.4610	.2268	-.33	53	21	MANANXIE
1		-.02	-.92	.05	2	.08	-1.09	.14	.17	.15	1.18	126	.2412	.1105	.7395	.11	53	24	MENSTAMI
1		.02	-.78	.05	2	-.10	-.61	.12	-.17	.13	-1.29	133	.1992	3.6177	.0572	-.54	53	25	BECONFID
1		.00	.34	.05	2	.01	.34	.12	.00	.13	.00	131	1.000	.3870	.5339	.17	51	27	MANANGER
1		-.01	-.57	.05	2	.06	-.66	.12	.09	.13	.64	131	.5241	.7819	.3766	.23	53	28	PERFECTI
1		.01	-.29	.05	2	-.06	-.21	.12	-.08	.13	-.64	130	.5249	.0627	.8022	.07	52	29	SWITCHOF
1		.02	-.75	.05	2	-.12	-.54	.12	-.21	.13	-1.58	131	.1162	1.0717	.3006	-.27	52	30	QUALSLEE
1		-.02	-.09	.05	2	.12	-.29	.12	.20	.13	1.53	129	.1283	2.6903	.1010	.44	52	31	TOLERATE
1		-.01	.79	.06	2	.09	.65	.15	.14	.16	.85	87	.3970	.1704	.6797	.14	40	32	MANLABPL
1		-.01	1.41	.07	2	.09	1.21	.16	.20	.18	1.17	96	.2460	.7925	.3733	.31	42	33	GETEXAMH

1	.00	1.33	.06	2	.02	1.29	.15	.04	.16	.22	125	.8233	.1507	.6979	-.12	51	34	USECOMPU	
1	-.02	.85	.06	2	.22	.50	.16	.35	.17	2.02	62	.0477	2.2527	.1334	.50	30	36	MANTUTOR	
1	.00	.04	.05	2	.00	.04	.12	.00	.13	.00	122	1.000	.0493	.8243	.06	48	37	INVOLVES	
1	.02	.15	.05	2	-.10	.31	.12	-.16	.13	-1.27	132	.2062	1.8841	.1699	-.39	53	38	COMMPEOP	
1	-.01	.46	.05	2	.06	.37	.13	.09	.14	.63	117	.5295	1.0988	.2945	.31	45	39	COMMSUPE	
1	.00	1.04	.06	2	.03	.98	.16	.06	.17	.33	77	.7412	2.0288	.1543	.48	34	43	MANHOUSE	
1	.01	.27	.05	2	-.06	.36	.12	-.08	.13	-.65	129	.5195	.9641	.3261	-.29	51	44	MANFAMIL	
1	.00	.32	.05	2	.00	.32	.12	.00	.13	.00	121	1.000	.9299	.3349	.31	49	45	MANFINAN	
1	.00	.11	.05	2	-.02	.14	.12	-.03	.13	-.25	125	.8005	.1750	.6757	-.12	48	46	NUTRITNE	
1	.01	1.04	.06	2	-.03	1.08	.15	-.04	.16	-.28	111	.7770	1.4296	.2318	-.38	46	47	MEDICATI	
1	-.01	.69	.05	2	.07	.59	.12	.10	.13	.74	128	.4603	.0818	.7749	.08	49	48	SHOPHOUS	
1	.01	1.18	.06	2	-.05	1.27	.15	-.09	.16	-.54	112	.5877	.0048	.9446	.02	48	49	MANALCOH	
1	.00	1.85	.08	2	.00	1.85	.19	.00	.20	.00	114	1.000	.0903	.7638	-.10	48	50	MANSUBST	
1	.00	-.06	.05	2	.03	-.10	.12	.03	.13	.26	124	.7916	.2096	.6471	.14	47	51	PARTDISC	
1	-.01	.10	.05	2	.04	.04	.12	.06	.13	.41	114	.6798	.0578	.8101	.07	46	53	WORKGROU	
1	.00	-.28	.05	2	-.01	-.28	.13	.00	.14	.00	107	1.000	.8697	.3510	-.29	44	54	PRESENTA	
1	-.01	-.15	.05	2	.07	-.24	.12	.09	.13	.68	121	.4965	2.1590	.1417	.44	48	56	ASKHELP	
1	.01	-1.02	.05	2	-.04	-.95	.13	-.07	.14	-.50	129	.6213	.4065	.5238	-.18	50	57	PRESSDEA	
1	.00	-.88	.05	2	-.03	-.84	.13	-.04	.14	-.31	121	.7588	.1590	.6901	-.12	48	59	ACHIEVEG	
1	.00	-1.31	.06	2	.00	-1.31	.15	.00	.16	.00	121	1.000	.2246	.6356	-.14	49	60	WORKOVER	
1	.01	-.68	.05	2	-.09	-.52	.12	-.15	.13	-1.14	129	.2550	.5327	.4655	-.21	49	62	MANFREET	
1	-.03	.64	.06	2	.24	.26	.15	.38	.16	2.32	76	.0228	2.7449	.0976	.62	34	63	PRACTICA	
1	.00	-.83	.05	2	-.01	-.83	.13	.00	.14	.00	126	1.000	.8202	.3651	-.26	50	66	GETDOWNW	
1	.02	.65	.05	2	-.08	.79	.13	-.15	.14	-1.04	122	.3018	.1792	.6721	.12	47	69	STAYDOEX	
1	.00	.02	.05	2	.00	.02	.12	.00	.13	.00	121	1.000	.4123	.5208	.20	48	70	TAKENOTE	
1	-.02	.18	.05	2	.10	.03	.12	.15	.13	1.15	119	.2511	1.1277	.2883	.31	46	71	REFERENC	
1	.01	-.30	.05	2	-.05	-.23	.13	-.07	.14	-.51	112	.6127	.6250	.4292	-.22	47	72	NOTESAFT	
1	.01	-.33	.05	2	-.03	-.29	.12	-.04	.13	-.33	127	.7449	.3226	.5700	-.16	48	73	ORGANISE	
1	.00	-.49	.05	2	.00	-.49	.12	.00	.14	.00	124	1.000	.3726	.5416	-.17	49	74	STRUCTPL	

Width of Mantel slice: MHSLICE = .010 logits, Zero cell adjustment: MHZERO = .0000

5.1.2 Gender (i.e., Male/Female)

TABLE 30.1 C:\Users\kimlo\Desktop\Whole eTSP Dif ZOU530WS.TXT Nov 10 2020 19: 0age and dis
 INPUT: 667 PERSON 74 ITEM REPORTED: 664 PERSON 54 ITEM 4 CATS WINSTEPS 4.7.0.0

 DIF class/group specification is: DIF= @GENDER

	PERSON	Obs-Exp	DIF	DIF	PERSON	Obs-Exp	DIF	DIF	DIF	JOINT	Rasch-Welch	Mantel		Size	Active	ITEM			
	CLASS/	Average	MEASURE	S.E.	CLASS/	Average	MEASURE	S.E.	CONTRAST	S.E.	t	d.f.	Prob.	Chi-squ	Prob.	CUMLOR	Slices	Number	Name
1		.10	.14	.07	2	-.09	.41	.06	-.27	.09	-2.91	651	.0037	5.4764	.0193	-.42	105		1 ONTIMECO
1		-.04	-.33	.07	2	.05	-.45	.07	.12	.09	1.34	645	.1802	3.5370	.0600	.34	103		2 CONCENLE
1		.02	.19	.07	2	-.02	.25	.06	-.06	.09	-.64	639	.5208	.3470	.5558	.11	102		3 UNDERCON
1		.03	.79	.07	2	-.03	.88	.07	-.10	.10	-.94	634	.3455	.2693	.6038	-.09	103		4 LIBSYSTE
1		-.02	.29	.07	2	.01	.27	.06	.02	.09	.26	622	.7975	2.0856	.1487	.27	102		6 TOPIC
1		.04	-.04	.07	2	-.04	.08	.06	-.11	.09	-1.22	620	.2229	.4366	.5088	-.12	102		7 DEPARTEX
1		.02	.41	.07	2	-.03	.47	.07	-.06	.09	-.65	625	.5178	.0900	.7642	.05	100		8 COURSTRU
1		.00	-1.11	.07	2	.00	-1.11	.07	.00	.10	.00	649	1.000	.6670	.4141	.15	104		10 CONCENST
1		.00	-1.28	.08	2	.01	-1.28	.08	.00	.11	.00	636	1.000	.2313	.6306	.09	100		12 PROCRAST
1		.06	-.73	.07	2	-.05	-.56	.07	-.17	.10	-1.75	631	.0814	.5641	.4526	-.14	100		13 KNOWBEST
1		.01	-.32	.07	2	-.01	-.32	.07	.00	.09	.00	623	1.000	1.4131	.2345	.22	97		14 REMSTUDY
1		-.20	-.34	.07	2	.19	-.92	.07	.58	.10	5.93	621	.0000	22.0858	.0000	.89	99		15 MANSTREE
1		.01	.38	.07	2	-.01	.38	.07	.00	.10	.00	610	1.000	.0606	.8056	.05	98		16 DECQUES
1		-.12	-.15	.07	2	.11	-.47	.07	.32	.09	3.37	616	.0008	11.4076	.0007	.62	97		18 MANPANIC
1		-.13	-.16	.07	2	.12	-.50	.07	.34	.09	3.65	631	.0003	6.1291	.0133	.46	101		20 RECBADRE
1		-.19	-.79	.07	2	.17	-1.43	.08	.63	.11	6.00	641	.0000	14.4553	.0001	.72	105		21 MANANXIE
1		-.08	-.82	.07	2	.07	-1.07	.07	.25	.10	2.46	637	.0142	1.5504	.2131	.23	104		24 MENSTAMI
1		-.08	-.65	.07	2	.07	-.87	.07	.23	.10	2.34	645	.0196	2.0700	.1502	.25	104		25 BECONFID
1		-.02	.38	.07	2	.03	.30	.06	.08	.09	.86	644	.3916	.0005	.9822	.00	105		27 MANANGER
1		-.11	-.41	.07	2	.11	-.74	.07	.33	.10	3.42	646	.0007	3.9485	.0469	.36	104		28 PERFECTI
1		-.15	-.09	.07	2	.14	-.48	.07	.39	.09	4.20	644	.0000	7.4183	.0065	.49	103		29 SWITCHOF
1		-.03	-.67	.07	2	.03	-.76	.07	.09	.10	.97	645	.3319	.1504	.6982	.07	104		30 QUALSLEE
1		.02	-.15	.07	2	-.01	-.12	.06	-.03	.09	-.33	643	.7449	.5154	.4728	-.13	105		31 TOLERATE
1		.05	.70	.08	2	-.05	.86	.08	-.16	.11	-1.46	530	.1450	.6750	.4113	-.17	83		32 MANLABPL

1	.02	1.35	.09	2	-.01	1.39	.08	-.04	.12	-.30	579	.7660	.9258	.3360	-.22	94	33	GETEXAMH
1	.00	1.33	.09	2	.00	1.33	.08	.00	.12	.00	620	1.000	.0157	.9003	.03	101	34	USECOMPU
1	.04	.75	.08	2	-.03	.85	.07	-.10	.11	-.92	558	.3568	.0913	.7625	-.06	97	36	MANUTUTOR
1	.02	.01	.07	2	-.01	.04	.06	-.02	.09	-.26	632	.7970	.3332	.5638	-.11	102	37	INVOLVES
1	.07	.08	.07	2	-.06	.26	.06	-.18	.09	-1.95	645	.0521	3.3461	.0674	-.34	104	38	COMMPEOP
1	.02	.43	.07	2	-.01	.46	.07	-.03	.10	-.29	587	.7729	.2431	.6220	-.10	94	39	COMMSUPE
1	.08	.90	.08	2	-.08	1.18	.08	-.29	.11	-2.51	547	.0125	.7332	.3919	-.19	86	43	MANHOUSE
1	-.06	.36	.07	2	.05	.20	.06	.16	.09	1.70	641	.0904	.4013	.5264	.11	105	44	MANFAMIL
1	.10	.18	.07	2	-.09	.44	.07	-.25	.09	-2.72	631	.0067	9.4608	.0021	-.58	103	45	MANFINAN
1	-.06	.19	.07	2	.06	.03	.06	.16	.09	1.73	638	.0835	2.1208	.1453	.26	105	46	NUTRITNE
1	-.07	1.17	.08	2	.07	.92	.07	.25	.11	2.32	594	.0204	3.3002	.0693	.37	99	47	MEDICATI
1	-.02	.72	.07	2	.03	.65	.07	.08	.10	.78	625	.4333	.0932	.7601	.06	102	48	SHOPHOUS
1	.09	1.00	.08	2	-.09	1.36	.08	-.36	.11	-3.27	632	.0011	12.9947	.0003	-.74	103	49	MANALCOH
1	.04	1.72	.10	2	-.03	1.94	.10	-.22	.14	-1.55	626	.1220	4.8615	.0275	-.56	102	50	MANSUBST
1	-.04	.00	.07	2	.04	-.11	.06	.11	.09	1.17	628	.2405	2.7184	.0992	.31	104	51	PARTDISC
1	.01	.10	.07	2	.00	.10	.06	.00	.09	.00	615	1.000	.1560	.6929	-.07	101	53	WORKGROU
1	-.08	-.18	.07	2	.08	-.39	.07	.21	.10	2.23	608	.0263	4.9967	.0254	.41	101	54	PRESENTA
1	.03	-.19	.07	2	-.02	-.13	.06	-.06	.09	-.60	634	.5465	.6644	.4150	-.15	104	56	ASKHELP
1	.04	-1.08	.07	2	-.05	-.94	.07	-.14	.10	-1.41	645	.1600	2.8758	.0899	-.32	102	57	PRESSDEA
1	.07	-1.00	.07	2	-.08	-.75	.07	-.24	.10	-2.41	631	.0164	4.1711	.0411	-.39	100	59	ACHIEVEG
1	-.05	-1.22	.08	2	.04	-1.40	.08	.18	.11	1.65	637	.1003	2.3435	.1258	.31	102	60	WORKOVER
1	.01	-.66	.07	2	-.02	-.63	.07	-.03	.10	-.31	639	.7577	1.4257	.2325	-.22	103	62	MANFREET
1	.01	.59	.08	2	.00	.59	.08	.00	.11	.00	461	1.000	1.0299	.3102	.23	74	63	PRACTICA
1	.04	-.89	.07	2	-.05	-.76	.07	-.13	.10	-1.33	625	.1847	1.4790	.2239	-.23	100	66	GETDOWNW
1	.07	.57	.07	2	-.05	.75	.07	-.18	.10	-1.83	589	.0681	1.1505	.2834	-.21	98	69	STAYDOEX
1	.15	-.18	.07	2	-.15	.22	.06	-.40	.09	-4.30	626	.0000	12.7473	.0004	-.66	101	70	TAKENOTE
1	.04	.10	.07	2	-.05	.23	.07	-.13	.10	-1.36	587	.1747	1.2461	.2643	-.21	97	71	REFERENC
1	.11	-.45	.07	2	-.11	-.15	.07	-.29	.09	-3.10	609	.0020	8.2826	.0040	-.53	99	72	NOTESAFT
1	.15	-.55	.07	2	-.14	-.13	.06	-.41	.09	-4.43	628	.0000	17.3665	.0000	-.79	103	73	ORGANISE
1	.05	-.56	.07	2	-.05	-.42	.07	-.14	.10	-1.44	617	.1510	.2048	.6509	-.09	102	74	STRUCTPL

Width of Mantel slice: MHSlice = .010 logits, Zero cell adjustment: MHZERO = .0000

5.1.3 Level of Degree (i.e., Undergraduates/Postgraduates)

TABLE 30.1 WHOLE ETSP_Whole sample age and dis r ZOU905WS.TXT Nov 10 2020 20:13
 INPUT: 667 PERSON 74 ITEM REPORTED: 659 PERSON 54 ITEM 4 CATS WINSTEPS 4.7.0.0

 DIF class/group specification is: DIF= @LEVELDEG

PERSON	Obs-Exp	DIF	DIF	PERSON	Obs-Exp	DIF	DIF	DIF	JOINT	Rasch-Welch	Mantel	Size	Active	ITEM				
CLASS/	Average	MEASURE	S.E.	CLASS/	Average	MEASURE	S.E.	CONTRAST	S.E.	t	d.f.	Prob.	Chi-squ	Prob.	CUMLOR	Slices	Number	Name
1	-.01	.28	.05	2	.03	.24	.15	.04	.15	.25	77	.8048	.0697	.7917	-.08	47	1	ONTIMECO
1	.01	-.39	.05	2	-.17	-.15	.15	-.24	.16	-1.47	69	.1454	2.4167	.1200	-.49	44	2	CONCENLE
1	.03	.17	.05	2	-.29	.62	.16	-.45	.17	-2.69	69	.0090	7.0803	.0078	-.80	45	3	UNDERCON
1	.01	.84	.05	2	-.07	.97	.17	-.13	.17	-.72	75	.4738	2.2032	.1377	-.48	45	4	LIBSYSTE
1	.02	.24	.05	2	-.13	.45	.16	-.21	.16	-1.25	70	.2152	1.0006	.3172	-.32	41	6	TOPIC
1	.02	-.01	.05	2	-.20	.30	.15	-.30	.16	-1.93	74	.0571	1.3549	.2444	-.35	44	7	DEPARTEX
1	.03	.39	.05	2	-.26	.83	.16	-.44	.17	-2.59	71	.0117	4.0732	.0436	-.64	44	8	COURSTRU
1	-.01	-1.11	.05	2	.03	-1.16	.17	.06	.17	.32	78	.7508	.7594	.3835	.28	46	10	CONCENST
1	-.01	-1.28	.06	2	.05	-1.38	.18	.10	.19	.51	76	.6087	.2402	.6241	-.13	47	12	PROCRAS
1	.02	-.67	.05	2	-.22	-.32	.16	-.35	.17	-2.05	62	.0445	4.2724	.0387	-.60	39	13	KNOWBEST
1	.02	-.34	.05	2	-.18	-.07	.16	-.27	.17	-1.59	59	.1166	.9794	.3224	-.31	38	14	REMSTUDY
1	.03	-.66	.05	2	-.37	-.10	.18	-.56	.19	-3.03	49	.0039	3.7850	.0517	-.67	33	15	MANSTREE
1	.01	.38	.05	2	-.15	.61	.20	-.23	.20	-1.13	44	.2634	.7411	.3893	-.30	31	16	DECQUES
1	-.01	-.31	.05	2	.14	-.51	.18	.20	.19	1.05	48	.2968	.7147	.3979	.26	33	18	MANPANIC
1	.01	-.33	.05	2	-.05	-.27	.15	-.06	.16	-.39	73	.6949	.1103	.7398	.10	44	20	RECBADRE
1	-.02	-1.05	.05	2	.17	-1.40	.18	.35	.19	1.88	73	.0646	3.2077	.0733	.56	45	21	MANANXIE
1	.00	-.94	.05	2	.06	-1.05	.17	.10	.18	.59	71	.5547	1.0434	.3070	.33	42	24	MENSTAMI
1	-.02	-.72	.05	2	.18	-1.04	.16	.32	.17	1.87	76	.0656	3.2200	.0727	.54	45	25	BECONFID
1	-.01	.34	.05	2	.10	.21	.15	.13	.15	.86	77	.3921	.1497	.6989	.12	46	27	MANANGER
1	-.03	-.53	.05	2	.18	-.84	.16	.31	.16	1.87	76	.0651	1.5649	.2110	.39	45	28	PERFECTI
1	-.04	-.23	.05	2	.39	-.86	.16	.63	.16	3.84	76	.0003	8.4433	.0037	.91	46	29	SWITCHOF
1	-.02	-.68	.05	2	.14	-.93	.16	.25	.17	1.49	74	.1408	1.0873	.2971	.33	45	30	QUALSLEE
1	-.02	-.10	.05	2	.15	-.33	.15	.23	.16	1.47	72	.1470	.9048	.3415	.29	45	31	TOLERATE
1	.00	.79	.06	2	.00	.79	.18	.00	.19	.00	56	1.000	.4355	.5093	.26	33	32	MANLABPL
1	.03	1.32	.06	2	-.25	2.11	.30	-.79	.31	-2.54	46	.0144	2.1748	.1403	-.80	36	33	GETEXAMH
1	.02	1.29	.06	2	-.17	1.78	.24	-.49	.24	-2.01	61	.0492	4.8771	.0272	-1.12	42	34	USECOMPU
1	.04	.75	.06	2	-.43	1.76	.26	-1.01	.27	-3.76	47	.0005	13.7109	.0002	-1.74	36	36	MANTUTOR
1	.01	.04	.05	2	-.08	.15	.15	-.11	.16	-.69	68	.4929	.8809	.3479	-.31	42	37	INVOLVES
1	-.01	.17	.05	2	.09	.05	.15	.12	.15	.80	76	.4255	.7831	.3762	.25	46	38	COMPEOP
1	-.02	.49	.05	2	.18	.21	.15	.28	.16	1.78	76	.0791	5.8499	.0156	.73	43	39	COMMSUPE
1	.00	1.04	.06	2	.03	.99	.19	.05	.20	.25	61	.8027	.3970	.5286	.24	36	43	MANHOUSE
1	-.02	.30	.05	2	.10	.14	.15	.16	.15	1.05	77	.2985	.0010	.9754	.01	46	44	MANFAMIL
1	-.01	.32	.05	2	.13	.14	.15	.18	.16	1.12	75	.2653	1.1443	.2848	.31	45	45	MANFINAN
1	.00	.11	.05	2	-.04	.17	.15	-.06	.16	-.36	74	.7194	1.2221	.2690	-.33	45	46	NUTRITNE
1	-.02	1.07	.06	2	.19	.72	.17	.35	.18	1.98	70	.0511	.2584	.6112	.17	39	47	MEDICATI
1	.01	.69	.05	2	-.02	.72	.16	-.03	.17	-.20	70	.8414	.0006	.9801	.01	41	48	SHOPHOU

1	.02	1.15	.06	2	-.11	1.41	.19	-.26	.20	-1.30	69	.1973	1.1896	.2754	-.39	42	49	MANALCOH
1	.02	1.79	.07	2	-.14	2.41	.30	-.62	.31	-2.01	65	.0487	1.9691	.1605	-.77	42	50	MANSUBST
1	-.01	-.06	.05	2	.02	-.09	.15	.03	.16	.19	70	.8465	.1969	.6572	-.12	45	51	PARTDISC
1	.00	.10	.05	2	-.07	.20	.16	-.10	.16	-.60	67	.5507	.2639	.6075	-.15	44	53	WORKGROU
1	.01	-.28	.05	2	-.05	-.21	.15	-.07	.16	-.43	69	.6665	.0093	.9231	.03	45	54	PRESENTA
1	.01	-.15	.05	2	-.10	-.01	.15	-.14	.16	-.90	71	.3723	.4589	.4981	-.22	45	56	ASKHELP
1	-.03	-.96	.05	2	.28	-1.54	.18	.58	.19	3.03	74	.0033	12.5528	.0004	1.25	46	57	PRESSDEA
1	-.02	-.85	.05	2	.22	-1.25	.17	.41	.18	2.27	74	.0264	9.1681	.0025	.99	45	59	ACHIEVEG
1	-.01	-1.29	.06	2	.09	-1.50	.18	.21	.19	1.10	74	.2756	1.1665	.2801	.37	45	60	WORKOVER
1	-.02	-.63	.05	2	.19	-.95	.16	.32	.17	1.92	76	.0588	3.3106	.0688	.56	46	62	MANFREET
1	-.02	-.56	.06	2	-.08	.71	.18	-.15	.19	-.78	54	.4373	.5280	.4675	-.28	28	63	PRACTICA
1	-.02	-.79	.05	2	.18	-1.13	.17	.33	.17	1.90	74	.0614	4.8993	.0269	.72	46	66	GETDOWNW
1	.01	.67	.05	2	-.09	.81	.19	-.14	.20	-.71	50	.4810	2.1871	.1392	-.59	35	69	STAYDOEX
1	.02	.00	.05	2	-.19	.28	.16	-.28	.17	-1.67	61	.1003	2.9016	.0885	-.55	40	70	TAKENOTE
1	.00	.16	.05	2	-.03	.20	.16	-.04	.17	-.22	66	.8277	.0951	.7578	-.09	41	71	REFERENC
1	.01	-.32	.05	2	-.19	-.04	.16	-.28	.17	-1.64	62	.1053	2.5839	.1080	-.53	40	72	NOTESAFT
1	-.01	-.33	.05	2	.04	-.39	.15	.06	.16	.37	74	.7124	.1356	.7127	.11	46	73	ORGANISE
1	-.02	-.46	.05	2	.18	-.76	.15	.30	.16	1.85	77	.0681	2.8639	.0906	.52	47	74	STRUCTPL

Width of Mantel slice: MHSlice = .010 logits, Zero cell adjustment: MHZERO = .0000

5.1.4 Administration Format (i.e., paper-based TSP/Excel-based eTSP)

TABLE 30.1 WHOLE ETSP Whole sample age and dis r ZOU905WS.TXT Nov 10 2020 20:13
 INPUT: 667 PERSON 74 ITEM REPORTED: 667 PERSON 54 ITEM 4 CATS WINSTEPS 4.7.0.0

 DIF class/group specification is: DIF= @TSPPAPER

	PERSON	Obs-Exp	DIF	DIF	PERSON	Obs-Exp	DIF	DIF	DIF	JOINT	Rasch-Welch	Mantel	Size	Active	ITEM				
	CLASS/	Average	MEASURE	S.E.	CLASS/	Average	MEASURE	S.E.	CONTRAST	S.E.	t	d.f.	Prob.	Chi-squ	Prob.	CUMLOR	Slices	Number	Name
1		.04	.22	.06	2	-.08	.39	.08	-.16	.10	-1.66	440	.0968	.3075	.5792	-.11	91	1	ONTIMECO
1		.01	-.39	.06	2	-.02	-.37	.08	-.02	.10	-.21	448	.8325	.0736	.7862	.05	91	2	CONCENLE
1		.05	.14	.06	2	-.10	.34	.08	-.20	.10	-2.03	438	.0428	.4780	.4894	-.14	88	3	UNDERCON
1		-.04	.90	.06	2	.08	.72	.08	.18	.11	1.71	439	.0886	1.2290	.2676	.22	88	4	LIBSYSTE
1		-.03	.30	.06	2	.05	.19	.08	.11	.10	1.12	443	.2629	3.4851	.0619	.37	92	6	TOPIC
1		.03	-.02	.06	2	-.06	.10	.08	-.12	.10	-1.27	435	.2065	.0694	.7922	-.05	91	7	DEPARTEX
1		.03	.39	.06	2	-.06	.52	.08	-.13	.10	-1.34	432	.1804	.3494	.5545	.12	91	8	COURSTRU
1		.03	-1.17	.06	2	-.07	-.99	.09	-.17	.11	-1.61	454	.1075	.4600	.4976	-.14	91	10	CONCENST
1		.01	-1.31	.07	2	-.03	-1.22	.09	-.08	.11	-.75	447	.4560	.1120	.7379	.07	91	12	PROCRAS
1		.08	-.75	.06	2	-.15	-.42	.08	-.33	.10	-3.28	439	.0011	4.3808	.0363	-.42	87	13	KNOWBEST
1		.05	-.39	.06	2	-.10	-.18	.08	-.21	.10	-2.17	427	.0307	1.7533	.1855	-.27	86	14	REMSTUDY
1		.00	-.62	.06	2	.00	-.62	.08	.00	.10	.00	426	1.000	.1306	.7178	-.07	88	15	MANSTREE
1		.06	.30	.06	2	-.12	.55	.08	-.26	.10	-2.53	408	.0119	2.3432	.1258	-.31	87	16	DECQUES
1		.00	-.31	.06	2	.01	-.31	.08	.00	.10	.00	426	1.000	.0542	.8159	-.04	86	18	MANPANIC
1		-.01	-.33	.06	2	.03	-.37	.08	.04	.10	.36	431	.7163	.0714	.7893	-.05	91	20	RECBADRE
1		-.02	-1.06	.06	2	.03	-1.15	.09	.09	.11	.80	428	.4253	.1692	.6809	-.08	92	21	MANANXIE
1		.01	-.96	.06	2	-.03	-.90	.09	-.07	.11	-.62	437	.5376	.9877	.3203	-.22	90	24	MENSTAMI
1		.01	-.76	.06	2	-.02	-.73	.08	-.02	.10	-.24	430	.8120	1.4788	.2240	-.24	90	25	BECONFID
1		-.01	.34	.06	2	.02	.31	.08	.03	.10	.31	434	.7545	.0024	.9608	-.01	90	27	MANANGER
1		-.04	-.51	.06	2	.08	-.68	.08	.17	.10	1.68	433	.0928	1.4650	.2261	.24	90	28	PERFECTI
1		.00	-.29	.06	2	.00	-.29	.08	.00	.10	.00	441	1.000	.2616	.6090	.10	91	29	SWITCHOF
1		.03	-.76	.06	2	-.06	-.63	.08	-.13	.10	-1.31	434	.1902	.3251	.5685	-.11	91	30	QUALSLEE
1		-.05	-.05	.06	2	.11	-.26	.08	.22	.10	2.23	433	.0261	4.6691	.0307	.40	90	31	TOLERATE
1		-.01	.79	.07	2	.02	.76	.09	.03	.12	.26	349	.7951	.3289	.5663	.14	72	32	MANLABPL
1		-.02	1.44	.08	2	.06	1.26	.11	.19	.13	1.43	356	.1535	.1059	.7448	.08	80	33	GETEXAMH
1		.00	1.33	.07	2	.00	1.33	.10	.00	.12	.00	409	1.000	.1580	.6910	-.09	86	34	USECOMPU
1		-.02	.85	.06	2	.06	.71	.10	.14	.12	1.21	316	.2269	.2372	.6262	.11	77	36	MANTUTOR
1		-.02	.07	.06	2	.05	-.03	.08	.09	.10	.96	423	.3371	.1601	.6891	.08	86	37	INVOLVES
1		-.02	.19	.06	2	.03	.12	.08	.07	.10	.71	438	.4801	.0044	.9470	.01	91	38	COMMPEOP
1		-.02	.49	.06	2	.05	.39	.08	.11	.10	1.05	391	.2948	.3773	.5390	.13	81	39	COMMSUPE
1		-.04	1.12	.07	2	.10	.87	.10	.25	.12	2.05	338	.0413	5.7273	.0167	.55	76	43	MANHOUSE
1		-.02	.30	.06	2	.03	.23	.08	.07	.10	.71	433	.4765	1.0748	.2999	-.20	90	44	MANFAMIL
1		-.04	.38	.06	2	.09	.20	.08	.18	.10	1.80	420	.0729	2.0328	.1539	.29	86	45	MANFINAN

1	-.07	.20	.06	2	.14	-.07	.08	.27	.10	2.81	425	.0053	1.5657	.2108	.25	87	46 NUTRITNE
1	-.05	1.14	.07	2	.12	.84	.09	.30	.11	2.66	407	.0081	1.1140	.2912	.23	85	47 MEDICATI
1	-.04	.75	.06	2	.08	.58	.08	.17	.10	1.64	425	.1016	1.2585	.2619	.22	86	48 SHOPHOUS
1	-.01	1.18	.07	2	.02	1.14	.10	.04	.12	.36	404	.7228	1.0086	.3152	.22	87	49 MANALCOH
1	-.01	1.87	.09	2	.02	1.78	.12	.09	.15	.63	396	.5319	.5130	.4739	.19	86	50 MANSUBST
1	-.02	-.04	.06	2	.04	-.11	.08	.07	.10	.75	413	.4549	.0001	.9928	.00	87	51 PARTDISC
1	.00	.10	.06	2	.00	.10	.08	.00	.10	.00	400	1.000	.1823	.6694	-.09	87	53 WORKGROU
1	-.02	-.25	.06	2	.05	-.35	.08	.10	.10	1.02	388	.3080	.0030	.9565	-.01	85	54 PRESENTA
1	-.05	-.09	.06	2	.10	-.28	.08	.20	.10	2.01	409	.0448	.9992	.3175	.21	88	56 ASKHELP
1	.02	-1.05	.06	2	-.04	-.96	.09	-.09	.11	-.84	432	.4030	.0212	.8841	-.03	91	57 PRESSDEA
1	.03	-.92	.06	2	-.06	-.80	.09	-.13	.11	-1.21	416	.2259	.6010	.4382	-.16	87	59 ACHIEVEG
1	.02	-1.35	.07	2	-.04	-1.23	.09	-.12	.12	-1.06	423	.2896	1.3373	.2475	-.24	90	60 WORKOVER
1	.01	-.66	.06	2	-.01	-.66	.08	.00	.10	.00	421	1.000	.3400	.5598	.12	88	62 MANFREET
1	.00	.59	.07	2	.00	.59	.09	.00	.12	.00	327	1.000	.0888	.7657	.07	69	63 PRACTICA
1	.01	-.85	.06	2	-.03	-.78	.09	-.07	.10	-.67	426	.5047	1.0205	.3124	-.20	92	66 GETDOWNW
1	.04	.62	.06	2	-.07	.78	.09	-.16	.11	-1.49	383	.1379	1.6063	.2050	-.26	86	69 STAYDOEX
1	.01	.02	.06	2	-.02	.05	.08	-.03	.10	-.31	415	.7542	.0070	.9332	.02	87	70 TAKENOTE
1	-.01	.16	.06	2	.02	.14	.08	.02	.10	.25	392	.8061	.0013	.9710	.01	86	71 REFERENC
1	.06	-.38	.06	2	-.12	-.14	.08	-.24	.10	-2.40	391	.0171	2.5732	.1087	-.31	87	72 NOTESAFT
1	.05	-.40	.06	2	-.10	-.20	.08	-.20	.10	-2.05	436	.0406	.3006	.5835	-.11	89	73 ORGANISE
1	.02	-.51	.06	2	-.03	-.44	.08	-.07	.10	-.72	416	.4724	.0108	.9171	-.02	89	74 STRUCTPL

Width of Mantel slice: MHSLICE = .010 logits, Zero cell adjustment: MHZERO = .0000

Appendix 5.2: Person Measure Sensitivity Calculations (Andrich Thresholds Anchored)

Person	TSP 1 Measure	TSP 1 S. E.	TSP 2 Measure	TSP 2 S. E.	z-test
1	-0.53	0.17	1.60	0.20	-8.11
2	0.16	0.17	0.45	0.17	-1.21
3	-0.41	0.17	-0.92	0.18	2.06
4	-1.57	0.20	1.00	0.18	-9.55
5	-0.52	0.17	-0.89	0.17	1.54
6	0.02	0.17	-0.10	0.17	0.50
7	0.88	0.19	1.49	0.22	-2.10
8	0.92	0.19	-0.19	0.17	4.35
9	-1.44	0.20	-0.67	0.17	-2.93
10	-0.14	0.16	-0.22	0.16	0.35
11	-1.86	0.22	-0.16	0.16	-6.25
12	-1.65	0.20	-0.76	0.19	-3.23
13	0.19	0.17	-0.08	0.16	1.16
14	-0.71	0.17	1.23	0.18	-7.84
15	-0.22	0.16	-0.89	0.17	2.87
16	-0.54	0.17	1.24	0.18	-7.19
17	-0.79	0.17	-0.62	0.17	-0.71
18	0.03	0.17	0.00	0.16	0.13
19	-0.35	0.16	1.59	0.20	-7.57
20	0.05	0.17	-0.19	0.16	1.03
21	-1.17	0.18	2.72	0.31	-10.85
22	0.95	0.18	0.51	0.17	1.78
23	-0.60	0.17	-0.52	0.17	-0.33
24	-0.22	0.16	0.19	0.17	-1.76
25	-0.14	0.16	-0.54	0.17	1.71
26	-0.20	0.17	-0.46	0.17	1.08
27	0.43	0.17	0.14	0.19	1.14
28	-0.60	0.17	1.14	0.18	-7.03
29	-0.90	0.17	1.82	0.22	-9.78
30	-3.28	0.41	2.11	0.24	-11.35
31	0.11	0.17	0.32	0.17	-0.87
32	0.45	0.17	0.85	0.18	-1.62
33	0.08	0.20	-0.17	0.17	0.95
34	0.37	0.19	-0.11	0.21	1.69
35	0.16	0.17	0.59	0.18	-1.74
36	-0.54	0.17	-0.60	0.17	0.25

37	-0.05	0.16	0.08	0.17	-0.56
38	-0.63	0.17	-0.83	0.17	0.83
39	0.13	0.17	-0.05	0.16	0.77
40	0.19	0.17	0.72	0.18	-2.14
41	0.25	0.17	-0.89	0.17	4.74
42	-0.07	0.17	0.01	0.17	-0.33
43	-0.49	0.19	-0.58	0.18	0.34
44	0.09	0.17	0.12	0.18	-0.12
45	0.19	0.17	0.72	0.18	-2.14
46	0.93	0.19	0.60	0.17	1.29
47	-0.09	0.17	1.15	0.18	-5.01
48	-0.26	0.17	0.08	0.17	-1.41
49	0.36	0.17	1.15	0.18	-3.19
50	-0.81	0.17	0.14	0.17	-3.95
51	0.11	0.17	-0.22	0.17	1.37
52	1.48	0.21	0.52	0.17	3.55
53	-0.59	0.18	1.34	0.19	-7.37
54	0.75	0.18	-0.13	0.17	3.55
55	-0.11	0.17	-0.60	0.17	2.04
56	-1.49	0.20	-0.95	0.17	-2.06
57	-0.32	0.17	-0.77	0.17	1.87
58	0.56	0.17	-0.16	0.16	3.08
59	-1.20	0.18	2.13	0.24	-11.10
60	0.28	0.17	-0.24	0.16	2.23
61	0.48	0.19	-0.20	0.17	2.67
62	-1.24	0.18	1.97	0.23	-10.99
63	-0.54	0.18	-0.66	0.17	0.48
64	-1.12	0.18	-0.66	0.18	-1.81
65	0.56	0.18	0.02	0.17	2.18
66	-0.26	0.17	-0.86	0.17	2.50
67	0.99	0.19	0.79	0.19	0.74
68	-0.08	0.17	0.35	0.17	-1.79
69	0.11	0.17	-0.60	0.17	2.95
70	-1.09	0.18	-0.83	0.17	-1.05
71	-1.61	0.20	2.47	0.28	-11.86
72	-0.66	0.18	-0.34	0.17	-1.29
73	-1.09	0.18	-0.89	0.17	-0.81
74	-0.95	0.17	1.05	0.18	-8.08
75	0.57	0.28	-0.38	0.16	2.95
76	-0.48	0.17	1.17	0.18	-6.66

77	-0.89	0.17	-0.95	0.18	0.24
78	-0.51	0.18	1.03	0.18	-6.05
79	-0.56	0.17	-0.86	0.17	1.25
80	0.25	0.17	0.42	0.17	-0.71
81	0.25	0.17	-0.05	0.16	1.29
82	0.00	0.16	-0.05	0.16	0.22
83	0.69	0.18	0.63	0.17	0.24
84	-1.27	0.20	1.69	0.21	-10.21
85	-0.95	0.17	1.72	0.23	-9.34
86	-2.47	0.28	2.68	0.31	-12.33
87	-0.33	0.16	-0.77	0.17	1.88
88	-1.04	0.18	-0.54	0.17	-2.02
89	-0.65	0.17	-0.47	0.17	-0.75
90	0.39	0.17	2.01	0.23	-5.66
91	1.21	0.21	0.72	0.20	1.69

Key: Bold = indicates significant result ($|z| > 1.96$); S. E. = standard error

Appendix 5.3: Keyform for the 54-item 4-point 'Difficulty' scale

Print this page and circle the answers a student has provided for each item in the 'Identifying Needs' section. Draw a line of best fit through the circles towards the highlighted lines to estimated level of occupational performance difficulty (in logits and on a converted 0-100 metric).

Rating scale: 0 = No difficulty; 1 = Some difficulty; 2 = Moderate difficulty; 3 = Extreme difficulty; NA = Not applicable (not circled)

-4 -2 0 2 4 6					NUM	ITEM					
0		0	:	1	:	2	:	3	3	50	Managing/avoiding other substances
0		0	:	1	:	2	:	3	3	33	Getting to the exam hall
0		0	:	1	:	2	:	3	3	34	Use computers
0		0	:	1	:	2	:	3	3	49	Managing alcohol intake
0		0	:	1	:	2	:	3	3	43	Managing flatmates/housemates
0		0	:	1	:	2	:	3	3	47	Managing any medication
0		0	:	1	:	2	:	3	3	4	Understanding the Library System
0		0	:	1	:	2	:	3	3	36	Managing Tutor/Student Advisor system
0		0	:	1	:	2	:	3	3	32	Managing lab/placement environment
0		0	:	1	:	2	:	3	3	48	Managing shopping, housework etc.
0		0	:	1	:	2	:	3	3	69	Staying and doing the exam
0		0	:	1	:	2	:	3	3	63	Doing practical work (on placement, in labs)
0		0	:	1	:	2	:	3	3	39	Communicating with my supervisor
0		0	:	1	:	2	:	3	3	8	Understanding course structure/content
0		0	:	1	:	2	:	3	3	16	Deciding which question to do in exams
0		0	:	1	:	2	:	3	3	27	Managing anger
0		0	:	1	:	2	:	3	3	45	Managing finances/bills
0		0	:	1	:	2	:	3	3	1	Being on time for college
0		0	:	1	:	2	:	3	3	44	Managing family
0		0	:	1	:	2	:	3	3	6	Understanding topic/question
0		0	:	1	:	2	:	3	3	3	Understanding content of lectures
0		0	:	1	:	2	:	3	3	38	Communicating with people
0		0	:	1	:	2	:	3	3	71	Referencing
0		0	:	1	:	2	:	3	3	46	Managing nutritional needs
0		0	:	1	:	2	:	3	3	53	Working in groups
0		0	:	1	:	2	:	3	3	37	Getting involved in societies
0		0	:	1	:	2	:	3	3	7	Understand departments expectations/standards
0		0	:	1	:	2	:	3	3	70	Taking notes in class
0		0	:	1	:	2	:	3	3	51	Participating in discussion
0		0	:	1	:	2	:	3	3	31	Tolerating external distractions
0		0	:	1	:	2	:	3	3	56	Asking for help
0		0	:	1	:	2	:	3	3	54	Doing presentations
0		0	:	1	:	2	:	3	3	29	Switching off and relaxing
0		0	:	1	:	2	:	3	3	72	Writing study notes after class
0		0	:	1	:	2	:	3	3	18	Managing panic and "writer's block"
0		0	:	1	:	2	:	3	3	14	Remembering what I have studied
0		0	:	1	:	2	:	3	3	73	Organising information
0		0	:	1	:	2	:	3	3	20	Receiving and coping with bad results
0		0	:	1	:	2	:	3	3	2	Concentrating during lectures & tutorials
0		0	:	1	:	2	:	3	3	74	Structuring and planning essay/project
0		0	:	1	:	2	:	3	3	28	Being a perfectionist
0		0	:	1	:	2	:	3	3	15	Managing the stress before an exam
0		0	:	1	:	2	:	3	3	13	Knowing how best to study
0		0	:	1	:	2	:	3	3	62	Managing my free time
0		0	:	1	:	2	:	3	3	30	Getting enough good quality sleep
0		0	:	1	:	2	:	3	3	25	Being confident
0		0	:	1	:	2	:	3	3	66	Getting down to writing
0		0	:	1	:	2	:	3	3	59	Achieving goals
0		0	:	1	:	2	:	3	3	24	Maintaining good mental stamina/endurance
0		0	:	1	:	2	:	3	3	57	Dealing with time pressures & deadlines
0		0	:	1	:	2	:	3	3	21	Managing anxiety
0		0	:	1	:	2	:	3	3	10	Maintaining concentration during study
0		0	:	1	:	2	:	3	3	12	Procrastination
0		0	:	1	:	2	:	3	3	60	Dealing with work overload

-4	-2	0	2	4	6	(Logit scale)	
-10	10	20	40	60	80	90	(0-100 scale)
Low	←-----→					High	
Occupational performance difficulty							

Appendix 5.4: Data Completion for 54-item 6-point 'Importance' scale (N=655)

Scale	Item Number	Item Codes*	Count	%
Person	1	ONTIMECO	633	94.9
	2	CONCENLE	630	94.5
	3	UNDERCON	621	93.1
	4	LIBSYSTE	611	91.6
	5	TOPIC	597	89.5
	6	DEPARTEX	597	89.5
	7	COURSTRU	609	91.3
	8	CONCENST	634	95.1
	9	PROCRAST	622	93.3
	10	KNOWBEST	619	92.8
	11	REMSTUDY	612	91.8
	12	MANSTREE	605	90.7
	13	DECQUES	593	88.9
	14	MANPANIC	603	90.4
	15	RECBADRE	615	92.2
	16	MANANXIE	629	94.3
	17	MENSTAMI	621	93.1
	18	BECONFID	625	93.7
	19	MANANGER	624	93.6
	20	PERFECTI	623	93.4
	21	SWITCHOF	623	93.4
	22	QUALSLEE	628	94.2
Environment	23	TOLERATE	629	94.3
	24	MANLABPL	515	77.2
	25	GETEXAMH	552	82.8
	26	USECOMPU	598	89.7
	27	MANTUTOR	534	80.1
	28	INVOLVES	615	92.2
	29	COMMPEOP	620	93.0
	30	COMMSUPE	564	84.6
	31	MANHOUSE	529	79.3
	32	MANFAMIL	621	93.1
	33	MANFINAN	606	90.9
	34	NUTRITNE	613	91.9
	35	MEDICATI	584	87.6
	36	SHOPHOUS	609	91.3
	37	MANALCOH	607	91.0
	38	MANSUBST	605	90.7
Occupation	39	PARTDISC	612	91.8
	40	WORKGROU	593	88.9
	41	PRESENTA	585	87.7
	42	ASKHELP	611	91.6

43	PRESSDEA	634	95.1
44	ACHIEVEG	617	92.5
45	WORKOVER	622	93.3
46	MANFREET	622	93.3
47	PRACTICA	450	67.5
48	GETDOWNW	610	91.5
49	STAYDOEX	572	85.8
50	TAKENOTE	608	91.2
51	REFERENC	572	85.8
52	NOTESAFT	593	88.9
53	ORGANISE	613	91.9
54	STRUCTPL	604	90.6

Key: * = full item names in Appendix 1.2.

Appendix 6.1: 2021 version of the *Electronic Trinity Student Profile (eTSP;* Lombard, Nolan, & Heron, 2021)

Part '1 – Student Details'

Student Name and Number	
Contact Details	Email:
Date of Referral	
Tutor/Student Advisor	
Disability Officer	
Next of Kin and contact details	
Psychiatrist/GP	
Year	
Faculty	
Course	
TSP completed	
Other services	
DS COP completed	

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Part '2 – Experiences & Expectations'

Present college Life		Please answer questions 1-12 in the boxes provided	
1	What areas of college life, academic or otherwise do you feel that you are managing well?		
2	What do you like to do outside of academic work, either within or outside college? For Example: Hobbies or Interests		
3	Do you work outside of college and how many hours do you work?		
Previous Experience			
4	Have you started any other 3 rd level course?		
5	Did you complete it?		
6	Have you repeated any years in your present course?		
7	Have you taken a year out from studying and what did you use the year for?		
8	Tell me about your college experience to date?		
9	Tell me about your work experience to date		
Expectations			
10	What are your academic expectations for this coming year in college?		
11	What are your expectations socially in this coming college year?		
12	What are your expectations personally for this college year?		
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The diagram illustrates the relationship between Person, Occupation, and Environment. The intersection of all three circles is labeled 'Occupational Performance'. The 'Occupation' circle specifically lists 'Things that you have to or want to do throughout your day'.

Part '3 – Module Matrix'

Module Matrix

This table asks you to **identify what is expected of you in each module**. To gather this information, you will need to refer to the module details on your **virtual learning environment (i.e. Blackboard, BrightSpace, Moodle etc)**, **module descriptor or course handbook**. Try to gather as much information as possible. Feel free to note any deadlines you find in a calendar or diary as you fill in this sheet. Please see the example for more details.

Module Code & Name	Module Pass Mark	Breakdown of Assessment (i.e. participation, labs, mid-term assignment, final essay, end-of-term exam, weekly quizzes/tutorials etc)	Assessment's Percentage weight	Expectations & Demands (e.g. word count, group work, duration of exam, tutorial preparation etc)	Due Date (if you have them)
<i>EXAMPLE: HIST123456 Introduction to Irish History</i>	40%	<i>Attendance and participation in tutorials</i>	20%	<i>Weekly tutorials, 3 readings to complete in preparation each week</i>	<i>Weekly starting in Week 3</i>
		<i>Mid-term multiple choice questions</i>	30%	<i>1 hour MCQ exam on Weeks 1-4 lecture content</i>	<i>25th October (before reading week)</i>
		<i>Final essay</i>	50%	<i>2000 words, Harvard referencing style</i>	<i>Week 12 (specific date to be confirmed)</i>

Part '4 – Identifying Needs'

©Copyright Nolan C. (2011, 2014); Nolan C., Lombard K. & Heron E. (2021)	Items (54 total)	Level of Difficulty 0 = No difficulty 1 = Some difficulty 2 = Moderate difficulty 3 = Extreme difficulty NA = Not applicable	Level of Importance 0 = No importance 1 = Some importance 2 = Great importance NA = Not applicable	Please explain your answer
Person	Being on time for College (lectures, labs etc.)			
	Concentrating during lectures and tutorials			
	Understanding the content of lectures			
	Understanding the Library System			
	Understanding topic / question			
	Understanding your departments expectations/standards (eg. Length, style etc)			
	Understanding the course structure and content			
	Maintaining concentration during study			
	Procrastination			
	Knowing how best to study			
	Remembering what I have studied			
	Managing the stress before an exam			
	Deciding which question to do in exams			
	Managing panic and "writer's block"			
	Receiving and coping with bad results			
	Managing anxiety			
	Maintaining good mental stamina/endurance			
	Being Confident			
	Managing anger			
	Being a perfectionist			
Switching off and relaxing				
Getting enough good quality sleep				
Environment	Tolerating external distractions e.g. noise, light			
	Managing lab / placement environments			
	Getting to the exam hall			
	Using Computers			
	Managing Tutor system/Student Advisor system			
	Getting involved in societies			
	Communicating with people			
	Communicating with my supervisor			
	Managing flatmates/housemates			
	Managing family			
	Managing finances/bills			
	Managing nutritional needs			
	Managing any medication			
	Managing shopping, housework etc			
	Managing alcohol intake			
Managing / avoiding other substances				
Occupation	Participating in discussion			
	Working in groups			
	Doing presentations			
	Asking for help			
	Dealing with time pressures and deadlines			
	Achieving goals			
	Dealing with work overload			
	Managing my free time			
	Doing practical work (i.e. on placement, in labs)			
	Getting down to writing			
	Staying and doing the exam			
	Taking notes in class			
	Referencing			
	Writing study notes after class			
Organising information				
Structuring and planning the essay or project				
TOTAL		0	0	

Part '5 – Goals'

Areas Identified	Goals Set	OT intervention Goals	Goals Reviewed
Person	Person Focused Goals		Person Focused Goals
Environment	Environment Focused goals		Environment Focused goals
Occupation	Occupation Focused goals		Occupation Focused goals
Role Focused	Role Focused Goals		Role Focused Goals

Further Assessments

Name of Assessment completed	Date Completed	Results of Assessment	Actions/Interventions/Discussion Resulting from Assessment
Sensory Profile			
Interest Checklist			
Occupational Checklist			
Occupational Questionnaire			

Session Notes 20-21

Appt num	Date	Conceptual Model Spher	Sub Category	Review previous session	Session Notes	Goals/Actions/Plan	Correspondence	Signed

Appendix 6.2: Summary of the Additional Refinements & Overview of Minor Refinements made to the tool

Section of the tool	Additional Refinements
Section '1 - Student Details'	<ul style="list-style-type: none"> • Inclusion of gender and preferred pronoun fields
Section '2 - Experiences & Expectations'	<ul style="list-style-type: none"> • Inclusion of questions to gain more in-depth information of a student as an occupational being (i.e., virtual learning; additional responsibilities/demands they are managing; previous educational experiences) • Clarification of definitions of academic, social, and person expectations
Section '3 - Identifying Needs'	<ul style="list-style-type: none"> • Re-defining underlying construct of the 'Difficulty' scale as occupational performance and re-branding the tool as the <i>Trinity Student Occupational Performance Profile (TSOPP)</i> • Justifying changing the 'Importance' scale to 'Priority' scale using the Occupational Performance Process Model and Suggesting a new rating scale
Section '4 - Item Difficulty Hierarchy'	<ul style="list-style-type: none"> • Introducing and displaying the item difficulty hierarchy on the tool
Section '5 - Module Matrix'	<ul style="list-style-type: none"> • Re-positioning the Module Matrix later in the tool • Creating separate '5A Module Matrix (Taught)' and '5B Project_Thesis Management' matrices
Section '6 - Goal Setting'	<ul style="list-style-type: none"> • Re-formatting '6 - Goal Setting'
Keyforms & Repeated Measures	<ul style="list-style-type: none"> • Developing and introducing a <i>TSOPP</i> keyform • Introducing a Repeated Measures part on the tool
Developing an Administration Manual	<ul style="list-style-type: none"> • Developing an administration manual so that future occupational therapists can start using the tool within their practice

Section '1 – Student Details' – Inclusion of gender and preferred pronouns fields

Under the *Equal Status Act 2000* (Government of Ireland, 2000), public services including universities must ensure equal access to service provision and non-discrimination on the basis of gender. In recent years, gender identity and expression policies have been developed in TCD (Equality Office, 2019), UCD (Equality, Diversity and Inclusion, 2017), and TUDublin (Directorate of Equality, Diversity and Inclusion, 2020), which explicitly state the universities' commitment to valuing and including people of any gender.

Furthermore, the Association of Occupational Therapists of Ireland's (2019) 'LGBT+ Awareness and Good Practice Guidelines for Occupational Therapists' recommends that occupational therapists respect the preferred name and chosen pronouns of their clients.

In light of this, section '1 - Student Details' of the tool was updated to provide an opportunity for students to identify their gender and preferred pronouns if they wished to provide this information. Drop-down menus were provided for Gender (i.e., Male; Female; Gender non-binary; Prefer not to say), and for Preferred Pronouns (i.e., She/Her; He/Him; They/Them; No pronouns – use my name; Other preference [discuss with OT at first session]). A Senior Occupational Therapist in the National Gender Service was consulted when developing these gender and pronoun fields, to ensure that the options provided were gender-affirming if a student wishes to disclose this information to their occupational therapist.

Section '2 – Experiences & Expectations'

The refinements in section '2 - Experiences & Expectations' have mainly revolved around the inclusion of open-ended questions to gain more in-depth information about the student as an occupational being and providing clarification in certain questions.

Question 2: Does your course involve any remote/virtual engagement (e.g., online lectures via Blackboard/BrightSpace/Zoom etc.)? If so, are you experiencing any difficulties managing the virtual learning components of your course?

During the course of this research, the COVID-19 pandemic occurred and subsequent government-imposed lockdowns. For the Academic Year 2020-2021, this resulted in most college and teaching activities being held remotely or virtually online either via Zoom or the virtual learning environment (e.g., Blackboard, BrightSpace etc.). Students predominantly studied from their homes or temporary accommodation, and the occupational therapy services began facilitating telehealth support to ensure that students had access to support during this time. Some of the greatest challenges experienced by students with disabilities during this time were difficulties with structuring their day, motivation, and managing distractions and other demands at

home (AHEAD, 2020), indicating the clear need for occupational therapy services to continue supporting students remotely. As the COVID-19 pandemic and subsequent restrictions gradually started to ease during the Academic Year 2021-2022 in response to the public health situation, the majority of college and teaching activities were facilitated using a blended learning model consisting predominantly of on-campus activities with the inclusion of some virtual/remote activities. By the Academic Year 2022-23, all teaching activities were being held on-campus in-person, with the premise that there was a need for hybrid approaches (e.g., lecture recordings, virtual classes) should another COVID-19 surge arise during the winter of 2022.

As a result, it is envisaged that some degree of blended learning in higher education activities will continue into the future, especially as it provides flexibility for students (Department of Further and Higher Education, Research, Innovation and Science, 2020; HEA, 2022). In FG1, one occupational therapist noted that the COVID-19 pandemic highlighted a greater need to establish how they are managing remote learning. Subsequently the question, *“Does your course involve any remote/virtual engagement (e.g., online lectures via Blackboard/BrightSpace/Zoom etc.)? If so, please list any aspects of virtual learning with which you may experience difficulties managing.”*, was included in section ‘2 - Experiences & Expectations’ as a way for students to highlight this if applicable.

Question 5: Please list any other demands/responsibilities you are managing outside of college (e.g., family responsibilities, volunteering etc.).

During FG2, the occupational therapists questioned if the ‘Module Matrix’ section was narrowing the focus in on academic demands too much and if it should be expanded to provide the opportunity for students to highlight other occupational demands they are trying to manage in their life on top of their studies, such as placement, work, or family commitments. By not explicitly asking students what other demands they are managing alongside their student role, this may increase the risk that a therapist would make incorrect assumptions about what a student is managing within their life. The occupational therapists expressed a desire for students to have the opportunity to highlight other life demands that they may be managing outside of their student role,

which would improve the tool's face validity. Hence, an open-ended question was included in section '2 - Experiences & Expectations' where they could highlight other demands that they are managing alongside their student role to give a broader picture of the student as an occupational being.

Question 10: Please list any previous educational experiences you have had to date (including school, college etc.)

In the original tool, this question was worded as, "Tell me about your college experience to date?". However, similar to the issue above with the 'Module Matrix' section potentially being too narrow in focus, the occupational therapists expressed similar concerns about this question's wording and how it does not consider a student's previous educational experience. For example, some student's may have had a difficult time during their school years, may be returning to education as a Mature student or may have had a previous experience of college. Clarifying the wording as above gives students the opportunity to describe their longitudinal (Law et al., 1996) educational experiences in their life to-date if they wish.

Questions 12-14: Clarified definitions of academic expectations (Question 12), social expectations (Question 13) and personal expectations (Question 14)

These three questions on a student's academic, social, and personal expectations for the year ahead in college were included in the original *TSP* when the tool was re-designed to capture student's narratives of their experiences as described by Nolan (2011) in 'Theme 2 Creation of the *TSP* – Narratives (1st Sept 2006)'. In the *eTSP*, the questions read as: "What are your academic expectations for this coming year in college?"; "What are your expectations socially in this coming college year?"; and "What are your expectations personally for this college year?". Upon completing her pilot study, Nolan (2011) noted that these questions were frequently unanswered, with 27.9% (N=84) of the sample not answering on academic expectations, 36.1% (N=93) did not answer on social expectations, and 37.3% (N=103) did not answer on personal expectations. One potential reason for this was the lack of definitions given to students about what academic, social, or personal expectations are. To assist with this, these

questions were clarified by displaying examples of academic, social, and personal expectations as follows:

- What are your **academic expectations** for this coming year in college? (e.g., handing in all assignments, learning how to use campus systems, attending as many classes as possible etc.)
- What are your **social expectations** in this coming college year? (e.g., making a group of friends/maintaining friendships, getting involved in societies, asking lecturers for help etc.)
- What are your **personal expectations** for this coming year in college? (Personal expectations are influenced by your personal goals, for example learning to drive, getting a part-time job, taking up a new hobby, working on your mental health etc.)

Appendix 6.3: Trinity Student Occupational Performance Profile (TSOPP; Lombard, Nolan, & Heron, 2022)

Instructions

Trinity Student Occupational Performance Profile - TSOPP Instructions Version 14.2 (Lombard, Nolan, & Heron, 2021, 2022; Nolan C. 2011, 2014)		
There are six parts to this form (see tabs at the bottom of this sheet). The purpose of this form is to gain an understanding from your perspective of your college experiences to-date and to identify areas of college life that are presenting as a difficulty for you.		
Section:		
Completed by you prior to engaging with Occupational Therapy	1	Student Details Asks you for your contact details, pronouns, next of kin details and details about your course. This is to gain an understanding of your course structure and so that we can maintain contact with you and have someone of your choice to contact in an emergency.
	2	Experiences & Expectations Asks questions about your current college experience and areas that you may be experiencing some difficulty. It also asks you about your expectations for college and your course. It is designed to ask you about your previous educational experiences and work history. If you are in first year then parts of this section may not be relevant to you. If so, just move onto the next section.
	3	Identifying Needs Contains a list of concerns for students. These concerns may be related to concerns you have about yourself and your ability to manage both the academic and social structures in college (Person), concerns about managing the demands of the university system and the social life of being a student (Environment), and concerns about managing the job of being a student (Occupation). You will be asked to rate the level of difficulty you are experiencing in managing each item. You will then be asked to rate how much of a priority the item is to work on together in occupational therapy. By rating the items it helps us to identify and prioritise the items you perceive to be a problem and that you most want to work on, and will enable us to make an appropriate plan of action to tackle the issues.
Completed collaboratively with your Occupational Therapist	4	Module Matrix Asks you to outline what is expected of you in each module you are completing this semester/year. This allows you to identify deadlines and the demands which are expected of you in each module and assists you and your therapist in developing practical plans to help you manage your workload.
	5	Item Difficulty Hierarchy Displays the items from Section 3 Identifying Needs in order of hierarchy from 'least difficult to manage' to 'most difficult to manage'. This helps to understand the relative difficulty of each aspect of your student role and appreciate that some aspects may be more difficult than others and hence may require more time to develop skills to manage.
	6	Goals Allows you to set goals related to the key occupational performance difficulties you have identified in collaboration with your therapist and to review them on a regular basis. This will assist you in setting out a plan for the academic year and support you in participating fully in college life.
All the information on this e-form will be treated confidentially. This means that no information on this form will be shared with others unless you indicate otherwise. We will provide you with a copy so that you may track any changes and achievements, which follows and is in keeping with best practice within the occupational therapy service. ©Copyright Nolan C. (2011, 2014); Lombard, K., Nolan C., & Heron E. (2021, 2022)		

Section '1 – Student Details'

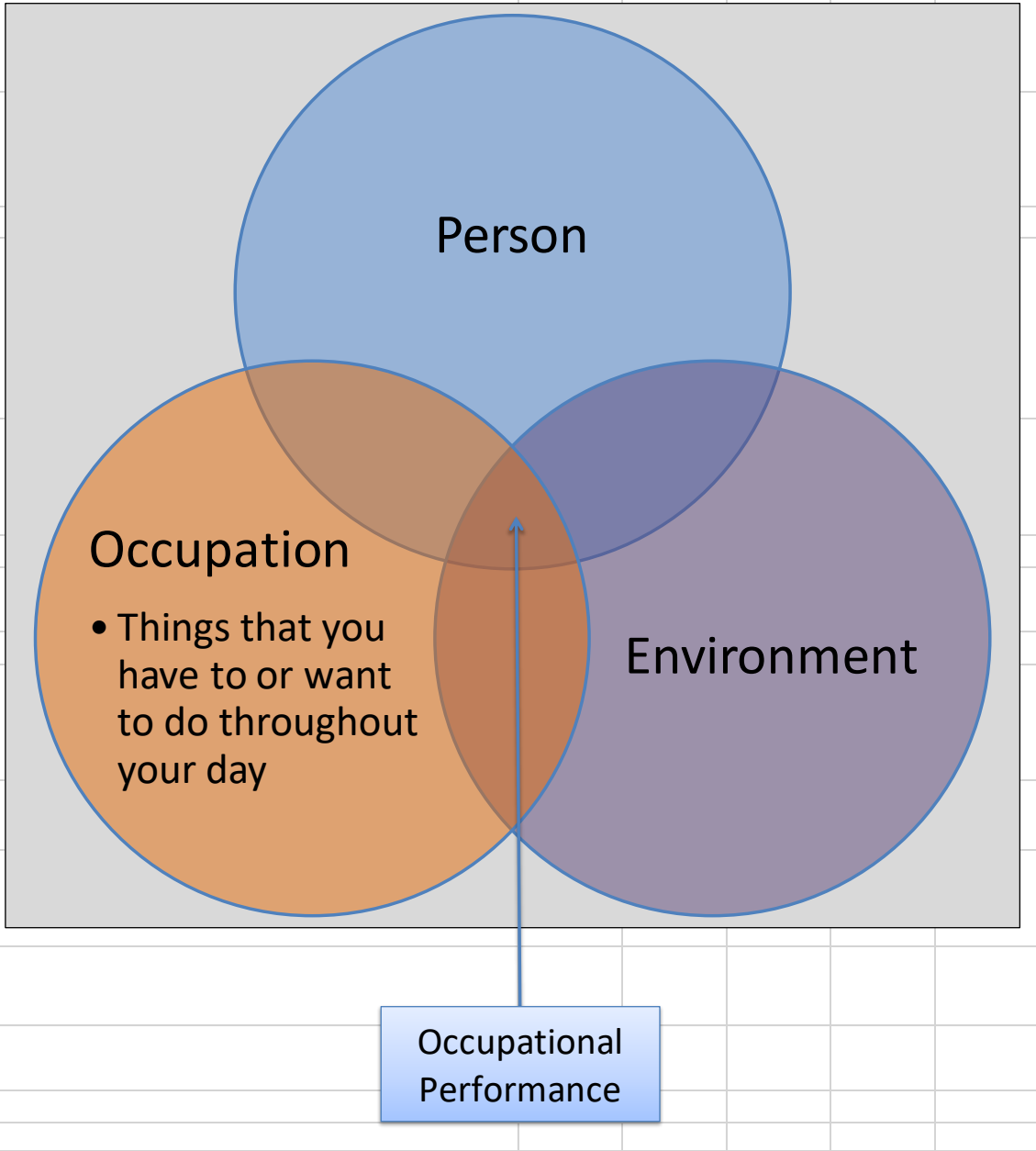
Student Name and Number	
Email address	
Mobile number	
Gender	
Preferred pronouns (what's this?)	
Date of Referral	
Tutor/Student Advisor	
Disability Officer	
Next of Kin and contact details	
Psychiatrist/GP	
Year	
Faculty	
Course	
TSOPP completed	
Other services	
Disability Service Consent Form completed	

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Section '2 – Experiences & Expectations'

	Present college Life	Please answer questions 1-14 in the boxes provided
1	What areas of college life, academic or otherwise do you feel that you are managing well?	
2	Does your course involve any remote/virtual engagement (e.g., online lectures via Blackboard/BrightSpace/Zoom etc.)? If so, are you experiencing any difficulties managing the virtual learning components of your course?	
3	What do you like to do outside of academic work, either within or outside college? For Example: Hobbies or Interests	
4	Do you work outside of college and how many hours do you work?	
5	Please list any other demands/responsibilities you are managing outside of college (e.g., family responsibilities, volunteering etc.).	
Previous Experience		
6	Have you started any other 3 rd level course?	
7	Did you complete it?	
8	Have you repeated any years in your present course?	
9	Have you taken a year out from studying and what did you use the year for?	
10	Please list any previous educational experiences you have had to date (including school, college etc.).	
11	Tell me about your work experience to date	
Expectations		
12	What are your academic expectations for this coming year in college? (e.g., handing in all assignments, learning how to use campus systems, attending as many classes as possible etc.)	
13	What are your social expectations in this coming college year? (e.g., making a group of friends/maintaining friendships, getting involved in societies, asking lecturers for help etc.)	
14	What are your personal expectations for this coming year in college? (Personal expectations are influenced by your personal goals, for example learning to drive, getting a part-time job, taking up a new hobby, working on your mental health etc.)	

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Section '3 – Identifying Needs'

©Copyright Nolan C. (2011, 2014); Lombard, K., Nolan C., & Heron E. (2021, 2022)	Items (54 total)	Level of Difficulty 0 = No difficulty 1 = Some difficulty 2 = Moderate difficulty 3 = Extreme difficulty NA = Not applicable	Level of Priority to work on in OT 0 = Not a priority to work on in OT 1 = Low priority to work on in OT 2 = High priority to work on in OT NA = Not applicable	Please explain your answer
Person	Being on time for College (lectures, labs etc.)			
	Concentrating during lectures and tutorials			
	Understanding the content of lectures			
	Understanding the Library System			
	Understanding topic / question			
	Understanding your departments expectations/standards (eg. Length, style etc)			
	Understanding the course structure and content			
	Maintaining concentration during study			
	Procrastination			
	Knowing how best to study			
	Remembering what I have studied			
	Managing the stress before an exam			
	Deciding which question to do in exams			
	Managing panic and "writer's block"			
	Receiving and coping with bad results			
	Managing anxiety			
	Maintaining good mental stamina/endurance			
	Being Confident			
	Managing anger			
	Being a perfectionist			
Switching off and relaxing				
Getting enough good quality sleep				
Environment	Tolerating external distractions e.g. noise, light			
	Managing lab / placement environments			
	Getting to the exam hall			
	Using Computers			
	Managing Tutor system/Student Advisor system			
	Getting involved in societies			
	Communicating with people			
	Communicating with my supervisor			
	Managing flatmates/housemates			
	Managing family			
	Managing finances/bills			
	Managing nutritional needs			
	Managing any medication			
	Managing shopping, housework etc			
	Managing alcohol intake			
Managing / avoiding other substances				
Occupation	Participating in discussion			
	Working in groups			
	Doing presentations			
	Asking for help			
	Dealing with time pressures and deadlines			
	Achieving goals			
	Dealing with work overload			
	Managing my free time			
	Doing practical work (i.e. on placement, in labs)			
	Getting down to writing			
	Staying and doing the exam			
	Taking notes in class			
	Referencing			
	Writing study notes after class			
Organising information				
Structuring and planning the essay or project				

Section '4 – Item Difficulty Hierarchy'

TSOPP		Difficulty	Priority	Please explain your	Therapist's comments
Hierarchy Order					
	Least difficult to manage	Managing / avoiding other substances	0	0	0
	Getting to the exam hall	0	0	0	
	Using Computers	0	0	0	
	Managing alcohol intake	0	0	0	
	Managing flatmates/housemates	0	0	0	
	Managing any medication	0	0	0	
	Understanding the Library System	0	0	0	
	Managing Tutor system/Student Advisor system	0	0	0	
	Managing lab / placement environments	0	0	0	
	Managing shopping, housework etc	0	0	0	
	Staying and doing the exam	0	0	0	
	Doing practical work (i.e. on placement, in labs)	0	0	0	0
	Communicating with my supervisor	0	0	0	0
	Understanding the course structure and content	0	0	0	0
	Deciding which question to do in exams	0	0	0	0
	Managing anger	0	0	0	0
	Managing finances/bills	0	0	0	0
	Being on time for College (lectures, labs etc.)	0	0	0	0
	Managing family	0	0	0	0
	Understanding topic / question	0	0	0	0
	Understanding the content of lectures	0	0	0	0
	Communicating with people	0	0	0	0
	Referencing	0	0	0	0
	Managing nutritional needs	0	0	0	0
	Working in groups	0	0	0	0
	Getting involved in societies	0	0	0	0
	Understanding your departments expectations/standards (eg. Length, style etc)	0	0	0	0
	Taking notes in class	0	0	0	0
	Participating in discussion	0	0	0	0
	Tolerating external distractions e.g. noise, light	0	0	0	0
	Asking for help	0	0	0	0
	Doing presentations	0	0	0	0
	Switching off and relaxing	0	0	0	0
	Writing study notes after class	0	0	0	0
	Managing panic and "writer's block"	0	0	0	0
	Remembering what I have studied	0	0	0	0
	Organising information	0	0	0	0
	Receiving and coping with bad results	0	0	0	0
	Concentrating during lectures and tutorials	0	0	0	0
	Structuring and planning the essay or project	0	0	0	0
	Being a perfectionist	0	0	0	0
	Managing the stress before an exam	0	0	0	0
	Knowing how best to study	0	0	0	0
	Managing my free time	0	0	0	0
	Getting enough good quality sleep	0	0	0	0
Being Confident	0	0	0	0	
Getting down to writing	0	0	0	0	
Achieving goals	0	0	0	0	
Maintaining good mental stamina/endurance	0	0	0	0	
Dealing with time pressures and deadlines	0	0	0	0	
Managing anxiety	0	0	0	0	
Maintaining concentration during study	0	0	0	0	
Procrastination	0	0	0	0	
Most difficult to manage	Dealing with work overload	0	0	0	
RATING SCALE 0=No difficulty 1=Some difficulty 2=Moderate difficulty 3=Extreme difficulty					

Section '5A – Module Matrix (Taught)'

Module Matrix (Taught)

This table asks you to **identify what is expected of you in each module**. To gather this information, you will need to refer to the module details on your **virtual learning environment (i.e. Blackboard, BrightSpace, Moodle etc)**, **module descriptor or course handbook**. Try to gather as much information as possible. Feel free to note any deadlines you find in a calendar or diary as you fill in this sheet. Please see the example for more details.

Module Code & Name	Module Pass Mark	Breakdown of Assessment (i.e. participation, labs, mid-term assignment, final essay, end-of-term exam, weekly quizzes/tutorials etc)	Assessment's Percentage weight	Expectations & Demands (e.g. word count, group work, duration of exam, tutorial preparation etc)	Due Date (if you have them)
<i>EXAMPLE: HIST123456 Introduction to Irish History</i>	<i>40%</i>	<i>Attendance and participation in tutorials</i>	<i>20%</i>	<i>Weekly tutorials, 3 readings to complete in preparation each week</i>	<i>Weekly starting in Week 3</i>
		<i>Mid-term multiple choice questions</i>	<i>30%</i>	<i>1 hour MCQ exam on Weeks 1-4 lecture content</i>	<i>25th October (before reading week)</i>
		<i>Final essay</i>	<i>50%</i>	<i>2000 words, Harvard referencing style</i>	<i>Week 12 (specific date to be confirmed)</i>

Section '5B – Project_Thesis Management'

		Please answer questions 1-8 in the fields below
1	Do you have a dissertation/thesis/capstone project to submit as part of your studies?	
2	What is your supervisor's name and contact details ? What is your supervisor's availability for support?	
3	What is your School/Programme point of contact (e.g. Programme manager, Programme Office, Student Advisor etc.)?	
4	If you have it, what is the focus of your project/your research question ?	
5	What is the overall dissertation/thesis/capstone deadline ?	
6	What is the overall word count of the dissertation/thesis/capstone project?	
7	What are your Programme's expectations for the structure of the dissertation/thesis/capstone project? (i.e. certain number of chapters, inclusion of particular chapters such as Introduction, Literature Review, Methodology, Results/Findings, Discussion, Conclusion etc)	
8	If applicable, does each chapter have an individual word count, percentage weighting and deadline ?	
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Repeated Measures

TSOPP Hierarchy Order	Initial Assessment Date:	Follow-up Assessment Date:	Follow-up Assessment Date:
Managing / avoiding other substances			
Getting to the exam hall			
Using Computers			
Managing alcohol intake			
Managing flatmates/housemates			
Managing any medication			
Understanding the Library System			
Managing Tutor system/Student Advisor system			
Managing lab / placement environments			
Managing shopping, housework etc			
Staying and doing the exam			
Doing practical work (i.e. on placement, in labs)			
Communicating with my supervisor			
Understanding the course structure and content			
Deciding which question to do in exams			
Managing anger			
Managing finances/bills			
Being on time for College (lectures, labs etc.)			
Managing family			
Understanding topic / question			
Understanding the content of lectures			
Communicating with people			
Referencing			
Managing nutritional needs			
Working in groups			
Getting involved in societies			
Understanding your departments expectations/standards (eg. Length, style etc)			
Taking notes in class			
Participating in discussion			
Tolerating external distractions e.g. noise, light			
Asking for help			
Doing presentations			
Switching off and relaxing			
Writing study notes after class			
Managing panic and "writer's block"			
Remembering what I have studied			
Organising information			
Receiving and coping with bad results			
Concentrating during lectures and tutorials			
Structuring and planning the essay or project			
Being a perfectionist			
Managing the stress before an exam			
Knowing how best to study			
Managing my free time			
Getting enough good quality sleep			
Being Confident			
Getting down to writing			
Achieving goals			
Maintaining good mental stamina/endurance			
Dealing with time pressures and deadlines			
Managing anxiety			
Maintaining concentration during study			
Procrastination			
Dealing with work overload			
Keyform person measure (logits and/or 0-100 scale)			
RATING SCALE 0=No difficulty 1=Some difficulty 2=Moderate difficulty 3=Extreme difficulty			

This section allows the rating's you provided to be compared against one another. **Scores may go up (i.e. get more difficult) or down (i.e. get less difficult) over time due to a number of factors.**

For example, your college course may have new challenges each year, you are learning new skills as you progress through your course, a change in your mental health and/or your self-awareness of how difficult something is to manage over time.

Hence, do not be concerned if the changes in **scores are not linear**. You and your occupational therapist can discuss these changes together and reflect on what you have learnt over time.

Further Assessments

Name of Assessment completed	Date Completed	Results of Assessment	Actions/Interventions/Discussion Resulting from Assessment
Sensory Profile			
Interest Checklist			
Occupational Checklist			
Occupational Questionnaire			

Session Notes

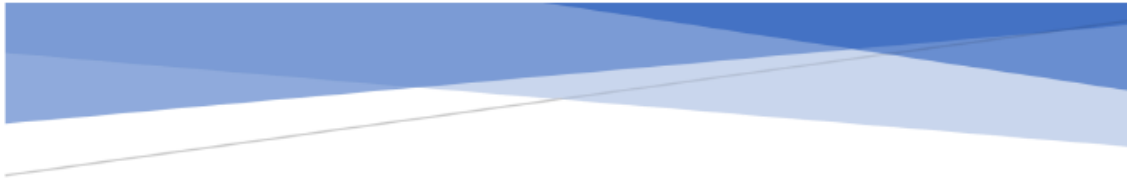
Appt number	Date	Conceptual Model Sphere	Sub Category	Review previous session	Session Notes	Goals/Actions/Plan	Correspondence	Signed

PEO Reference Sheet

Conceptual model Sphere	Person	Environment	Occupation	Assessment	ContextSpecific	Indirect	Self Management
Person	Lectures seminars and tutorials	PHYSICAL - Lectures, Seminars and Tutorials, Library, Lab, Placement/Attachments	Lectures, Seminars and Tutorials – Participating in discussions, lectures and group work.	TSOPP		Email	Introduction
Environment	Managing library system/getting information	Exams and support services – Getting to exam hall/using computers	Social/Interpersonal	Learning Styles Questionnaire		Phone/Text	Identification of supportive occupations
Occupation	Writing essays and projects	Social – Getting involved in societies/communicating with people/my supervisor	Life Skills – Dealing with deadlines/goal setting/balancing college and life	Occupational Self Assessment		Other member of staff	Identification of barriers to engagement
Assessment	Studying; procrastination, being a perfectionist and knowing how best to study.	Life skills A - Managing family/finances/nutritional needs	Lab work, field trips, attachments and placements – Doing practical work	Interest Checklist		External professional	Identification of self monitoring
ContextSpecific	Exams (knowing how best to study recalling information)	Life Skills B – Alcohol intake	Essays Projects and exams – Getting down to writing, structuring and planning essay/project.	Sensory Profile			Implementing Personal and practical strategies
Indirect	Life skills (managing anxiety/negative thoughts/being confident)		Studying – Writing study notes	Occupational Questionnaire			Review
SMP	Emotional concerns						

Version History

Version(s)	Date	Description	Author
1.0-11.0	2011	Original paper-based Trinity Student Profile (TSP) tool was developed and piloted during Nolan's (2011) PhD.	Nolan
12.0	22.09.2014	eTSP created following recommendations from clinical audit.	Nolan & Creaner
13.0	15.06.2017		Nolan
14.0	10.01.2021	Updated 'Identifying Needs' section following psychometric research & refinements (combined all items, reduced Liekrt style scales, removed redundant items).	Lombard
14.1	18.07.2022	Re-named the tool to the Trinity Student Occupational Performance Profile (TSOPP; Lombard, Nolan, Heron, 2022). Updated other sections following qualitative research (re-introduced 'Instructions', enhanced questions in 'Student Details' and 'Experiences and Expectations', included 'Item Difficulty Hierarchy', moved 'Module Matrix' later in the tool, re-formatted 'Goal Setting' section, created 'Repeated Measures' tab, enhanced 'PEO reference sheet', created TSOPP Keyform and administration manual.	Lombard
14.2	21.12.2022	Re-formatted 'Goal Setting' section, changed colouring of Environment items	Lombard



TRINITY STUDENT OCCUPATIONAL PERFORMANCE PROFILE (TSOPP) USER MANUAL

Version 14.2, January 2023

Abstract

A step-by-step guide on using the Trinity Student Occupational Performance Profile – a self-report measure of occupational performance difficulties within the student role.

Kim Lombard, BSc

Clodagh Nolan, PhD, MA, MSc, pg Dip Stats, Dip COT

Elizabeth A. Heron, BA (mod), MSc, PhD

Trinity Student Occupational Performance Profile (TSOPP) User Manual

Version 14.2, January 2023

Authors:

Kim Lombard, BSc - Discipline of Occupational Therapy, School of Medicine, Trinity College
Dublin

Clodagh Nolan, PhD, MA, MSc, pg Dip Stats, Dip COT - Discipline of Occupational Therapy,
School of Medicine, Trinity College Dublin

Elizabeth A. Heron, BA (mod), MSc, PhD – Department of Psychiatry, School of Medicine, Trinity
College Dublin

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Acknowledgements:

The authors would like to acknowledge the students, occupational therapists and university disability services in Ireland that have been involved in the development of the Trinity Student Occupational Performance Profile since its inception in 2006. A further note of thanks for Dr Everett Smith and Dr Mike Linacre for their expertise and guidance on validating the tool using Rasch analysis.

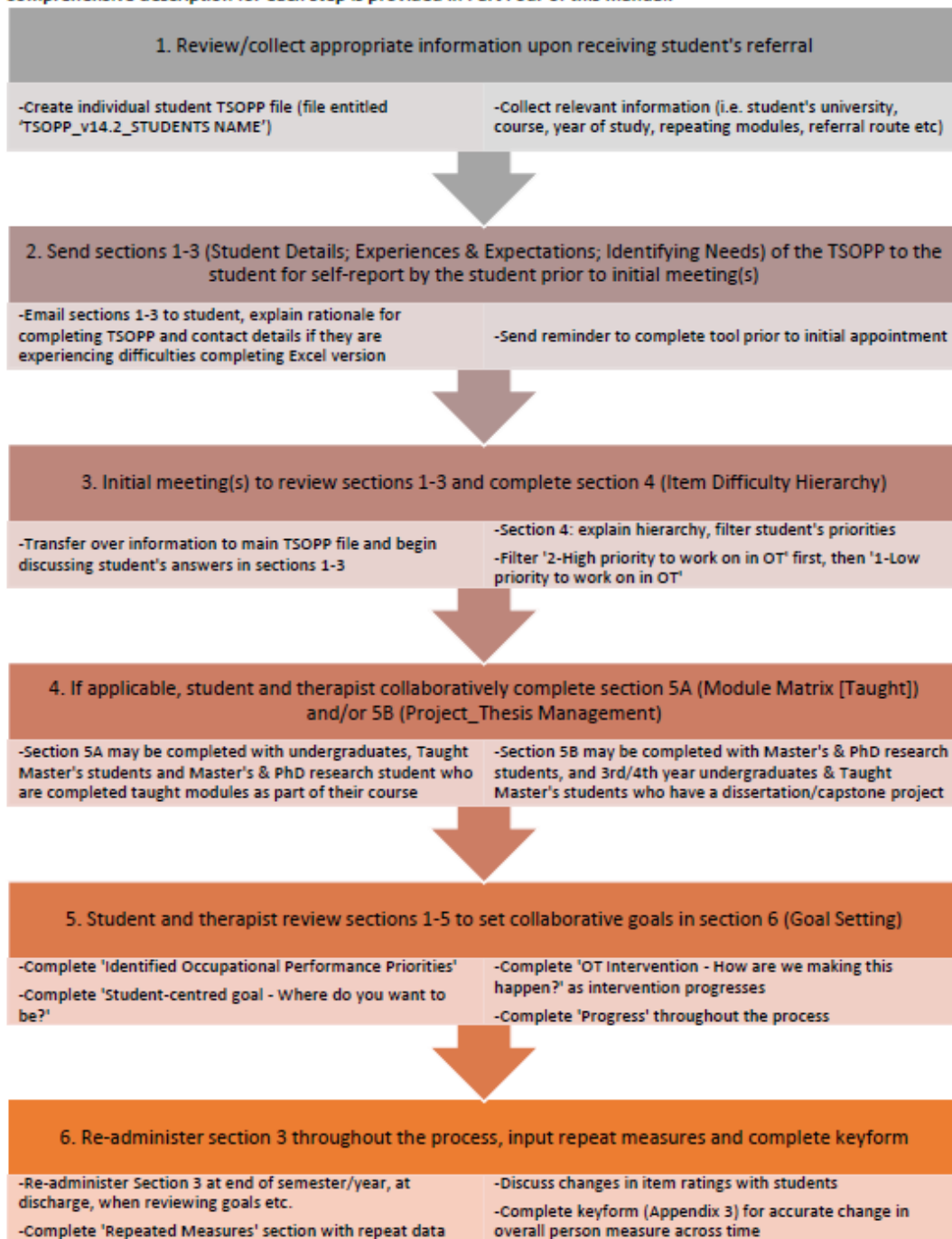
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Quick Guide – Steps for Administering the Trinity Student Occupational Performance Profile
 Comprehensive description for each step is provided in Part Four of this manual.



Introduction

Introduction to Occupational Therapy in Higher Education

Occupational therapy support within higher education is an emerging area of practice (Spencer, Sherman, Nielsen, & Thormodson, 2018), especially with students with mental health disabilities including autism and attention deficit hyperactivity disorder (ADHD). The student role is complex and nuanced, requiring intellectual skills as well as the development of self-management skills, motivation, and self-determination (Nolan, & MacCobb, 2006). Students not only need to manage the academic aspects of their college career (e.g., attending lectures, completing assignments, sitting exams etc.) but also navigate the social aspects (e.g., making friends, communicating with academic and support staff, group work etc.) and personal aspects (e.g., developing self-advocacy skills, organisation skills, manage their mental health etc.) of the university journey. Consequently, some students with mental health disabilities may experience difficulties with occupational performance within their student role which may impact their progression within their course or in some cases lead to student attrition.

Occupational therapists are adequately trained to support students with mental health disabilities who may be experiencing occupational performance difficulties within their student role. Occupational therapists have a unique understanding regarding the transactive relationship between the person (i.e., the student), their environment (i.e., the university) and their occupation (i.e., occupations of the student role) and how they influence occupational performance (American Occupational Therapy Association, 2014). Within mental health practice, occupational therapists engage in recover-oriented practice (Stoffel, 2011), which places the student at the centre of the occupational therapy process, utilises their strengths and support them to live a meaningful life despite a mental health difficulty. Furthermore, occupational therapists support client-centred practice (Law, 1998) through the use of enablement skills (Townsend, & Polatajko, 2007) such as adapting, advocating, coaching, collaborating, consulting, coordinating, designing/building, education, engaging and specialising.

In Ireland, the Occupational Therapy Support Services that have been established within Trinity College Dublin (Nolan, & MacCobb, 2006) and University College Dublin and Technological University of Dublin (Nolan, Treanor, Gleeson, & Lewis, 2013) are examples of successful services to support students with mental health disabilities in higher education. The services are based on-site (Unger, 1990) within the Disability Service of each university allowing for easy access for students. They are student-centred and occupation-focused services which support students in developing the self-management skills necessary for being successful in the academic, social and personal aspects of their student role. It is important to note that these services are not supported education programmes (Shindler, 2019), but rather fully established campus-based services to which students with disabilities can be referred to if they are experiencing difficulties within their student role.

Nevertheless, there are many occupational therapists both nationally and internationally who practice in other settings (e.g., community, in-patient hospitals etc.) who may be supporting clients who are university students. The Trinity Student Occupational Performance Profile (TSOPP), which is the focus of this manual, is a self-report measure of occupational performance difficulties within the student role in higher education. It is encouraged that the TSOPP is utilised with any client who is a university student and expresses difficulties with occupational performance within the student role. It is acknowledged that the level and type of support that a student requires may be context specific. For example, a student who is engaging with an on-site occupational therapy support service may require some support in developing organisational skills in managing their workload, whereas a student who is experiencing a period of in-patient hospitalisation may require support on how to engage with appropriate university personnel to apply for extenuating circumstances. Regardless, each student's college journey is individualised and hence requires individualised support. It is for this reason that the TSOPP is intended to be used by any occupational therapist who is supporting a client who is a university student if appropriate, regardless of practice setting.

Introduction to the Trinity Student Occupational Performance Profile (TSOPP)

The Trinity Student Occupational Performance Profile (TSOPP) is a self-report measure of occupational performance difficulties within the student role in higher education and enables students to identify priorities and set goals for occupational therapy intervention. The TSOPP was formerly known as the Trinity Student Profile (TSP; Nolan, 2011) and subsequently the Electronic Trinity Student Profile (eTSP; Creaner, & Nolan, 2016). The tool was originally developed by Nolan (2011) in response to the increasing numbers of students with mental health disabilities as well as autism and ADHD entering higher education and the occupational performance difficulties they experienced within the academic, social, and personal aspects of their student role. The TSOPP is underpinned primarily by the Person-Environment-Occupation Model (Law, Cooper, Stewart, Letts, Rigby, & Strong, 1996) and is influenced by the Recovery Model (Davidson, & Roe, 2007), Client-centred Practice (Law, 1998), Occupational Performance Process Model (Fearing, Law, & Clark, 1997) and Social Model (Hammel et al., 2009) and Affirmation Model (Swain, & French, 2000) of disability.

Overview of the TSOPP Administration Manual

This administration manual aims to provide therapists with information regarding the tool's development and psychometric properties, as well as guidelines for its use in practice.

Therapists wishing to use the tool in practice are encouraged to read this manual prior to administering the tool and use it to inform their practice as they become proficient in using the TSOPP. This administration manual consists of the following parts:

- **Part One: Timeline of Development and Research into the Trinity Student Occupational Performance Profile** – readers will be provided with an overview of the origins of the TSOPP and how it has evolved over time through research and practice.
- **Part Two: Underlying Theoretical Framework of the Trinity Student Occupational Performance Profile** – readers will be introduced to the theoretical underpinnings of the TSOPP and how they are manifested throughout the tool.
- **Part Three: Trinity Student Occupational Performance Profile Contents** – readers will be provided with a comprehensive overview of the content of each section of the tool.

- **Part Four: How to Administer the Trinity Student Occupational Performance Profile** - readers will be provided with guidelines on how to administer the TSOPP in practice, including information on therapist preparedness, catering student's needs, how to communicate the TSOPP to students, the process for setting collaborative goals, and how to complete repeated measures using keyforms.
- **Part Five: How to use the Trinity Student Occupational Performance Profile Keyforms** – readers will be provided with further information on the benefits and use of keyforms in measurement practices.

Research & Contact Details

If you wish to conduct research using the TSOPP, please request permission through post or email from the following address:

Discipline of Occupational Therapy,
Trinity Centre for Health Sciences,
St James Hospital,
James's Street,
Dublin 8,
D08 W9RT
occupationtherap@tcd.ie

Part One: Timeline of Development and Research into the Trinity Student Occupational Performance Profile

In 2003, Nolan established an occupational therapy support service within Trinity College Dublin (TCD), Ireland (The Unilink Service). This service was established in response to the increasing number of students with mental health disabilities accessing higher education and due to the occupational performance difficulties which they experienced within their student role. At this time, there were no validated assessment tools which specifically assessed self-reported occupational performance difficulties of students with mental health disabilities in higher education. As the service became well established in TCD as well as in other Irish universities, it became apparent that there was a need to develop a self-report measure of occupational performance difficulties within the student role. This began a process of research and development which has improved the tool over time (Figure 1). From 2006, the Trinity Student Profile (TSP) evolved from practice and in 2011, Nolan completed a PhD study in which the tool was further developed and piloted.

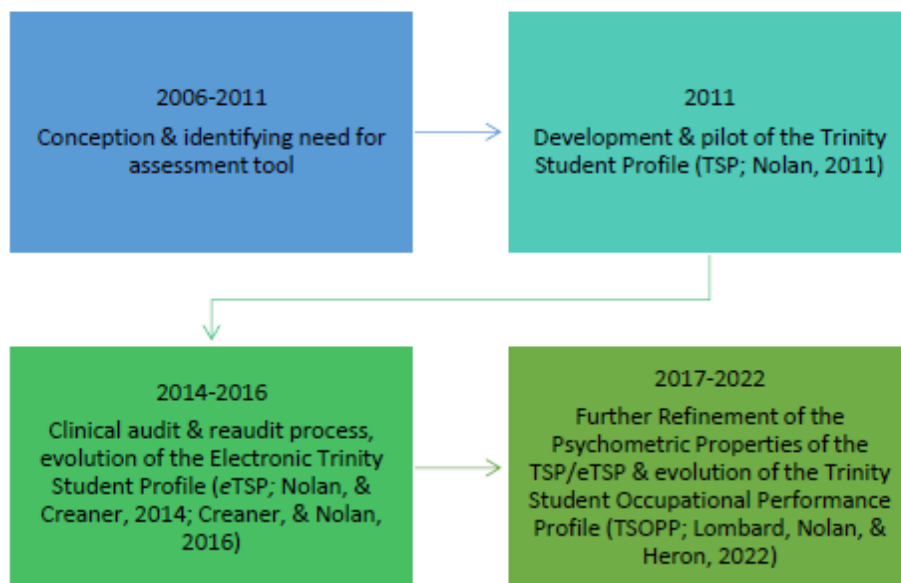


Figure 1: Timeline of Research and Development of the Trinity Student Occupational Performance Profile (TSOPP)

Development and pilot of the Trinity Student Profile (TSP; Nolan, 2011)

Nolan (2011) conducted a sequential exploratory mixed-methods study which aimed to use qualitative and quantitative methods to develop and pilot the paper-based Trinity Student Profile (TSP). The tool was underpinned by Person-Environment-Occupation Model (Law, Cooper, Letts, Stewart, & Rigby, 1996) and is influenced by Client-centred Practice (Law, 1998), the Recovery Model (Davidson, & Roe, 2007), Social Model of Disability (Hammel et al., 2009) and Affirmation Model of Disability (Swain, & French, 2000), all of which will be further discussed in Part Two of this administration manual. While Nolan (2011) was carrying out this research, a concurrent study by Dolan, Maye, and Monahan (2008) was conducted which sought to determine the concerns and issues experienced by the general undergraduate and postgraduate student population in Trinity College Dublin. Using an adapted version of the TSP, Dolan et al. (2008) surveyed 974 students and they identified that the most pressing concerns related to study, sleep, nutritional needs, managing time, managing work overload, dealing with finances and balancing college work and life. Dolan et al. (2008) found that undergraduate students experienced more difficulties than postgraduate students and that for certain items such as 'Getting involved in societies', 'Dealing with work overload' and 'Managing their diet', female students experienced greater difficulties than male students.

Stage One of Nolan's (2011) study involved qualitative interviews and focus groups with occupational therapists and students regarding the face validity of the tool. Several benefits of the TSP were identified by both therapist and student experts. For therapists, the TSP facilitated the identification of occupational difficulties, goal setting and intervention planning with students and the interaction and relationship they developed with students. As for students, the TSP provided them with the language and framework to discuss their occupational difficulties in relation to their student role and moreover, provided them with a means of tracking their progress throughout their engagement with the occupational therapy service. Furthermore, Nolan (2011) found that the difficulties which arose within the focus groups and interviews aligned with the Person-Environment-Occupation Model (Law et al., 1996), providing evidence for the conceptualisation of the TSP's structure of three separate item-sets: Person,

Environment, and Occupation item-sets. The items in each item set were rated on a 6-point 'Difficulty' scale and a 6-point 'Importance' scale.

Stage Two of Nolan's (2011) study involved developing and piloting the TSP tool with 140 students with disabilities and generating preliminary psychometric evidence for the tool using Classical Test Theory (CTT). CTT is a common statistical methodology used in psychometric research in healthcare such as occupational therapy. In investigating construct validity, Nolan (2011) conducted an exploratory factor analysis on the Person, Environment, and Occupation item-sets. Any items which did not load onto factors in the factor analysis were omitted from the tool. As for the reliability of the tool, a Cronbach's alpha over 0.80 was considered high and items were maintained within the tool if Cronbach's alpha was above 0.50 (Nolan, 2011). The traits within the Person scale had Cronbach's alpha values ranging from 0.575 to 0.887; those within the Environment scale had 0.518 to 0.845; and lastly, those within the Occupation scale were found to have Cronbach's alpha values ranging from 0.751 to 0.860. Nolan (2011) concluded that these results supported the construct validity and reliability of the TSP, however further research was needed on the Person and Environment scales to enhance their reliability.

Clinical audit of the service and development of the Electronic Trinity Student Profile (eTSP; Nolan, & Creaner, 2014; Creaner, & Nolan, 2016)

In 2014, a clinical audit of the TCD service was conducted to determine if the service was following best practice guidelines and standards (Nolan, & Creaner, 2014). Clinical audits are used to determine if a service is doing what it should be doing in accordance with guidelines of best practice (Regulation and Quality Improvement Authority [RQIA], n.d.). During this audit, Nolan and Creaner (2014, p.5) aimed "to assess the Unilink service in terms of its adherence to international and Unilink standards of OT practice; to examine fidelity to OT process within the Unilink service; to assess alignment to Models of OT practice including PEO and Recovery Model; to develop an audit tool that can be used to replicate audit in the future; to examine and discuss the application of Unilink standards within the Unilink manual". As the audit progressed, Nolan and Creaner (2014, p.5) described how other aims emerged, including to

“analyse record keeping techniques; analyse nature of contact of students across years and faculty; analyse goal setting within Unilink”.

The service scored high in terms of its adherence to international standards of best practice and Recovery-oriented practice. Clinical audits can help identify opportunities for improvement within a service (RQIA, n.d.), which Nolan and Creaner’s (2014) audit did. This audit identified the need for improving practices regarding setting student goals in line with the PEO Model and documenting outcomes. To implement these changes in practice, several recommendations were made as a result of this clinical audit. Most significantly, the paper-based 2011 version of the TSP was translated into the electronic-based 2014 version known as the eTSP, which intended to allow therapists to record student’s needs and intervention plans and set goals within the PEO Model (Creaner, & Nolan, 2016), enabling these to be integrated into the case notes. This 2014 version of the eTSP was then rolled out within the occupational therapy services in TCD, UCD, and TUDublin from 2014/2015 onwards, after a period of retraining and upskilling with all staff. The TCD service was re-audited using the same audit tools to determine how well the recommendations and changes were incorporated into practice from the original audit (Creaner, & Nolan, 2016). The service scored higher in all aspects of the audit following the recommendations, except for the Evaluation section which was concerned with documenting outcomes. However, Creaner and Nolan (2016) reported that this was likely due to the timing of the re-audit in the middle of the trimester and hence intervention was still ongoing in several cases.

Further Refinement of the Psychometric Properties of the TSP/eTSP & evolution of the Trinity Student Occupational Performance Profile (TSOPP; Lombard, Nolan, & Heron, 2022)

Although preliminary psychometric properties for the tool had been established in Nolan’s (2011) study, this was a pilot study and hence there was a need for further and more rigorous field testing of the tool. Lombard, under the supervision of Nolan and Heron, undertook a PhD research project focused on refining the psychometric properties of the tool from 2017-2023. Using an embedded design mixed-methods approach, Lombard sought to refine the validity and

reliability of the tool and develop this administration manual for future occupational therapists to be able to use the tool in their practice.

Phase One of the study was quantitative in nature and used Rasch analysis methodology (Wright, & Masters, 1982) to refine the psychometric properties of 'Section 3 – Identifying Needs' of the tool using data (N=667) from TCD and UCD. As a result of this Phase, several refinements were made to the section, including reducing the 6-point 'Difficulty' scale to a 4-point 'Difficulty' scale, removing 20 redundant items and combining all items into one scale of occupational performance difficulties rather than separate Person, Environment, and Occupation items-sets as it was in the original TSP (Lombard et al., 2022). This highlighted how the tool's underlying construct is occupational performance, which is the ultimate construct of the PEO Model (Law et al., 1996). Once refined, 'Section 3 – Identifying Needs' had a Cronbach's alpha of 0.91, which is considered very strong reliability. This study has demonstrated preliminary evidence that the tool can be used to detect change over time, supporting its use as an outcome measure.

Phase Two of the study was qualitative in nature by using focus groups to gather data and thematic analysis (Braun, & Clarke, 2012) to analyse the data. Occupational therapists from TCD, UCD and TUDublin were invited to share their experiences of using each section of the 2014 version of the eTSP in practice after which they were trained in using the refined 2021 version of the eTSP. This highlighted the way in which the tool supported a student-centred assessment process, but it also highlighted issues residing with other sections of the tool that could not be rectified using Rasch analysis. After a period of trialling the use of the 2021 version of the eTSP in practice, the occupational therapists were invited to return to share their experiences of using this version. It was found that the Rasch analysis refinements from Phase One had made the tool more efficient and easier to use for students. The issues with the other elements of the tool were re-iterated at this follow-up focus group. This resulted in updates being made to the other sections of the tool. For example, the original 'Importance' scale was changed to a 'Priority' scale as the purpose is simply for students to prioritise their identified occupational performance difficulties for therapy, as supported by the Occupational Performance Process Model (OPPM, Fearing, Clark, & Law, 1997). Furthermore, improvements

were made to the Goal-setting section, and the tool was re-named from the Electronic Trinity Student Profile to the Trinity Student Occupational Performance Profile (TSOPP) to better capture the fact that its underlying construct is occupational performance within the student role as demonstrated in Phase One.

Part Two: Underlying Theoretical Framework of the Trinity Student

Occupational Performance Profile

There are several conceptual frameworks and theories underpinning the TSOPP. The TSOPP's main underpinning philosophy and framework is based on the Person-Environment-Occupation Model (PEO; Law et al., 1996). Other theories that have influenced its development include the Recovery Model (Davidson, & Roe, 2007), Client-centred Practice (Law, 1998), the Occupational Performance Process Model (OPPM; Fearing, Law, & Clark, 1997) and the Social Model (Hammel et al., 2009) and Affirmation Model (Swain, & French, 2000) of disability.

Person-Environment-Occupation Model

The Person-Environment-Occupation Model (PEO; Law et al., 1996) is the main conceptual framework underpinning the TSOPP. The PEO Model captures the transactive relationship between the person or student, their university environments, and the occupations they need to engage in within their student role. The **Person** concept consists of cognitive and affective factors (motor factors are not considered in the TSOPP); the **Environment** concept encompasses the physical, social, cultural, and institutional environment of the university; and the **Occupation** concept captures the academic, social, and personal occupations of being a student. There is a transactive relationship between these three concepts which results in the construct of **occupational performance**, how well one is able to perform one's occupations. Most importantly, the PEO Model (Law et al., 1996) is accessible for students to understand and to develop self-awareness to start analysing and understanding occupational performance in their everyday student life.

In the original TSP, Nolan (2011) structured part of the tool using the three Person, Environment, and Occupation concepts. The items that were included in the tool were categorised into these three concepts, and students were asked to rate each item on a 6-point 'Difficulty' scale and a 6-point 'Importance scale'. Later, during further refinement of the re-named TSOPP tool, Lombard et al. (2022) demonstrated that the items worked better together as one scale which measured the overall construct of occupational performance, and that there

were several redundant items that could be removed from the tool. Hence, the TSOPP measures occupational performance difficulties within the student role, although the items are still influenced by their Person, Environment, and Occupation origins.

Recovery Model

Globally, the recovery movement (Davidson, 2016) has influenced the focus of mental health service provision from institutionalisation to community living, valuing the person as an autonomous decision-maker within their own care and emphasising the importance of personal narratives within the recovery process. In Ireland where the TSOPP was first developed, several committees and policies have been developed to align mental health care with the recovery approach, including the *Mental Health Act* (Government of Ireland, 2001), *Quality Framework for Mental Health Services* (Mental Health Commission, 2007), *A Vision for Change* (Department of Health and Children, 2006) and its successor *Sharing the Vision: A Mental Health Policy for Everyone* (Department of Health, 2022). Recovery within mental health can be viewed firstly as 'Recovery from' the symptoms of a mental health condition so that daily life is no longer impacted, while also as 'Recovery in' which means that one can live a meaningful life despite the symptoms of a mental health condition if the effects of that condition on daily life can be resolved such as isolation, loss of purpose, loss of valued roles etc (Davidson, & Roe, 2007). It is imperative that a student's strengths, other areas of health and environment can be utilised to help manage the condition and the effects it may have on daily life while maintaining hope for the future (Davidson, & Roe, 2007). For the TSOPP, students are asked to identify their strengths and what they are managing well at present, as well as describe hobbies and interests. They are also provided with an opportunity to outline their academic, social, and personal expectations for the year ahead which captures their hopes and aspirations for their student role. Students are enabled to identify their occupational performance difficulties and prioritise these difficulties for occupational therapy intervention, providing them with choice and control over their intervention.

Client-centred Practice/Occupational Performance Process Model

During the tool's development and pilot, Nolan (2011) advocated for Client-centred Practice to inform the tool and assessment process. Client-centred Practice is built upon the assumption that each human being has uniqueness and worth, that one must try to understand the person's subjective experience of occupation and disability and that therapists can create environments that facilitate change, but they cannot promote change within client's themselves (Law, 1998). The TSOPP fulfils several criterion of Client-centred assessment tools, such as being self-report in nature, that the student's report is considered the most relevant source of information and it provides opportunities for students to share their individual narratives and experiences of their student role (McColl, & Pollock, 2017).

Introduction of the Occupational Performance Process Model

To support Client-centred Practice, Nolan (2011, p.125) intended for students to be able to prioritise their occupational performance difficulties. To achieve this, the 2011 version of the TSP included an 'Importance' scale which asked students "how important is it for you to work on this item in Unilink". After Creaner and Nolan's (2016) clinical audit, the language surrounding this 'Importance' scale changed to simply "Level of importance" within the 2014 version of the eTSP. During Lombard's research from which this manual was developed, it was found that there were inconsistencies in how the 'Importance' scale was being used in practice, and there was lack of clarity regarding if this element of the tool aimed to measure the importance students place on each item or if it was to be used to prioritise their occupational performance difficulties. It was determined that the purpose of this element of the tool was to enable students to prioritise their previously identified occupational performance difficulties, as students are the only ones who can identify which occupational performance difficulties have the greatest impact on their lives and hence are the highest priority for intervention (Law, 1998). As a result, the language of 'Importance' was refined to 'Priority', which aligns with Stage One of Fearing, Law, and Clark's (1997) Occupational Performance Process Model (OPPM) which is concerned with 'naming, validating, and prioritising the occupational performance difficulties'.

Social Model of Disability and the Affirmation/Transformational Model of Disability

In terms of how disability is viewed and understood, the TSOPP was originally developed with the Social Model of Disability (Hammel et al., 2009) and has transformed over time to include the Affirmation Model of Disability (Swain, & French, 2000). The disability rights movement of the 1960's advocated for a shift in how disability was understood from a Medical Model of Disability towards a Social Model of Disability. Within the Social Model of Disability perspective, it is believed that the structural environment of society disables people with impairments, leading to disability (Hammel et al., 2009). Many of the university disability services in Ireland are underpinned by the Social Model of Disability, hence this has influenced the development of the occupational therapy support services and subsequent TSOPP tool in practice. However, Crow (1992, 1996) argues that the Social Model neglects impairment (e.g., pain, chronic illness etc.) as an important aspect of the lives of many people with disabilities and that personal struggles related to impairment remain even when disabling barriers no longer exist. As a result, Swain and French (2000) suggest an Affirmation Model of Disability. This model, which builds on the liberatory imperative of the Social Model, leads with a non-tragic view of disability and impairment which encompasses positive social identities, both individual and collective, for disabled people grounded in the benefits of lifestyle and life experiences of being impaired and disabled. They are valued as citizens of their communities who determine their own choices, lifestyles, and identities. Society should make reasonable accommodations to support people with disabilities, however also acknowledging that impairments exist and that people with disabilities are given the choice of how these impairments are managed. Within the context of the TSOPP, this tool is guided by an Affirmation Model of Disability as it seeks to identify environmental and occupational adaptations that can be implemented but overall considers the student as a valued member of the university community and acknowledges that they may experience challenges relating to their impairment such as fatigue, pain etc. Through using the TSOPP which is based on the above PEO Model (Law et al., 1996), Recovery Model (Davidson, & Roe, 2007), and Client-centred Practice (Fearing et al., 1997; Law, 1998) and through the employment of enablement skills, occupational therapists can appreciate the student's social

context, personal narrative and potential outcomes (Ballantyne, & Muir, 2008), as well as empower students with disabilities to fulfil their hopes and aspirations within their student role.

Part Three: Trinity Student Occupational Performance Profile Contents

This part of the manual will outline the contents and intended use of the TSOPP. It will describe the underlying constructs that the TSOPP aims to measure. You may find it beneficial to have a copy of the TSOPP open to refer to while reading through this Part (Appendix 1).

Sections of the TSOPP

The TSOPP is a self-report measure of a student's occupational performance difficulty within their student role. Table 1 outlines the sections that comprise the TSOPP, and a description of each section is provided below.

Table 1: Sections of the TSOPP

Sections sent to the student to self-report prior to engaging with occupational therapy	<ul style="list-style-type: none">• Instructions• Section 1 – Student Details• Section 2 – Experiences & Expectations• Section 3 – Identifying Needs
Sections completed with the occupational therapist	<ul style="list-style-type: none">• Section 4 – Item Difficulty Hierarchy• Section 5 – Module Matrix• Section 6 – Goal Setting
Sections for therapist's use	<ul style="list-style-type: none">• Repeated Measures• Further Assessments• Session Notes• PEO Reference Sheet• Version History

Instructions

This section outlines the instructions for students on how to complete the first three self-report sections of the TSOPP. The instructions state the aim of the TSOPP – to gain an understanding from a student’s perspective of their college experience to-date and to identify areas of college life that are presenting as a difficulty for them.

Section 1 – Student Details

Section 1 simply gathers all relevant details pertaining to a student in the TSOPP. This includes student name and number, contact details, gender and pronoun information, date of referral, Tutor/Student Advisor details, original Disability Officer, next of kin details, name of psychiatrist/GP, details about their faculty course and year, details regarding other services and if the TSOPP and disability service consent form are completed. You may wish to ask students to complete this section themselves. For the ‘Gender’ and ‘Preferred pronouns’ fields, students are provided with drop-down menus (e.g., for ‘Gender’ this includes Male, Female, Gender non-Binary, Prefer Not to Say; for ‘Preferred Pronouns’ this includes She/Her, He/Him, They/Them, No pronouns – use my name, Other preference [discuss with OT at first session]). These options are provided to set a tone and environment of inclusion for students and assists therapists in writing inclusive case notes with a student’s self-selected preferred pronouns.

Section 2 – Experiences & Expectations

This section seeks to gain an understanding of a student as an occupational being. This section includes several open-ended and closed-ended questions. The section begins by asking students about their strengths and hobbies. It gathers information on whether the student is working outside of college, if their have other life demands/responsibilities that they are trying to manage outside of their student role and asks questions about their previous educational and work experiences, including if they have repeated years in their current course or if they have taken a year out from studying. Students are also asked to outline their academic, social, and personal expectations for the coming year in college as well as any virtual environments they may be managing as part of their student role. This assists with case formulation (Brooks,

& Parkinson, 2018) as it allows therapists to identify what is important for students to focus on to ensure that goal setting and intervention is student-centred.

This section also displays a diagram of the PEO Model (Law et al., 1996). The purpose of displaying the PEO Model here is to introduce the student to the concept of occupational performance prior to them starting 'Section 3 – Identifying Needs'.

Section 3 – Identifying Needs

Section 3 provides a list of 54 items relating to occupational performance within the student role. Students are asked to rate how difficult each item is to manage. Therefore, this scale measures occupational performance difficulties within the student role. Each item is rated on a 4-point Likert-style 'Difficulty' scale as outlined in Table 2.

Table 2: TSOPP 'Difficulty' scale

Category	0	1	2	3	NA
Label	No difficulty	Some difficulty	Moderate difficulty	Extreme difficulty	Not applicable

Once students have rated each item in terms of difficulty, they are provided with an opportunity to indicate the level of priority of an item to work on in their occupational therapy sessions. The purpose of this scale (Table 3) is simply to prioritise the difficulties which the student has highlighted. In some cases, the most difficult items to manage will be the items that students prioritise for working on in occupational therapy. However, there may be circumstances where a student reports that an item is difficult to manage but does not prioritise it for intervention as it is not relevant to work at that moment in time.

Table 3: TSOPP 'Priority' scale

Category	0	1	2	NA

Label	Not a priority for OT	Low priority for OT	High priority for OT	Not applicable
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PEO Concepts and Corresponding Items

As explained in Part Two, the PEO Model (Law et al., 1996) is the primary underpinning conceptual framework of the TSOPP. As a result, the 54 items included in the tool are based on the Person, Environment, and Occupation concepts of this Model. However, the TSOPP combines all items into one scale of occupational performance. Nevertheless, the items originating from the Person concept are coloured blue, from the Environment concept are coloured purple and from the Occupation concept are coloured orange. Table 4 outlines the items which correspond to the Person, Environment, and Occupation concepts. There is an additional column provided entitled 'Please explain your answer' where students can expand qualitatively on the quantitative ratings they have provided for each item.

Table 4: PEO Concepts and Corresponding Items

Concept	Item
Person (22 items) <ul style="list-style-type: none"> • Cognitive • Affective 	<ul style="list-style-type: none"> • Being on time for college (lectures, labs etc.) • Concentrating during lectures and tutorials • Understanding the content of lectures • Understanding the Library system • Understanding topic/question • Understanding your departments expectations/standards (e.g., length, style, etc) • Maintaining concentration during study • Procrastination • Knowing how best to study • Remembering what I have studied

	<ul style="list-style-type: none"> • Managing the stress before an exam • Deciding which question to do in exams • Managing panic and “writer’s block” • Receiving and coping with bad results • Managing anxiety • Maintaining good mental stamina/endurance • Being Confident • Managing anger • Being a perfectionist • Switching off and relaxing • Getting enough good quality sleep
<p>Environment (16 items)</p> <ul style="list-style-type: none"> • Physical • Social • Cultural • Institutional 	<ul style="list-style-type: none"> • Tolerating external distractions (e.g., noise, light) • Managing lab/placement environments • Getting to the exam hall • Using Computers • Managing Tutor/Student Advisor system • Getting involved in societies • Communicating with people • Communicating with my supervisor • Managing flatmates/housemates • Managing family • Managing finances/bills • Managing nutritional needs • Managing any medication • Managing shopping, housework etc • Managing alcohol intake • Managing/avoiding other substances

Occupation (16 items)	<ul style="list-style-type: none"> • Tasks • Activities • Occupations
	<ul style="list-style-type: none"> • Participating in discussion • Working in groups • Doing presentations • Asking for help • Dealing with time pressures and deadlines • Achieving goals • Dealing with work overload • Managing my free time • Doing practical work (i.e., on placement, in labs) • Getting down to writing • Staying and doing the exam • Taking notes in class • Referencing • Writing study notes after class • Organising information • Structuring and planning the essay or project

Section 4 – Item Difficulty Hierarchy

The Item Difficulty Hierarchy displays all the items from the previous section in an ordered hierarchy from 'least difficult to manage' to 'most difficult to manage'. The items are still colour-coded according to their Person (blue), Environment (purple) or Occupation (orange) concept origin. This item hierarchy is effectively a ruler representing the relative difficulty of the items within the TSOPP.

The data from the 'Difficulty' scale, 'Priority' scale and 'Please Explain Your Answer' column from 'Section 3 – Identifying Needs' automatically populates into this sheet. There is an additional column titled 'Therapist's comments' so notes self-reported by students and those

inputted by therapists are differentiated. The data from the 'Difficulty' and the 'Priority' scales can be filtered depending on the ratings given.

For the 'Difficulty' scale ratings, the answers given automatically get colour coded as follows:

- 0 = No difficulty - green
- 1 = Some difficulty - yellow
- 2 = Moderate difficulty - orange
- 3 = Extreme difficulty - red
- NA = Not applicable – white

For the 'Priority' scale ratings, the answers given automatically get colour coded as follows:

- 0 = Not a priority to work on in OT - white
- 1 = Low priority to work on in OT – light blue
- 2 = High priority to work on in OT – dark blue
- NA = Not applicable - white

Section 5A – Module Matrix (Taught)

The Module Matrix provides a space to outline what is expected of students in each of their taught modules during the semester/year. This includes outlining the breakdown of assessment, expectations and demands, the module pass mark, assessment weighting and assessment due dates. Gathering these details allows therapists to understand the temporal demands students are managing throughout the semester and enables students and therapists to develop practical plans to help manage their workload if this is a goal for therapy.

It is suggested that therapists initiate this section with students during a 1:1 meeting, especially for students who struggle with time management and organisation and hence require assistance with completing this task. Often, this section forms the basis of intervention for students in managing their workload and hence they need some assistance with it initially.

Some students may have already gathered this information in another format (e.g., diary, notebook etc.), and the therapist is encouraged to utilise the student's resources in this case.

Section 5B – Project Thesis Management

Some students may have to complete a dissertation, thesis or capstone project as part of their studies (e.g., Masters and PhD research students, Taught Masters students, 3rd and 4th year undergraduate students depending on their course). This section allows the student to gather general information relating to their dissertation/thesis/capstone project so that it can be discussed in occupational therapy sessions.

Similar to Section 5A above, it is suggested that therapists complete this section with students where applicable during a 1:1 meeting. Furthermore, depending on the point at which the student engages with occupational therapy, they may not have all of this information straight away or may not have begun their project depending on their course. Regardless, it will be beneficial to use this section to encourage students to start thinking about this information.

Section 6 – Goal Setting

Section 6 provides an opportunity for students and therapists to set collaborative goals for occupational therapy intervention. Using the data gathered from previous sections, therapists can facilitate students in identifying student-centred goals relating to occupational performance; collaboratively set SMART targets for achieving the goal; identify occupational therapy intervention action plans and who is responsible for each target. Therapists and students can also review the goal's targets later in the process.

Repeated Measures

This section provides space for repeated 'Difficulty' ratings to be inputted and compared so that the tool can be used as an outcome measure. There is space for an initial assessment and two follow-up assessment measures and the respective dates. If further columns are needed, simply copy/paste one of the previous columns. Similar to 'Section 4 – Item Difficulty Hierarchy', the

items are ordered according to their difficulty and the ratings inputted will automatically be colour coded as follows:

- 0 = No difficulty - green
- 1 = Some difficulty - yellow
- 2 = Moderate difficulty - orange
- 3 = Extreme difficulty - red
- NA = Not applicable – white

In the 2014 version of the Electronic Trinity Student Profile (eTSP), the tool used Excel functions to sum up the raw ratings that students gave to each item to generate a total score. Based on feedback gathered from occupational therapists in Lombard's research, the purpose and benefit of this total score feature was questioned as it was unclear what this information was used for, and some students expressed concerns about their total score. There are several issues with generating a total score using raw rating scale scores which will be explained further in Part Five of this manual. Hence, the TSOPP does not gather a raw total score based on students' ratings.

Further Assessments

This sheet allows you to compile results from other assessments and measures completed with a student such as the Sensory Profile (Dunn, 1999), Interest Checklist (Heasman, & Brewer, 2008), Occupational Questionnaire (Smith, Kielhofner, & Watts, 1986) etc. You should include the date that the assessment was completed, the results of the assessment, and outline the actions/interventions/discussion had with the student as a result of the assessment.

Session Notes

This sheet allows you to document all interactions with a student throughout the occupational therapy process. This tab was developed as a result of Creaner and Nolan's (2016) clinical audit to improve documentation practices. Notes can be categorised using the categorisation system outlined in the PEO Reference Sheet. Using the drop-down menu in the 'Conceptual Model

Sphere' column, a therapist can choose 'Person', 'Environment', or 'Occupation', as well as 'Assessment', 'Indirect', 'Self-Management Programme' (Lewis, 2012) or 'ContextSpecific' to aide note writing. Once this column is populated, a drop-down menu will appear in the 'Sub-Category' column which is dependent on the 'Conceptual Model Sphere' column.

PEO Reference Sheet

This sheet outlines the options for the drop-down menus used in the 'Conceptual Model Spheres' and 'Sub-Category' columns in the Session Notes tab. Therapist can use the 'ContextSpecific' list to input interventions/supports that are specific to their practice context.

Version History

This sheet outlines the version history of the TSOPP and documents the refinements which were made to update the versions over time.

Rationale for the Format of the TSOPP

One may ask 'why does the TSOPP provide a set list of questions in 'Section 3 – Identifying Needs' rather than allowing students to identify their own concerns if it is intended to be client-centred?' A similar question was asked of the Occupational Self-Assessment (OSA; Baron et al., 2006) which claims to be a client-centred self-report measure but includes a fixed set of items for clients to answer. There are several reasons that have resulted in the TSOPP's current format:

- Based on research, Nolan (2011) found that more widely used measures of occupational performance did not specifically investigate the nuanced occupational performance difficulties experienced by students within their student role. For example, the OSA (Baron et al., 2006) makes references to the student role alongside other roles such as worker, volunteer, or family role, but does not examine this role in detail. Moreover, the Canadian Occupational Performance Measure (COPM; Law et al., 2005) was too open ended for students to identify the specific concerns relating to occupational performance in the student role. This was later highlighted when Keptner and Rogers

(2018) needed to adapt the COPM to include questions more relevant to university students. Hence, Nolan (2011) determined that developing a profile with set items was necessary for comprehensively assessing the occupational performance difficulties relating to the student role.

- Having the list of items communicates to students what the role and remit is of occupational therapists and occupational therapy intervention. This helps students understand the kinds of concerns that an occupational therapist can support them with. Furthermore, it highlights the occupation-centred focus of occupational therapy to a student.
- Often, especially for incoming university students, they are able to identify that they are experiencing difficulty within their student role but are unable to articulate why exactly they are experiencing these difficulties. For example, a student may report that they are struggling to write their essays, whereas when they complete the TSOPP they may identify that in fact they are having difficulty appropriately sourcing the relevant reading material in the library and hence have not completed enough reading to write an essay. As the student role is complex, providing students with a structure helps them to develop self-awareness and begin to understand the nuances associated with occupational performance in the student role.
- Furthermore, using the PEO structure helps students to begin analysing and understanding their occupational performance difficulties in a holistic sense. For example, a student may report that they are experiencing difficulties with concentration during study (Person-related concern). Whereas when they complete the TSOPP, they may identify that in fact the environment in which they study has several distractions that are external to them (Environment-related concern), and hence intervention may focus on identifying/developing an environment that is more conducive for study.
- Providing a defined list of items allows for the construct of occupational performance within the student role to be captured within a measure. Research using Rasch analysis methodology highlights how these items work together to measure this construct (Lombard, et al., 2022). Moreover, the use of Rasch analysis has enabled the generation

of an item difficulty hierarchy which essentially puts the TSOPP items on a ruler from 'less difficult to manage' to 'more difficult to manage' (represented in 'Section 4 – Item Difficulty Hierarchy'). This hierarchy can help students understand the expectations within the student role and help them identify their strengths and aspects that they are managing well. This supports a Recovery-based and client-centred approach towards assessment.

- Lombard's research showed that the items within the TSOPP demonstrates preliminary evidence of detecting change over time. This means that it is possible to compare initial TSOPP measures with follow-up TSOPP measures when the tool is repeated with a student.
- Providing a structure also facilitates communication between the student and therapist. The language used within the tool can be used to facilitate discussions relating to student's occupational performance, while also allowing the therapist to meet the student where they are at. It provides a framework for students to identify their priorities for intervention and for students and therapists to set goals relating to those priorities.

Part Four: How to Administer the Trinity Student Occupational Performance Profile

This part of the manual seeks to provide therapists with a guide on how to use the TSOPP in practice. It provides practical guidance and suggestions on how to go about administering the tool and interpreting the results with students in order to set collaborative goals and develop intervention plans.

Therapist preparedness

Prior to administering the TSOPP, therapists should become familiar with the theoretical underpinnings of the tool outlined in Part Two of this manual, particularly the Person-Environment-Occupation Model (PEO; Law et al., 1996). Furthermore, therapists should have an understanding regarding the impact of various mental health disabilities in higher education, including mental health difficulties (Storrie, Ahern, & Tuckett, 2010), autism (Nuske et al., 2019) and attention deficit hyperactivity disorder (ADHD; Jansen et al., 2017). Therapists can develop a sound conceptual understanding and clinical reasoning relating to occupational performance within the student role by doing further reading into the above areas.

Therapists are also encouraged to become familiar with the specific institutional environment which students are engaging in to assist in implementing environmental supports. For example, this might include having an idea of the breakdown of the student's course, establishing if there are disability, counselling, or other support services available to student's on-campus or becoming familiar with policies and procedures which may be of benefit to students such as extenuating circumstances or leave of absence policies. Having access to this information may be more readily available for therapists based in an occupational therapy support service within a university in comparison to a therapist based in the community or hospital. Nevertheless, most universities/colleges publicly post their policies, procedures, and service information on their website.

Storage

The information gathered via the TSOPP is sensitive in nature and thus should be stored and processed in an appropriate manner. Occupational therapists wishing to use the TSOPP should be cognisant of the IT system that will be used to store the data and who within their organisation will have access to the information. Furthermore, students should consent to the manner in which their information is stored and processed. Therapists should be conscious of and abide by data protection laws, such as the *General Data Protection Regulation* (GDPR, 2016/679) for occupational therapists practising within the European Union.

Steps for administration

The TSOPP is set up in such a way as to be easy to complete. However, it is acknowledged that issues may arise when using the TSOPP with students in practice. Figure 2 outlines a quick guide on the suggested process of administering the TSOPP. More in-depth information is provided in subsequent sections. These steps are solely to provide a guide on how to approach using the TSOPP in practice. Depending on the circumstance or specific context, these steps may need to be modified and hence they are not a rigid set of rules for using the tool in practice. As a guide, it is suggested that completing the tool would take on average 2-3 meetings with a student. However, the length of time/number of meetings it takes to complete the below steps will be dependent on a student's individual needs. For some students, you may only need 1-2 meetings to review all of the TSOPP sections and set goals. Whereas for other students, it may take more time to review the sections and set goals. Many of the steps require therapists to enact their clinical reasoning skills and communication skills, hence therapists should consider and reflect on the needs of the cohort of students/clients they are supporting when reading this section. This section also aims to outline some challenges which may arise in practice and give practical guidance on how therapists can deal with these.

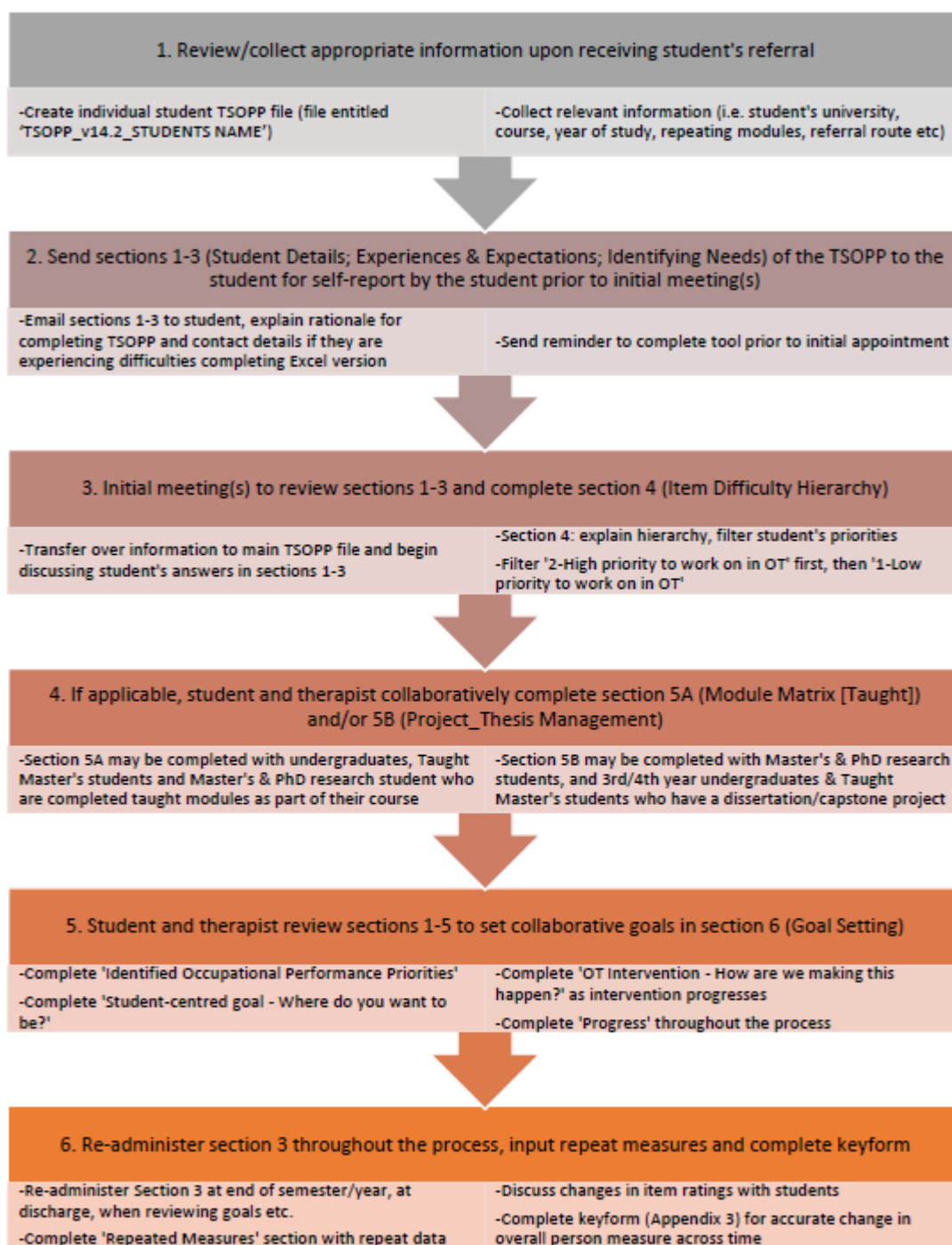


Figure 2: Quick Guide - Steps for Administering the TSOPP

1. Review/collect appropriate information upon receiving student's referral

Upon receiving a student's referral, a therapist should review this and collect any appropriate information. On a secure service-specific database/computer/data management system, a therapist should create a student-specific TSOPP file (file entitled 'TSOPP_v14.2_STUDENTS NAME'). This is a blank full TSOPP. The therapist may wish to keep notes of any relevant information in the 'Session Notes' section of the TSOPP, such as information relating to disability, reason for referral, occupational status, and cognitive/linguistic ability to complete a self-report measure. For therapists based in an occupational therapy service within a university/college setting, students should already be registered to study and hence you may be able to collect information regarding their course, year of study, modules of study including repeating modules etc. through the university student record system or via the referral route (e.g., disability service, counselling service, college psychiatrist). For therapists based within the community or in a hospital setting, once it has been established that the client is a registered student in a university/college and is experiencing difficulties with occupational performance within their student role which they would like to focus on within occupational therapy, it can be beneficial to initially gather basic details relating to the student's university, course, and year of study at an initial session if possible.

2. Send sections 1-3 (Student Details; Experiences & Expectations; Identifying Needs) of the TSOPP to the student to self-report prior to initial meeting(s)

Where possible, send Section 1 'Student Details', Section 2 'Experiences & Expectations' and Section 3 'Identifying Needs' to the student via email in advance of the initial meeting (specifically, send the file entitled 'TSOPP_v14.2_send to students'). Although there is an instructions tab on the TSOPP, it may also be beneficial to include the rationale for why you are asking them to complete the tool in the body of your email and some brief instructions to assist them with completing the tool. Ensure that a line is included on how they can contact you if they are experiencing difficulties completing the tool or using Excel so that an alternative can be arranged. An example of these email instructions may be as follows:

“Instructions for the Trinity Student Occupational Performance Profile

Please find attached an Excel file called the Trinity Student Occupational Performance Profile (TSOPP). This tool:

- Allows you to **identify the areas of your student role with which you are experiencing the most difficulty.**
- Allows you to **prioritise these difficulties** so that we can set goals for occupational therapy support.
- Should take **approximately 20 minutes** of your time to complete.

I would be grateful if you could complete the following tabs and **send them back to me in advance of our initial meeting on [insert date]**. The file consists of several tabs (which can be navigated towards the bottom left-hand corner of the Excel window):

- **Instructions** – This outlines the purpose for each section of the TSOPP.
- **Section 1 Student Details** – Space to include your general information including name, student number, contact details, next of kin details, course details etc.
- **Section 2 Experiences & Expectations** – Open-ended questions about your experience of college to-date, hobbies, and other responsibilities you may be managing at present. There is also a section to include what your academic, social, and personal expectations are for this year in college.
- **Section 3 Identifying Needs** – A list of items associated with the student role is provided, you are first asked to rate each item on **how difficult you find managing the item from 0-3** (i.e., ‘0 = No difficulty’ to ‘3 = Extreme difficulty’) and **how much of a priority each item is for us to focus on within our occupational therapy sessions from 0-2** (i.e., ‘0 = Not a priority for OT’ to 2 = High priority for OT’).

If you are experiencing any difficulties completing the form or using Excel, please let me know and we can arrange an alternative format for you.”

It can be helpful to send students a reminder to complete the tool a few days before the initial meeting if you have not received a completed tool. If a student is experiencing technical difficulties using Excel, you may wish to send them a Word version of the tool (Appendix 2; file entitled ‘TSOPP_v14.2_Word_send to students’). Once a completed Word version of the TSOPP is received, therapists should transfer the data into the student-specific full TSOPP file created earlier. If they continue to experience difficulties with this format, you may print the tool and arrange to give it to them in advance of meeting or begin the TSOPP during the initial meeting. There may be instances where students continuously do not complete the TSOPP for various reasons, which will be discussed in the ‘Dealing with Challenges’ section later in this Part of the manual.

3. Initial meeting(s) to review sections 1-3 and complete section 4 (Item Difficulty Hierarchy)

Once the student sends back the three completed sections of the TSOPP, the data should be transferred over to the student-specific full TSOPP file. It is advised that students and therapists begin talking through the information that the student has self-reported to-date. When you meet with the student for the initial meeting(s), you should start reviewing sections 1-3 as well as completing section 4. The length of time it takes to review these sections is dependent on the student’s needs. There may be one to three initial meetings depending on the student.

If there are any details in ‘Section 1 Student Details’ which were not filled out by the student but can be completed by you then fill these in and advise the student that you have filled in this information to clarify that it is accurate. If a student has selected ‘Other preference (discuss with OT at first session)’ in the ‘Preferred Pronouns’ field, take some time to discuss with them what pronouns they wish to use.

Reviewing 'Section 2 – Experiences and Expectations'

When discussing 'Section 2 – Experiences and Expectations' it can be beneficial to briefly describe the PEO Model (Law et al., 1996) diagram that is displayed on the tool to inform a student on how the model works and how it impacts our understanding of the student role. For example, you might explain the following:

"This tool that I got you to complete is based on a model called the Person-Environment-Occupation or PEO Model developed by Law et. al 1996. This model can be visualised using three circles in a Venn diagram which overlap, with each circle respectively representing the person, the environment, and occupation. The person relates to you as a person, including your skills, thoughts, beliefs, interests, strengths and weaknesses, impact of a disability etc. The environment is concerned with the university environment in which you are studying which is external to you as a person. This may be concerned with the physical environment such as a physical lecture theatre or exam environment, as well as the social environment such as making friends and communicating with lecturers. We look at things in your environment that support you, as well as the aspects of the environment that are hindering you from engaging in your student role. As for occupation, this is concerned with all the tasks, activities, and occupations you need and want to engage in to fulfil your student role. Some of these occupations may relate to the academic side of your role such as attending lectures, completing assignments etc. They are also concerned with the social occupations such as working in groups, getting involved in society events etc. Furthermore, it may also be concerned with the personal occupations such as self-care, minding your mental health etc. The overlap between the three spheres is called 'occupational performance', which is how well you are able to perform in the occupations that are important to you. The person, the environment and the occupation continuously interact and influence each other. At times they work better together which can be visualised as a greater overlap between the spheres, whereas there are other times that they do not work well together which leads to minimal overlap between the spheres. Within occupational therapy, we will work together to identify what aspects of occupational performance of the student role you wish to focus

on, and we will look at developing practical strategies and solutions for improving the fit between the three spheres.”

It is important to discuss the answers to ‘Section 2 – Experiences and Expectations’ to gain an overview of the student as an occupational being. To support a recovery-oriented approach, it is useful to focus on their strengths and hobbies to help with developing a therapeutic relationship. Furthermore, this can give a sense of what responsibilities they are having to manage alongside their student role such as work commitments, family responsibilities etc. Finally, the expectations section allows students to outline what their academic, social, and personal expectations are for the coming year in college. This can provide great insight into the student’s priorities and identify what is meaningful and relevant for them at present.

Reviewing ‘Section 3 – Identifying Needs’ using ‘Section 4 – Item Difficulty Hierarchy’

In ‘Section 3 – Identifying Needs’, students will have indicated their level of difficulty experienced in each item and will have highlighted how much of a priority each item is to focus on in occupational therapy. When the therapist receives the completed form back and transfers the information over to the full student-specific TSOPP file, all data from ‘Section 3 – Identifying Needs’ should automatically populate onto ‘Section 4 – Item Difficulty Hierarchy’. ‘Section 4 – Item Difficulty Hierarchy’ orders the items visually from least difficult to manage to most difficult to manage. The item difficulty hierarchy is essentially a ruler which outlines the relative difficulty of the tasks, activities and occupations associated with the student role visually. It is intended for both Section 3 and Section 4 to be reviewed in tandem as follows:

- Before beginning the review, it can be useful to display ‘Section 3 – Identifying Needs’, **briefly remind students about the PEO Model** (Law et al., 1996) and explain that hence there might be interactions between the items that they are experiencing difficulty with. If you wish, you might spend some time generally discussing the items that are within the Person, Environment, and Occupation categories. The discussion should be focused on identifying student’s key occupational performance concerns; hence it is advised that

therapists try to facilitate students to understand the relationship between the items wherever possible.

- Move to 'Section 4 – Item Difficulty Hierarchy' and explain that this view orders the items according to their difficulty from 'least difficult to manage' to 'most difficult to manage'. Explain to the student that **it is okay to experience difficulties with items that are higher on the scale as the student role is complex**. Furthermore, explain that **many students experience more difficulty managing the items that are lower on the scale and hence high scores on these items are normal**.
- This can also be a good time to **highlight if there are aspects that the student is managing well** (i.e., '0 = No difficulty'), to support a strengths-based and recovery-oriented approach. Moreover, it is also beneficial to review **any items that the student has rated as 'NA – Not applicable'** to get a sense of their understanding of their course.
- If the student has provided any information in the 'Please Explain Your Answer' column, it can be useful to discuss this with the student to **better understand their individual experience and perspective**. If a therapist wishes to record any further information during the discussion, it is encouraged that this be inputted in the 'Therapist's comments' column to **differentiate what was self-reported by the student and what was inputted by the therapist** based on discussions with the student.
- It is important that the discussion is **led by the student's self-reported priorities** so that subsequent goals and interventions are in line with what is most relevant to them at that time. You may wish to use the following technique to guide the discussion:
 1. **Filter the items that are rated as '2 – High priority to work on in OT' in 'Section 4 – Item Difficulty Hierarchy'**. To do this, click the filter button in the 'Priority' column and filter by the number 2. Some of the items may be rated as '3 – Extreme difficulty' but this is not always the case, some items may not be as difficult for a student to manage at present but are still high priority to focus on in occupational therapy (e.g., a student may not be experiencing huge difficulty managing their mental health at present, but they are aware that they need to continuously work on this to keep themselves well). Similarly, there might be

items that a student is experiencing high levels of difficulty with but does not wish to prioritise this for occupational therapy support (e.g., a student may be experiencing difficulties with managing their family relationships but may be engaging with counselling support to help manage this). At times, it may be helpful to discuss the difficulty experienced with any item within the context of the wider hierarchy, so that they begin to understand the complexities of the student role and manage their expectations. As you facilitate the discussion, try to assist the student to make connections between their difficulties and start trying to name and frame the key occupational performance issues that they are experiencing.

2. **Filter the items that are rated as '1 – Low priority to work on in OT' in 'Section 4 – Item Difficulty Hierarchy'.** Similar to above, click the filter button in the 'Priority' column and filter by the number 1. At times, there may be other items which the student rates as a lower priority for OT which is not a problem. However, there may be some items that the student is experiencing difficulty with here which may be contributing to wider occupational performance issues, and it can be useful to discuss this with a student to better understand how it impacts occupational performance. For example, the student may have rated 'Doing presentations' as extremely difficult to manage (3) and a high priority (2) to work on in OT, whereas they may have rated 'Managing anxiety' as extremely difficult to manage (3) but as a low priority (1) to work on in OT. When discussing this with the student it becomes clear that they are engaging with counselling to learn how to best manage anxiety hence why they rated it as lower priority. From this, the therapist and student can acknowledge that the anxiety is impacting on doing presentations, intervention may focus on more environmental and occupational adaptations to support the student to do presentations, and the therapist can encourage the student to try to employ any strategies they have learnt in their counselling appointments to assist with managing anxiety symptoms during the process.

4. If applicable, student and therapist collaboratively complete section 5A (Module Matrix [Taught]) and/or 5B (Project_Thesis Management)

Sections '5A – Module Matrix (Taught)' and '5B – Project_Thesis Management' consist of a table where a student's course demands can be collated into the one place. Oftentimes, university Virtual Learning Environments include the course demands for each module, but it does not collate this information into the one place where the student can see their course demands as a whole. Gathering this information is beneficial both for students and therapists. From a student's perspective, it helps them to get organised with their workload, but also understanding what is involved in their course. As for the therapist, this can help them to better understand the student's course demands, while also gaining insight into the student's understanding of their course.

'Section 5A – Module Matrix (Taught)' captures the taught elements of a student's course. This will be mainly applicable to undergraduate students and Taught Masters students. However, many Master's and PhD research students may also have some taught modules that they need to take as part of their course. 'Section 5B – Project_Thesis Management' is relevant to students who have a dissertation, thesis or capstone project built into their course. This may include 3rd or 4th year undergraduate students and Taught Master's students depending on their course. This will be applicable for Master's and PhD research students.

The reason that it is suggested that these sections are not sent in advance of an initial meeting is because it may be too difficult or overwhelming for some students to complete initially. Many students seeking occupational therapy support experience difficulties with time management and organisation, hence asking them to compile this information in advance of receiving any support in how to do this may be too much for some students. Furthermore, the reason that this is optional is because there may be students who have already compiled this information in another format (e.g., in a diary, notebook, on their phone etc.) and therapists are encouraged to use the format where a student has already gathered this information, potentially suggesting

some improvements if it is necessary. Moreover, there may be students who either do not report difficulties with managing their overall workload or who do not wish to prioritise this in occupational therapy at this time.

Therefore, if managing deadlines/workload/organisation etc. is identified as a priority by a student, it is suggested that the therapist supports the student to start completing the appropriate Module Matrix sections in the initial meeting. The therapist may assist the student in finding the appropriate information such as through the student's Virtual Learning Environment, or through searching module details online. If the student cannot find the information, the therapist can encourage the student to contact their Module Coordinator/Lecturers to clarify the breakdown of their modules. It may not be possible to complete the full Module Matrix within the one session, hence the therapist should encourage the student to finish it off after the session now that they know how to complete it.

5. Student and therapist review sections 1-5 to set collaborative goals in section 6 (Goal Setting)

After having the opportunity in initial meeting(s) to get to know the student as an occupational being, naming, validating, and prioritising (Fearing et al., 1997) their occupational performance difficulties and identifying their course demands (if applicable), it is now time to set collaborative goals for intervention in 'Section 6 – Goal Setting'. This sheet automatically displayed the academic, social, and personal expectations a student provided in 'Section 2 – Experiences & Expectations'. This is to act as a reminder of the student's aspirations for the year ahead when setting goals. There is space for up to four goals, however, further lines may be inputted if the student wishes to set more at any one time. Depending on the student and their needs, it could take more than one session to set goals. There are several components involved in the goal-setting sheet as follows:

1. Identified Occupational Performance Priorities

This component should be used to assist students in understanding the transactive relationship between the occupational performance difficulties they have identified as priorities in 'Section 4 – Item Difficulty Hierarchy' where applicable. In the example in Figure 3, the student and therapist discussed the relationship between certain difficulties to better understand the student's difficulty with occupational performance.

1. Identified Occupational Performance Priorities		
Person-related difficulties	Environment-related difficulties	Occupation-related difficulties
Knowing how best to study	Tolerating external distractions e.g. noise, light	Getting down to writing
Maintaining concentration during study		Achieving goals
Procrastination		Dealing with time pressures and deadlines
Managing anxiety		Doing presentations

Figure 3: Identified Occupational Performance Priorities component of 'Section 6 - Goal Setting

2. Student-centred Goal(s) – Where do you want to be?

Thinking about the difficulties identified in the previous component, this component allows students to think about where they want to be in the future/what do they want to achieve. It is important that these goals are in a student's own language so that it is focused on their hopes and aspirations (Moran, & Dancza, 2018). However, to ensure that intervention is focused on occupational performance, students are encouraged to start the statement with "I want to be able to...". Following on from the example above, Figure 4 demonstrates the student-centred goals set.

2. Student-centred Goal(s) - Where do you want to be? "I want to be able to...."
I want to be able to study in the library
I want to do my group History presentation at the end of term with minimal anxiety

Figure 4: Student-centred Goal(s) component of 'Section 6 - Goal Setting'

3. OT Intervention – How are we making this happen?

The third component allows students and therapists to capture the OT intervention being undertaken to assist in making the goal happen. Therapists and students may discuss and document the initial steps to take towards the student-centred goals and may expand this as the intervention progresses. Therapists are encouraged to be guided by the PEO model (Law et al., 1996) and document how intervention is addressing the person, environment, and occupation-related difficulties previously identified by the student in '1. Identified Occupational Performance Priorities'. Completing this component collaboratively with the student enables them to see how the intervention is relevant to their occupational performance difficulties and empowers them to make decisions regarding the intervention process. Where appropriate, therapists may assist students in identifying appropriate directions for intervention and should provide suggestions and recommendations on resources, strategies, and timelines based on their clinical reasoning. However, it is most important that the student is satisfied with the purpose of the intervention and understands the support available to them in achieving their goal. Figure 5 provides a worked example following on from Figure 4.

3. OT Intervention - How are we making this happen?
Explore VARK learning style questionnaire
Using VARK results, trial visual and kineasthetic learning strategies
Visit the library to identify the most appropriate space with minimal distractions
Learn how to use Google Calendar to track deadlines
Develop SMART goal-setting technique to identify weekly priorities
Use Google Calendar to keep track of group meeting dates
Identify my role/responsibilities for the presentation at the next group meeting
Explore anxiety management strategies (deep breathing & progressive muscular relaxation)
Learn how to use PowerPoint to create slides
Practice my presentation in my OTs office in 4 weeks
Practice my presentation in Room 123 with my OT in 6 weeks

Figure 5: OT Intervention – How are we making this happen? component of 'Section 6 - Goal Setting'

Where appropriate, therapists may wish to use the 'SMART' method when documenting OT intervention, as not only is this beneficial for intervention plans, but also helps students develop goal setting skills which they can employ in their student role. According to Moran and Dancza (2018), 'SMART' consists of:

- **S = Specific** – clearly outlining what the student and therapist agree to achieve, ensuring that this relates to the student-centred goals.
- **M = Measurable** – clearly identifying how to measure the progress made towards the goal.
- **A = Activity-based** – clearly outlining the activity that needs to be engaged in that relates to students' valued occupation.
- **R = Realistic and relevant** – intervention strategies should be tailored so that they are appropriately challenging for the student, but not overwhelming. Furthermore, they should be relevant to the student's goal.

- **T = Time-bound** – a specified time period should be set for when the certain steps in the intervention should be achieved by and hence reviewed.

4. Progress

This component allows students and therapists to track the progress made towards the student-centred goals, as seen in Figure 6. There is a drop-down menu with the options 'Completed', 'In progress' and 'No longer relevant' that can be used to identify the status of the goal. If timed targets are set, it is important for them to be flexible according to the student's demands throughout the semester, such as the student experiencing a particularly busy point in the semester, needing to apply for extenuating circumstances, or that their original goal has changed for them as time goes on. This is why it is important to review goals regularly with students to ensure that they are flexible and still relevant to them, or to determine a more realistic timeframe if necessary. Reviewing goals is also useful to demonstrate to the student the progress that they are making towards their goals.

The image shows a screenshot of a web interface. At the top, there is a light blue header box with the text '4. Progress'. Below this header is a vertical list of three options: 'Completed', 'In progress', and 'No longer relevant'. A dropdown arrow is visible to the right of the 'No longer relevant' option. The dropdown menu is currently open, showing the same three options: 'Completed', 'In progress', and 'No longer relevant'. The 'Completed' option is highlighted with a blue background.

Figure 6: Review component of 'Section 6 - Goal Setting'

5. Notes

This component can capture any additional notes that may be of interest, such as a change in the timeline of a target or noting how a goal may have changed for a student over time.

6. Re-administer section 3 throughout the process, input repeat measures and complete keyform

It is advised that 'Section 3 – Identifying Needs' of the TSOPP is re-administered throughout the occupational therapy process. The TSOPP demonstrates preliminary evidence for detecting change in measures in either direction (i.e., increasing or decreasing scores). It is expected that self-reported scores may vary across time for several reasons, such as developments with students' levels of self-awareness, changing course demands as they progress, or changes in mental health across time. Hence, changes in measures may not be linear.

Some suggested points of time that it can be beneficial to re-administer 'Section 3 – Identifying Needs' include:

- At the end of the semester and academic year.
- At the point of discharge from the service.
- When reviewing goal(s).
- Finding new directions with students, especially for students who may be engaging with support for long periods of time.

In the 'Repeated Measures' section of the TSOPP, the items are ordered in terms of the item difficulty hierarchy seen in section 4. The initial assessment ratings should be copied into the 'Initial Assessment' column and the date of the assessment inputted. There is room for two follow-up assessments, but additional columns can be created if necessary. Similar to section 4, the answers will automatically colour code. Therapists should take some time to discuss the changes in how students self-reported their occupational performance difficulties across time with students.

As explained in Part Four of this manual, the TSOPP does not generate raw total scores for students based on feedback from occupational therapists and due to issues with raw total scores which will be expanded on in Part Five of this manual. As above, therapists should

discuss changes within the individual self-reported items of occupational performance difficulties with students. Nevertheless, therapists may wish to capture an overall score or measure to be able to compare overall changes in occupational performance difficulties over time or to assess the impact of an intervention. In this instance, it is advised that therapists complete the TSOPP Keyform (Appendix 3) to generate a person measure which is more accurate than a raw total score. The benefits of and how to use a keyform are elaborated in Part Five of this manual. Therapists can input the person measures gathered from the TSOPP Keyform towards the end of the 'Repeated Measures' section of the TSOPP.

Dealing with Challenges

Students may not fully complete the tool for various reasons. For example, students may be in the middle of a particularly busy point in the semester trying to meet deadlines, or they may have forgotten to complete it due to the nature of their disability. Nevertheless, assessing occupational performance difficulties is important for ensuring that goals and subsequent interventions are focused on occupational performance. Just because a student is experiencing difficulty completing the tool at one point in time does not mean that they won't be able to complete it in the future. Therefore, therapists should use their communication skills to best re-introduce the student to the TSOPP for completion. Therapists may agree a more appropriate time with the student to complete the TSOPP (e.g., when mid-semester assignments are completed). Alternatively, during a meeting the therapist may assist the student to complete the sections of the TSOPP which are intended to be self-report, although it is important to document this within case notes.

Part Five: How to use the Trinity Student Occupational Performance Profile Keyform

This section of the manual introduces therapists to the concept of a keyform, what benefits it poses and how to use the keyform associated with the TSOPP's 'Difficulty' scale.

What is a keyform and what are its benefits?

The raw scores generated from the 4-point Likert-style 'Difficulty' rating scale in 'Section 3 – Identifying Needs' are ordinal in nature, meaning they can be ordered in a meaningful way (e.g., '1 = Some difficulty' is greater than '0 = No difficulty' etc.), but the ratings cannot be quantified or added together (Bond, & Fox, 2015). This is because those rating the items (in this case students) impose their own subjective interpretations onto the rating scale categories (Wright, & Masters, 1982). For example, the threshold between choosing '1 = Some difficulty' and '2 = Moderate difficulty' may be much smaller for one student than it is for another. Furthermore, by adding up raw ordinal scores, the assumption is made that all items in the TSOPP are of the same difficulty, whereas they represent different levels of difficulty along the continuum of 'occupational performance difficulty within the student role' as demonstrated in 'Section 4 – Item Difficulty Hierarchy' of the tool. Moreover, students may leave items unanswered resulting in a lower total score which may not accurately reflect their level of occupational performance difficulty.

Due to the above, it is not appropriate to generate total scores by adding up ordinal ratings generated in the TSOPP. What is needed is interval-level data which has the capability of being added together, can appropriately represent the relative difficulty of the TSOPP items and is robust to missing data if students do not answer certain items (Bond, & Fox, 2015). Interval-level data assists with generating accurate person measures of occupational performance difficulty within the student role. In practice, therapists may wish to gather person measures to be able to appropriately compare changes across times or to assess the effectiveness of an intervention. Lombard's research converted raw ordinal-level TSOPP scores into interval-level data using Rasch analysis through a computer software called WINSTEPS (Linacre, 2020).

However, access and use of such complex software is not practical nor feasible for occupational therapists wishing to generate person measures in practice. This is where a keyform can help. A keyform is a paper-and-pencil form that can generate instantaneous person measures without needing to use Rasch software (Linacre, n.d.). A keyform allows a therapist to quickly estimate a student's level of occupational performance difficulty within the student role regardless of missing data. These person measures can be used to determine if a change has occurred across time or to assess the impact of an intervention.

How to use the TSOPP Keyform

For the TSOPP's keyform (Appendix 3), the items are presented in a hierarchical order in a vertical axis on the right-hand side, and the 0-3 rating scale categories for each item are displayed along the continuum of 'occupational performance difficulty within the student role'. At the bottom of the page on the horizontal axis there are two scales: a logit scale (green) which reflects the person measure in logits; and converted 0-100 scale (yellow) which reflects person measures when converted from logits onto a 0-100 scale for a more easily understood metric for those unfamiliar with Rasch analysis (Wolfe, & Smith, 2007). The keyform was generated from Lombard's research in which person measures ranged from -3.14 logits (0 on the 0-100 scale) to 1.66 logits (100 on the 0-100 scale). Ratings that are beyond this range would be considered extreme and are very unlikely to occur in practice. Students who would be receiving ratings below -3.14 logits are experiencing no difficulties with occupational performance within their student role and are likely not engaging with occupational therapy services. On the other hand, students who would be receiving ratings above 1.66 logits are experiencing extremely high levels of occupational performance difficulties with the items that are considered less difficult to manage such as 'Managing/avoiding other substances', 'Getting to the exam hall', 'Use computers' and 'Managing alcohol intake'. It is likely that people with such high levels of occupational performance difficulties may not be ready to manage a university student role and hence are likely not engaged in a college course at that time. Therefore, the ranges highlighted in green and yellow represent the typical range of occupational performance difficulties.

To use the keyform, the following steps should be followed:

1. Print out the keyform.
2. Circle the rating scale categories for each item depending on the student's answers on the 'Difficulty' scale (Figure 7). You may wish to gather this information from 'Section 3 – Identifying Needs' or 'Section 4 – Item Difficulty Hierarchy' where the items are in hierarchical order.
3. Draw a line of best fit down through the circles (Figure 7).
4. Read the logit and/or 0-100 scale person measure. Higher scores indicate higher levels of occupational performance difficulties whereas lower scores indicate lower levels of occupational performance difficulties. The example in Figure 7 demonstrates a logit measure of approximately 1.00 logit or approximately 81 on a 0-100 scale of occupational performance difficulties.
5. If the student has done a repeat measure, on the same sheet mark the rating scale categories chosen with either a different symbol (i.e., a triangle) or different colour pen and follow steps 2-4. Compare the person measures.
 - a. It is important to note that the TSOPP is sensitive to detecting change over time in either direction (i.e., if the scores improve or decline). Scores may vary for many reasons such as course demands changing, enhancements in students' self-awareness or a change in their mental health and subsequent management of their student roles. Nevertheless, when discussing changes in scores with students, therapists should use appropriate communication skills to frame and contextualise changes in either direction using a recovery-oriented and strengths-based approach.

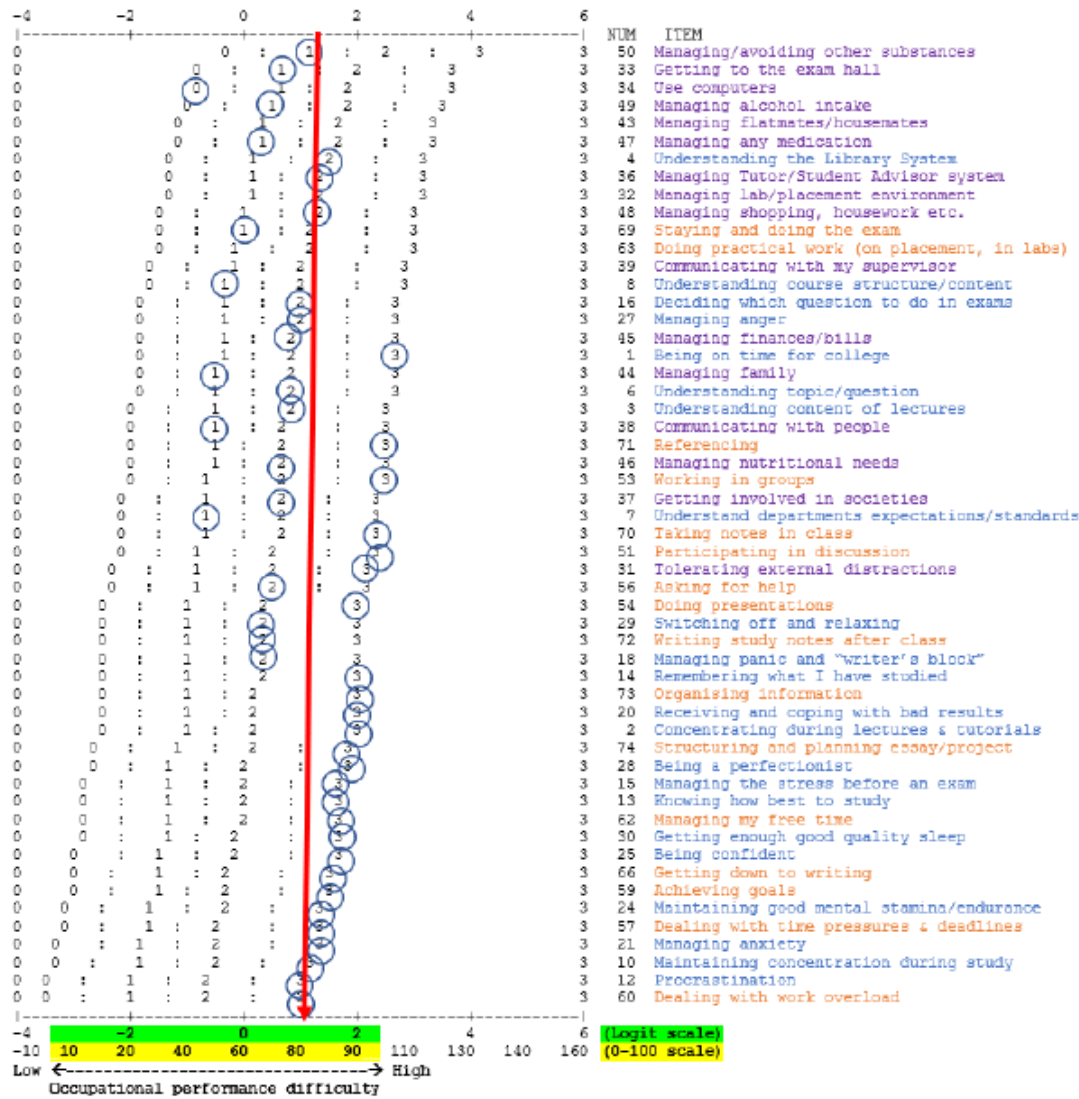


Figure 7: Keyform worked example

Appendices

Appendix 1 - Excel Format - Trinity Student Occupational Performance Profile (TSOPP)

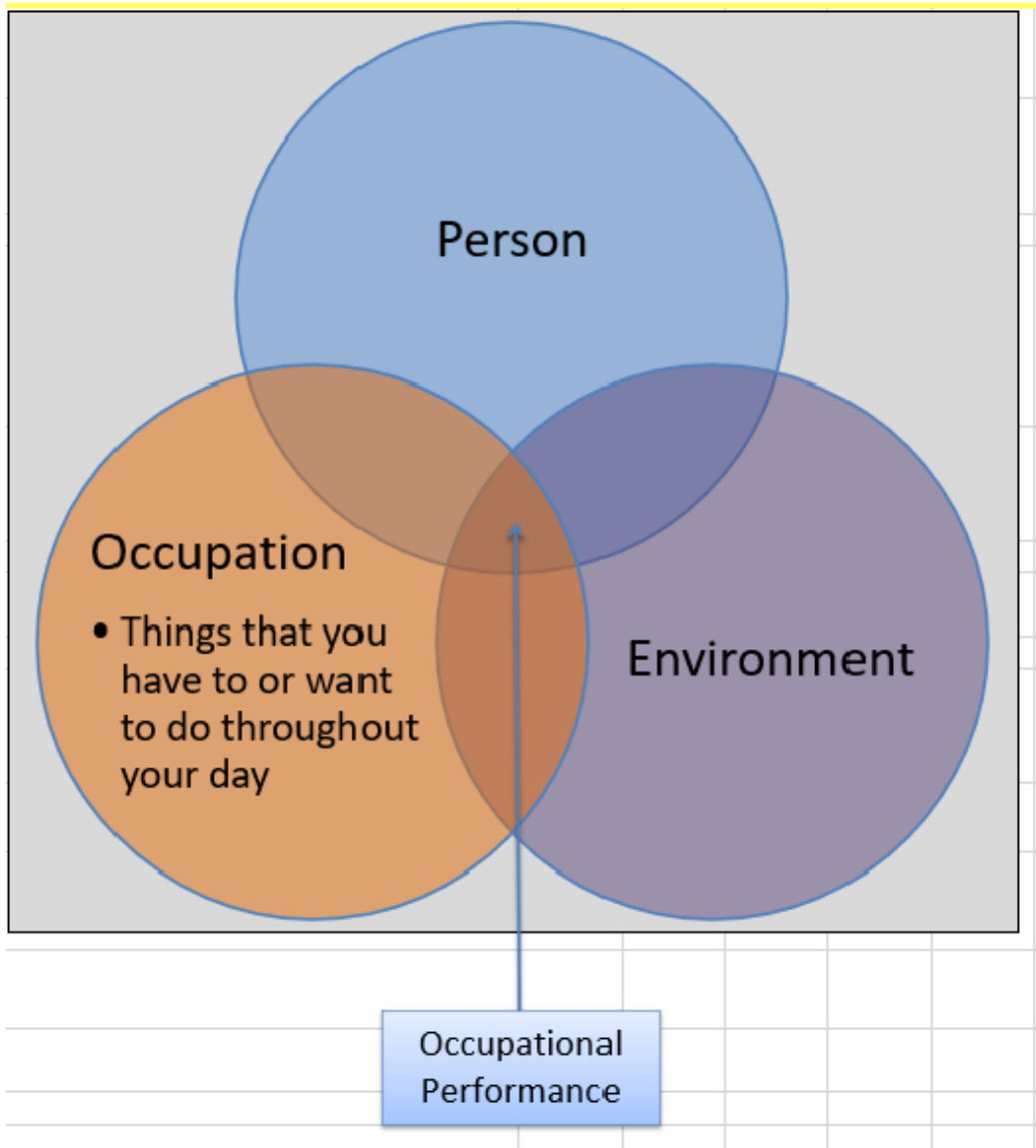
Section 1 - Student Details

Student Name and Number	
Email address	
Mobile number	
Gender	
Preferred pronouns (what's this?)	
Date of Referral	
Tutor/Student Advisor	
Disability Officer	
Next of Kin and contact details	
Psychiatrist/GP	
Year	
Faculty	
Course	
TSOPP completed	
Other services	
Disability Service Consent Form completed	

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Section 2 – Experiences & Expectations

0		
	Present college Life	Please answer questions 1-12 in the boxes provided
1	What areas of college life, academic or otherwise do you feel that you are managing well?	
2	Does your course involve any remote/virtual engagement (e.g., online lectures via Blackboard/BrightSpace/Zoom etc.)? If so, please list any aspects of virtual learning which you may experience difficulties managing.	
3	What do you like to do outside of academic work, either within or outside college? For Example: Hobbies or Interests	
4	Do you work outside of college and how many hours do you work?	
5	Please list any other demands/responsibilities you are managing outside of college (e.g., family responsibilities, volunteering etc.).	
Previous Experience		
6	Have you started any other 3 rd level course?	
7	Did you complete it?	
8	Have you repeated any years in your present course?	
9	Have you taken a year out from studying and what did you use the year for?	
10	Please list any previous educational experiences you have had to date (including school, college etc.).	
11	Tell me about your work experience to date	
Expectations		
12	What are your academic expectations for this coming year in college? (e.g., handing in all assignments, learning how to use campus systems, attending as many classes as possible etc.)	
13	What are your social expectations in this coming college year? (e.g., making a group of friends/maintaining friendships, getting involved in societies, asking lecturers for help etc.)	
14	What are your personal expectations for this coming year in college? (Personal expectations are influenced by your personal goals, for example learning to drive, getting a part-time job, taking up a new hobby, working on your mental health etc.)	
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Section 3 – Identifying Needs

©Copyright Nolan C. (2011, 2014); Lombard, K., Nolan C., & Heron E. (2021, 2022)	Items (64 total)	Level of Difficulty 0 = No difficulty 1 = Some difficulty 2 = Moderate difficulty 3 = Extreme difficulty NA = Not applicable	Level of Priority to work on in OT 0 = Not a priority to work on in OT 1 = Low priority to work on in OT 2 = High priority to work on in OT NA = Not applicable	Please explain your answer
Person	Being on time for College (lectures, labs etc.)			
	Concentrating during lectures and tutorials			
	Understanding the content of lectures			
	Understanding the Library System			
	Understanding topic / question			
	Understanding your department's expectations/standards (eg. Length, style etc.)			
	Understanding the course structure and content			
	Maintaining concentration during study			
	Procrastination			
	Knowing how best to study			
	Remembering what I have studied			
	Managing the stress before an exam			
	Deciding which question to do in exams			
	Managing panic and "writer's block"			
	Receiving and coping with bad results			
	Managing anxiety			
	Maintaining good mental stamina/endurance			
	Being Confident			
	Managing anger			
	Being a perfectionist			
Switching off and relaxing				
Getting enough good quality sleep				
Environment	Tolerating external distractions e.g. noise, light			
	Managing lab / placement environments			
	Getting in the exam hall			
	Using Computers			
	Managing Tutor system/Student Advisor system			
	Getting involved in societies			
	Communicating with people			
	Communicating with my supervisor			
	Managing flatmates/housemates			
	Managing family			
	Managing finances/bills			
	Managing nutritional needs			
	Managing any medication			
	Managing shopping, housework etc.			
Managing alcohol intake				
Managing / avoiding other substances				
Occupation	Participating in discussion			
	Working in groups			
	Doing presentations			
	Asking for help			
	Dealing with time pressures and deadlines			
	Achieving goals			
	Dealing with work overload			
	Managing my free time			
	Doing practical work (i.e. on placement, in labs)			
	Getting down to writing			
	Staying and doing the exam			
	Taking notes in class			
	Referencing			
	Writing study notes after class			
	Organising information			
	Structuring and planning the essay or project			

Section 4 – Item Difficulty Hierarchy

TSOPP		Difficulty	Priority	Please explain your answer	Therapist's comments
Hierarchy Order					
Least difficult to manage	Managing / avoiding other substances	0	0		
	Getting to the exam hall	0	0		
	Using Computers	0	0		
	Managing alcohol intake	0	0		
	Managing flatmates/housemates	0	0		
	Managing any medication	0	0		
	Understanding the Library System	0	0		
	Managing Tutor system/Student Advisor system	0	0		
	Managing lab / placement environments	0	0		
	Managing shopping, housework etc	0	0		
	Staying and doing the exam	0	0		
	Doing practical work (i.e. on placement, in labs)	0	0		
	Communicating with my supervisor	0	0		
	Understanding the course structure and content	0	0		
	Deciding which question to do in exams	0	0		
	Managing anger	0	0		
	Managing finances/bills	0	0		
	Being on time for College (lectures, labs etc.)	0	0		
	Managing family	0	0		
	Understanding topic / question	0	0		
	Understanding the content of lectures	0	0		
	Communicating with people	0	0		
	Referencing	0	0		
	Managing nutritional needs	0	0		
	Working in groups	0	0		
	Getting involved in societies	0	0		
	Understanding your departments expectations/standards (eg. Length, style etc)	0	0		
	Taking notes in class	0	0		
	Participating in discussion	0	0		
	Tolerating external distractions e.g. noise, light	0	0		
	Asking for help	0	0		
	Doing presentations	0	0		
	Switching off and relaxing	0	0		
	Writing study notes after class	0	0		
	Managing panic and "writer's block"	0	0		
	Remembering what I have studied	0	0		
	Organising information	0	0		
	Receiving and coping with bad results	0	0		
	Concentrating during lectures and tutorials	0	0		
	Structuring and planning the essay or project	0	0		
	Being a perfectionist	0	0		
	Managing the stress before an exam	0	0		
	Knowing how best to study	0	0		
	Managing my free time	0	0		
	Getting enough good quality sleep	0	0		
	Being Confident	0	0		
	Getting down to writing	0	0		
	Achieving goals	0	0		
	Maintaining good mental stamina/endurance	0	0		
	Dealing with time pressures and deadlines	0	0		
	Managing anxiety	0	0		
	Maintaining concentration during study	0	0		
	Procrastination	0	0		
Most difficult to manage	Dealing with work overload	0	0		

Section 5B – Project_Thesis Management

		Please answer questions 1-8 in the fields below
1	Do you have a dissertation/thesis/capstone project to submit as part of your studies?	
2	What is your supervisor's name and contact details? What is your supervisor's availability for support?	
3	What is your School/Programme point of contact (e.g. Programme manager, Programme Office, Student Advisor etc.)?	
4	If you have it, what is the focus of your project/your research question?	
5	What is the overall dissertation/thesis/capstone deadline?	
6	What is the overall word count of the dissertation/thesis/capstone project?	
7	What are your Programme's expectations for the structure of the dissertation/thesis/capstone project? (i.e. certain number of chapters, inclusion of particular chapters such as Introduction, Literature Review, Methodology, Results/Findings, Discussion, Conclusion etc)	
8	If applicable, does each chapter have an individual word count, percentage weighting and deadline?	
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Repeated Measures

TSOPP Hierarchy Order	Initial Assessment Date:	Follow-up Assessment Date:	Follow-up Assessment Date:
Managing / avoiding other substances			
Getting to the exam hall			
Using Computers			
Managing alcohol intake			
Managing flatmates/housemates			
Managing any medication			
Understanding the Library System			
Managing Tutor system/Student Advisor system			
Managing lab / placement environments			
Managing shopping, housework etc			
Staying and doing the exam			
Doing practical work (i.e. on placement, in labs)			
Communicating with my supervisor			
Understanding the course structure and content			
Deciding which question to do in exams			
Managing anger			
Managing finances/bills			
Being on time for College (lectures, labs etc.)			
Managing family			
Understanding topic / question			
Understanding the content of lectures			
Communicating with people			
Referencing			
Managing nutritional needs			
Working in groups			
Getting involved in societies			
Understanding your departments expectations/standards (eg. Length, style etc)			
Taking notes in class			
Participating in discussion			
Tolerating external distractions e.g. noise, light			
Asking for help			
Doing presentations			
Switching off and relaxing			
Writing study notes after class			
Managing panic and "writer's block"			
Remembering what I have studied			
Organising information			
Receiving and coping with bad results			
Concentrating during lectures and tutorials			
Structuring and planning the essay or project			
Being a perfectionist			
Managing the stress before an exam			
Knowing how best to study			
Managing my free time			
Getting enough good quality sleep			
Being Confident			
Getting down to writing			
Achieving goals			
Maintaining good mental stamina/endurance			
Dealing with time pressures and deadlines			
Managing anxiety			
Maintaining concentration during study			
Procrastination			
Dealing with work overload			
Keyform person measure (logits and/or 0-100 scale)			
RATING SCALE			
0=No difficulty			
1=Some difficulty			
2=Moderate difficulty			
3=Extreme difficulty			

This section allows the ratings you provided to be compared against one another. **Scores may go up (i.e. get more difficult) or down (i.e. get less difficult) over time due to a number of factors.**

For example, your college course may have new challenges each year, you are learning new skills as you progress through your course, a change in your mental health and/or your self-awareness of how difficult something is to manage over time.

Hence, do not be concerned if the changes in scores are not linear. You and your occupational therapist can discuss these changes together and reflect on what you have learnt over time.

Further Assessments

Name of Assessment completed	Date Completed	Results of Assessment	Actions/Interventions/Discussion Resulting from Assessment
Sensory Profile			
Interest Checklist			
Occupational Checklist			
Occupational Questionnaire			

Session Notes

0								
Appt number	Date	Conceptual Model Sphere	Sub Category	Review previous session	Session Notes	Goals/Actions/Plan	Correspondence	Signed

PEO Reference Sheet

Conceptual model Sphere	Person	Environment	Occupation	Assessment	ContextSpecific	Indirect	Self Management
Person	Lectures seminars and tutorials	PHYSICAL - Lectures, Seminars and Tutorials, Library, Lab, Placement/Attachments	Lectures, Seminars and Tutorials – Participating in discussions, lectures and group work.	TSOPP		Email	Introduction
Environment	Managing library system/getting information	Exams and support services – Getting to exam hall/using computers	Social/Interpersonal	Learning Styles Questionnaire		Phone/Text	Identification of supportive occupations
Occupation	Writing essays and projects	Social – Getting involved in societies/communicating with people/my supervisor	Life Skills – Dealing with deadlines/goal setting/balancing college and life	Occupational Self Assessment		Other member of staff	Identification of barriers to engagement
Assessment	Studying; procrastination, being a perfectionist and knowing how best to study.	Life skills A - Managing family/finances/nutritional needs	Lab work, field trips, attachments and placements – Doing practical work	Interest Checklist		External professional	Identification of self monitoring
ContextSpecific	Exams (knowing how best to study recalling information)	Life Skills B – Alcohol intake	Essays Projects and exams – Getting down to writing, structuring and planning essay/project.	Sensory Profile			Implementing Personal and practical strategies
Indirect	Life skills (managing anxiety/negative thoughts/being confident)		Studying – Writing study notes	Occupational Questionnaire			Review
SMP	Emotional concerns						

Appendix 2 - Word Format - Trinity Student Occupational Performance Profile (TSOPP)

Instructions

<p>There are six parts to this form (see tabs at the bottom of this sheet). The purpose of this form is to gain an understanding from your perspective of your college experiences to-date and to identify areas of college life that are presenting as a difficulty for you.</p>			
Section:			
Completed by you prior to engaging with Occupational Therapy	1	Student Details	Asks you for your contact details, next of kin details and details about your course. This is to gain an understanding of your course structure and so that we can maintain contact with you and have someone of your choice to contact in an emergency.
	2	Experiences & Expectations	Asks questions about your current college experience and areas that you may be experiencing some difficulty. It also asks you about your expectations for college and your course. It is designed to ask you about your previous educational experiences and work history. If you are in first year, then parts of this section may not be relevant to you. If so, just move onto the next section.
	3	Identifying Needs	<p>Contains a list of concerns for students. These concerns may be related to concerns you have about yourself and your ability to manage both the academic and social structures in college (Person), concerns about managing the demands of the university system and the social life of being a student (Environment), and concerns about managing the job of being a student (Occupation).</p> <p>You will be asked to rate the level of difficulty you are experiencing in managing each item. You will then be asked to rate how much of a priority the item is to work on together in occupational therapy. By rating the items, it helps us to identify and prioritise the items you perceive to be a problem and that you most want to work on, and will enable us to make an appropriate plan of action to tackle the issues.</p>

Completed collaboratively with your Occupational Therapist	4	Module Matrix	Asks you to outline what is expected of you in each module you are completing this semester/year. This allows you to identify deadlines and the demands which are expected of you in each module and assists you and your therapist in developing practical plans to help you manage your workload.
	5	Item Difficulty Hierarchy	Displays the items from Section 3 Identifying Needs in order of hierarchy from 'least difficult to manage' to 'most difficult to manage'. This helps to understand the relative difficulty of each aspect of your student role and appreciate that some aspects may be more difficult than others and hence may require more time to develop skills to manage.
	6	Goals	Allows you to set goals related to the key occupational performance difficulties you have identified in collaboration with your therapist and to review them on a regular basis. This will assist you in setting out a plan for the academic year and support you in participating fully in college life.
<p>All the information on this e-form will be treated confidentially. This means that no information on this form will be shared with others unless you indicate otherwise. We will provide you with a copy so that you may track any changes and achievements, which follows and is in keeping with best practice within the occupational therapy service.</p> <p>©Copyright Nolan C. (2011, 2014); Lombard, K., Nolan C., & Heron E. (2021, 2022)</p>			

Section 1 – Student Details

Student Name and Number	
Email address	
Mobile number	
Gender (Male, Female, Gender non-binary, Prefer not to say)	
<u>Preferred pronouns (optional, what's this?)</u> (She/her; He/Him; They/Them; No pronouns – use my name; Other preference [discuss with OT at first session])	
Date of Referral	
Tutor/Student Advisor	
Disability Officer	
Next of Kin and contact details	
Psychiatrist/GP	
Year	
Faculty	
Course	
TSOPP completed	
Other services	
Disability Service Consent Form completed	

Section 2 – Experiences & Expectations

	Present college Life	Please answer questions 1-14 in the boxes provided
1	What areas of college life, academic or otherwise do you feel that you are managing well?	
2	Does your course involve any remote/virtual engagement (e.g., online lectures via Blackboard/BrightSpace/Zoom etc.)? If so, please list any aspects of virtual learning which you may experience difficulties managing.	
3	What do you like to do outside of academic work, either within or outside college? For Example: Hobbies or Interests	
4	Do you work outside of college and how many hours do you work?	
5	Please list any other demands/responsibilities you are managing outside of college (e.g., family responsibilities, volunteering etc.).	

	Previous Experience	
6	Have you started any other 3 rd level course?	
7	Did you complete it?	
8	Have you repeated any years in your present course?	
9	Have you taken a year out from studying and what did you use the year for?	
10	Please list any previous educational experiences you have had to date (including school, college etc.).	
11	Tell me about your work experience to date	

	Expectations	
12	What are your academic expectations for this coming year in college? (e.g., handing in all assignments, learning how to use campus systems, attending as many classes as possible etc.)	
13	What are your social expectations in this coming college year? (e.g., making a group of friends/maintaining friendships, getting involved in societies, asking lecturers for help etc.)	
14	What are your personal expectations for this coming year in college? (Personal expectations are influenced by your personal goals, for example learning to drive, getting a part-time job, taking up a new hobby, working on your mental health etc.)	

Section 3 – Identifying Needs

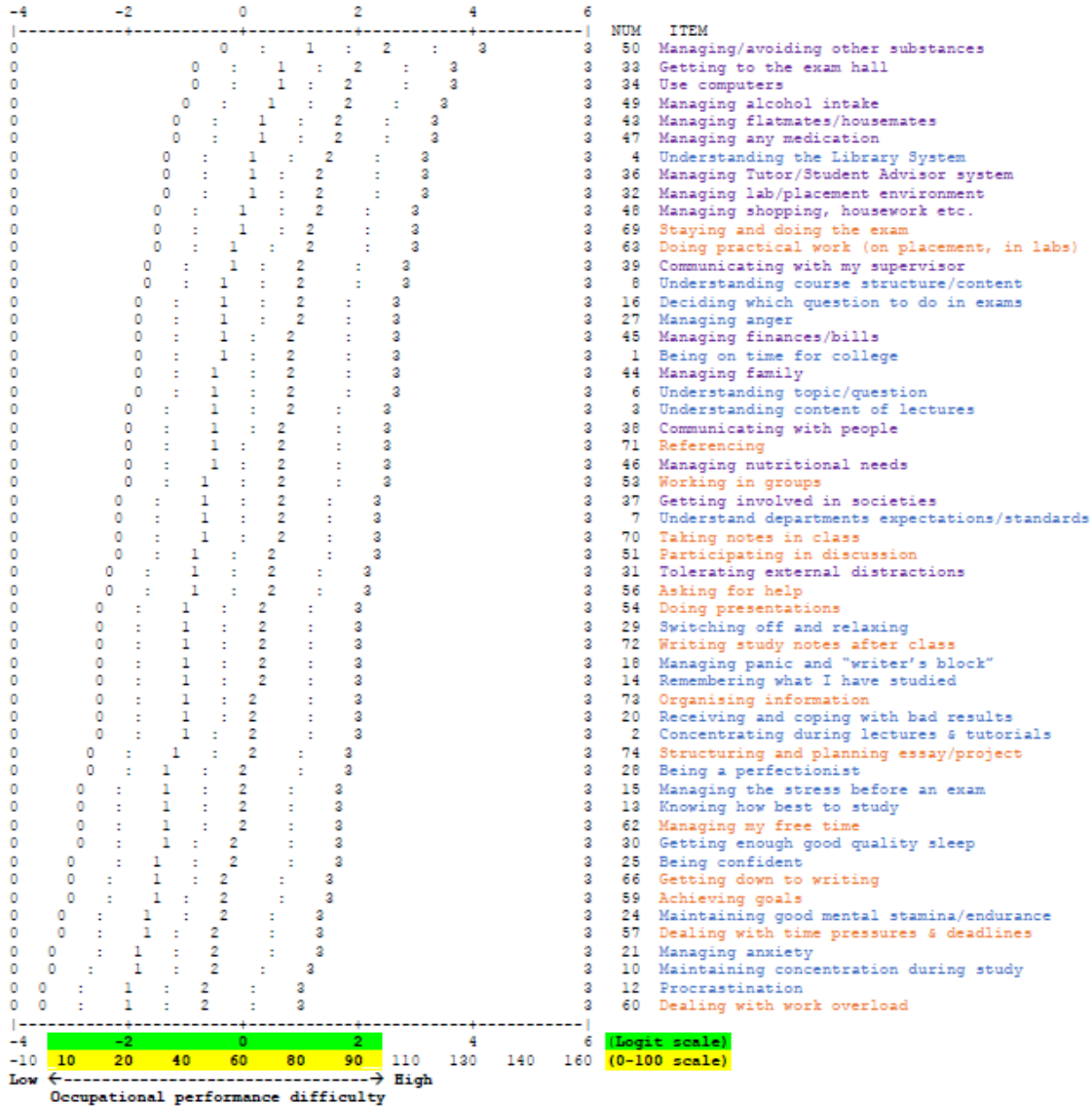
©Copyright Nolan C. (2011, 2014); Lombard, K., Nolan C., & Heron E. (2021, 2022)	Items (54 total)	Level of Difficulty 0 = No difficulty 1 = Some difficulty 2 = Moderate difficulty 3 = Extreme difficulty NA = Not applicable	Level of Priority to work on in OT 0 = Not a priority to work on in OT 1 = Low priority to work on in OT 2 = High priority to work on in OT NA = Not applicable	Please explain your answer
Person	Being on time for College (lectures, labs etc.)			
	Concentrating during lectures and tutorials			
	Understanding the content of lectures			
	Understanding the Library System			
	Understanding topic / question			
	Understanding your departments expectations/standards (eg. Length, style etc)			
	Understanding the course structure and content			
	Maintaining concentration during study			
	Procrastination			
	Knowing how best to study			
	Remembering what I have studied			
	Managing the stress before an exam			
	Deciding which question to do in exams			
	Managing panic and "writer's block"			
	Receiving and coping with bad results			
	Managing anxiety			
	Maintaining good mental stamina/endurance			
	Being Confident			
	Managing anger			
	Being a perfectionist			
Switching off and relaxing				

	Getting enough good quality sleep			
Environment	Tolerating external distractions e.g. noise, light			
	Managing lab / placement environments			
	Getting to the exam hall			
	Using Computers			
	Managing Tutor system/Student Advisor system			
	Getting involved in societies			
	Communicating with people			
	Communicating with my supervisor			
	Managing flatmates/housemates			
	Managing family			
	Managing finances/bills			
	Managing nutritional needs			
	Managing any medication			
	Managing shopping, housework etc			
	Managing alcohol intake			
	Managing / avoiding other substances			
Occupation	Participating in discussion			
	Working in groups			
	Doing presentations			
	Asking for help			
	Dealing with time pressures and deadlines			
	Achieving goals			
	Dealing with work overload			
	Managing my free time			
	Doing practical work (i.e. on placement, in labs)			
	Getting down to writing			
	Staying and doing the exam			
	Taking notes in class			
	Referencing			
	Writing study notes after class			
	Organising information			
	Structuring and planning the essay or project			

Appendix 3 - Trinity Student Occupational Performance Profile (TSOPP) Keyform

Print this page and circle the answers a student has provided for each item in 'Section 3 - Identifying Needs'. Draw a line of best fit through the circles towards the highlighted lines to estimated level of occupational performance difficulty (in logits and on a converted 0-100 metric).

Rating scale: 0 = No difficulty; 1 = Some difficulty; 2 = Moderate difficulty; 3 = Extreme difficulty; NA = Not applicable (not circled)



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