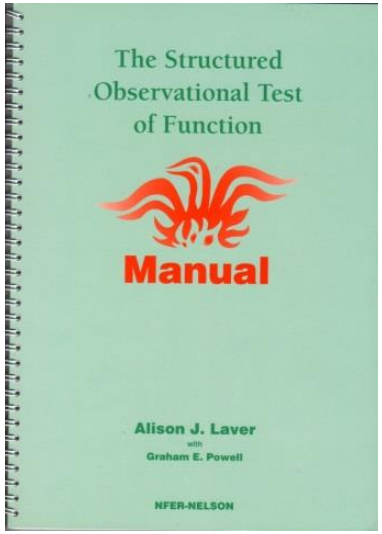
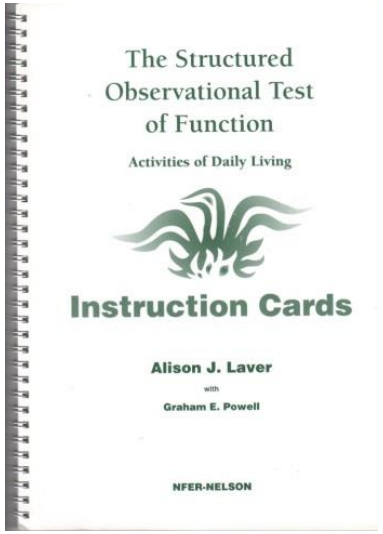
Introduction to the Structured Observational Test of Function (SOTOF)

2nd edition

Prof. Alison Laver-Fawcett

Est. 1841 | YORK ST JOHN UNIVERSITY





Timings

9.30 - 11.00:	Session 1: background to SOTOF
11.00 – 11.20:	Mid-morning break
11.20-12.30:	Session 2: How to administer
12.30 - 1.30:	Lunch
1.30 - 3.00:	Session 3: Practice role play
3.00 - 3.20:	Mid-afternoon Break
3.20 - 4.15:	Session 4: Practice continued
4.15 - 4.30:	Questions and feedback

Format of session

Introduction to the SOTOF: purpose, uses, dynamic assessment, impact

How to administer and score the SOTOF

Additional slides for information:
Evidence base underpinning SOTOF 1st and 2nd editions

Please interrupt with your comments or questions

SOTOF references

Original reference

- Laver AJ, Powell GE (1995) **The Structured Observational test of Function (SOTOF).** Windsor: NFER-Nelson

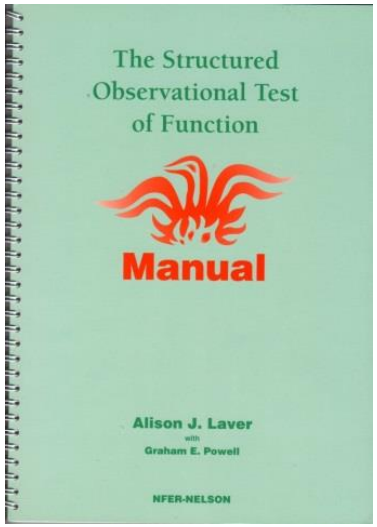
2nd edition

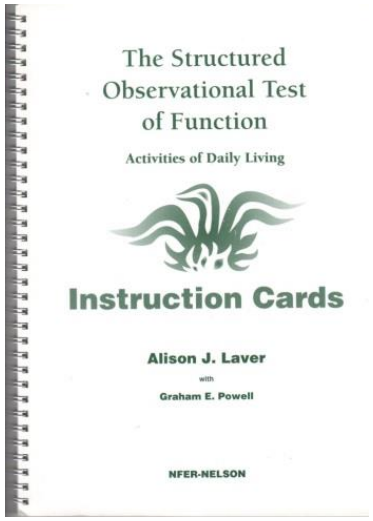
- Laver-Fawcett AJ, Marrison, E (2016) **Structured Observational test of Function (SOTOF). 2nd edition**. York: York St John University

How to get a copy:

- Please contact Alison at: a.laverfawcett@yorksj.ac.uk

Introduction to the SOTOF





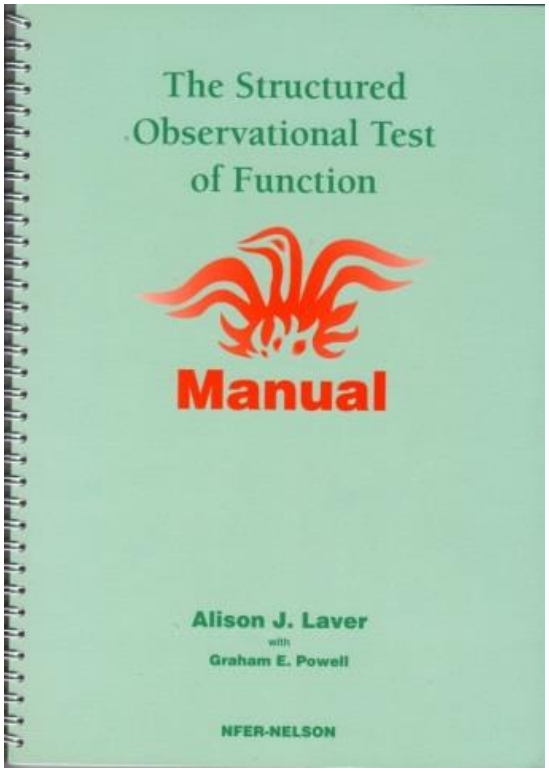
Introduction to SOTOF

- The Structured Observational Test of Function is a standardised occupational therapy assessment (Laver and Powell, 1995) with a formalised dynamic element (Laver-Fawcett and Marrison, 2016)

- Enables the occupational therapist to assess the patient's performance in activities of daily living gathering information on:

- Perception
- Cognition
- Sensory function
- Motor function

SOTOF - introduction



- Developed for use with older adults (age 60 years and above) with possible neurological disturbance.
- This includes people with stroke, head injury, Parkinson's disease and / or dementia
- It is a descriptive assessment, but can be used to evaluate changes in function over time.
- The 2nd edition enhances the dynamic assessment element of SOTOF which may be useful for predictive assessment – a predictive validity study is required to test this.

Structured Observational test of Function (SOTOF)

- A structured assessment tool used in OT practice that uses elements of a dynamic (“interactive”) approach to assess ADL skills
- Developed to provide a detailed description of functional status and associated neuropsychological deficits within a structured evaluation of ADL
- Aims to evaluate performance of activities of daily living and provides detailed information on neurological function.

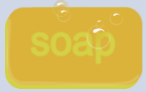
SOTOF addresses 4 assessment questions

- **How** does the person perform ADL tasks – independently or with intervention? **(if so what?)**
- **What** skill components does the person have **that are intact** and which areas have been affected by neurological impairment?
- **Which** perceptual, cognitive, motor and sensory performance components have been affected?
- **Why** is function impaired? Generates **hypotheses** for further assessment and intervention.

The assessment domains and items covered by the Structured Observational test of Function (SOTOF)

Note: Figure adapted from Laver (1994) PhD thesis "The development of the Structured Observational test of Function (SOTOF) p. 191

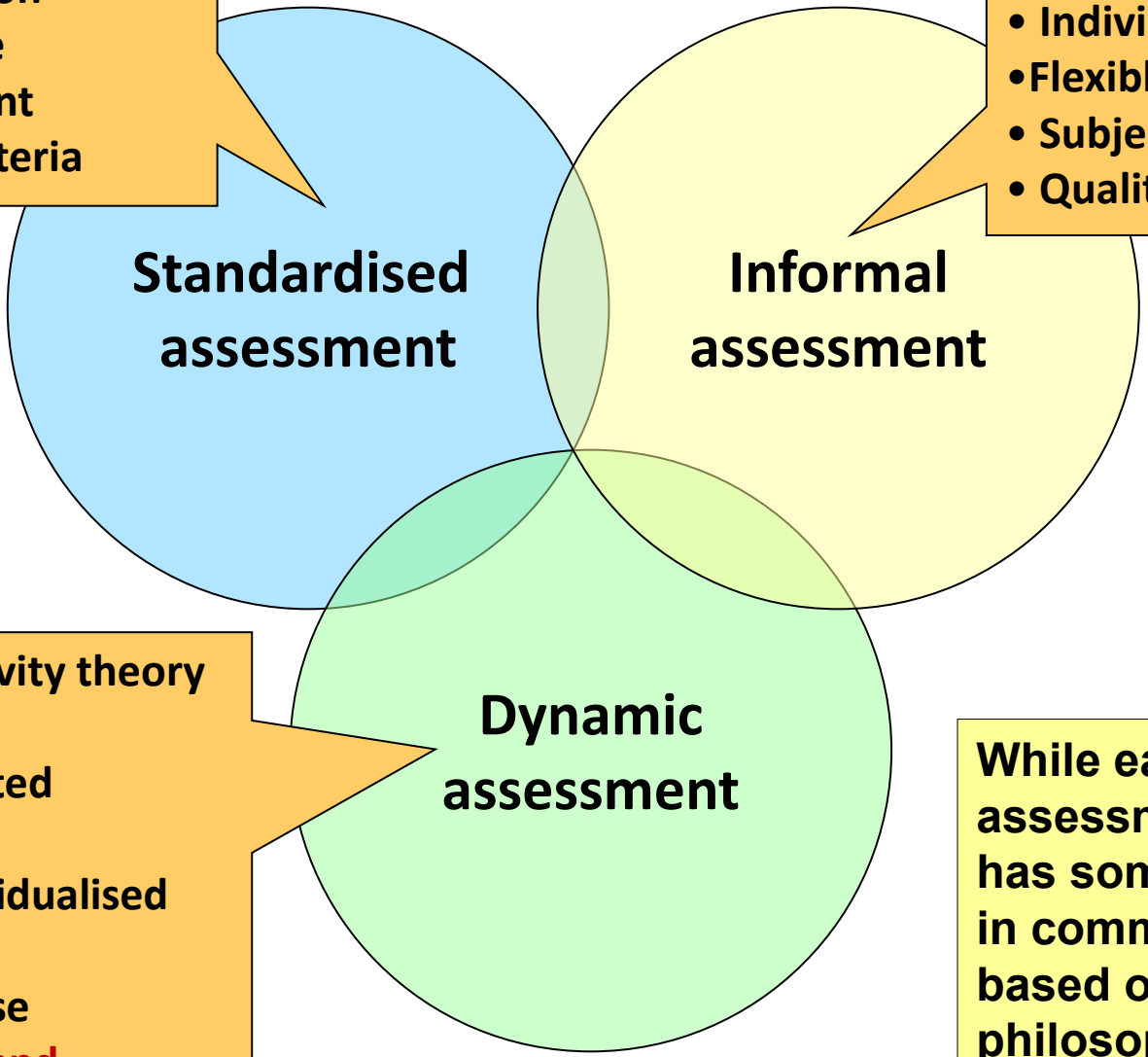
Level of function / dysfunction	**DISABILITY**	**FUNCTIONAL LIMITATION**	**IMPAIRMENT**	**PATHOPHYSIOLOGY**
Definition of level	Inability or limitation in performing socially defined activities and roles within a social and physical environment resulting from internal or external factors and their interplay.	Restriction or lack of ability to perform an action or activity in the manner or range considered normal that results from impairment.	Loss and / or abnormality or mental, emotional, physiological, or anatomical structure or function; including secondary losses and pain.	Interruption or interference of normal physiological and developmental processes or structures.
SOTOF assessment question	*HOW ?*	*WHAT?*	*WHICH?*	*WHY?*
SOTOF assessment domain	Occupational performance	Specific skill or ability, task sub-components	Performance Components	Neurological deficit
SOTOF specific assessment areas	Personal activities of daily living (ADL) – four basic tasks: • Feeding • Washing • Drinking • Dressing	Examples of skill sub-component include: • Reaching • Scanning • Sequencing • Naming	Performance components assessed include: • Perceptual • Cognitive • Motor • Sensory	Example deficits assessed include: • Apraxia • Dysphasia • Agnosia • Spaciticity

Sub-test	Furniture	• Equipment	• Materials & (consumables)
Screening Assessment	Table and 2 chairs	• Cup Pen	• None required
Eating task	Table and 2 chairs  	• Bowl • Non-slip mat • Spoon	• Food  
Washing task	Table and 2 chairs  	• Washing bowl • Hand towel • Non-slip mat	• Warm water to ¾ fill washing bowl • Soap 
Pouring and Drinking task	Table and 2 chairs  	• Jug • Cup • Non-slip mat	• Cold drink to ½ fill jug 
Dressing task	Table, chair for tester, bed, plinth or chair for client.  	• Front fastening (buttons or zip) long-sleeved garment such as a shirt, blouse, cardigan or jacket of suitable size and type for client. • Large bright coloured button.	• None required 

Reminder

Assessment paradigms

- Positivist
- Non individualised
- Static function
- Quantitative
- Measurement normative/criteria



- Humanistic
- Individualised
- Flexible
- Subjective
- Qualitative

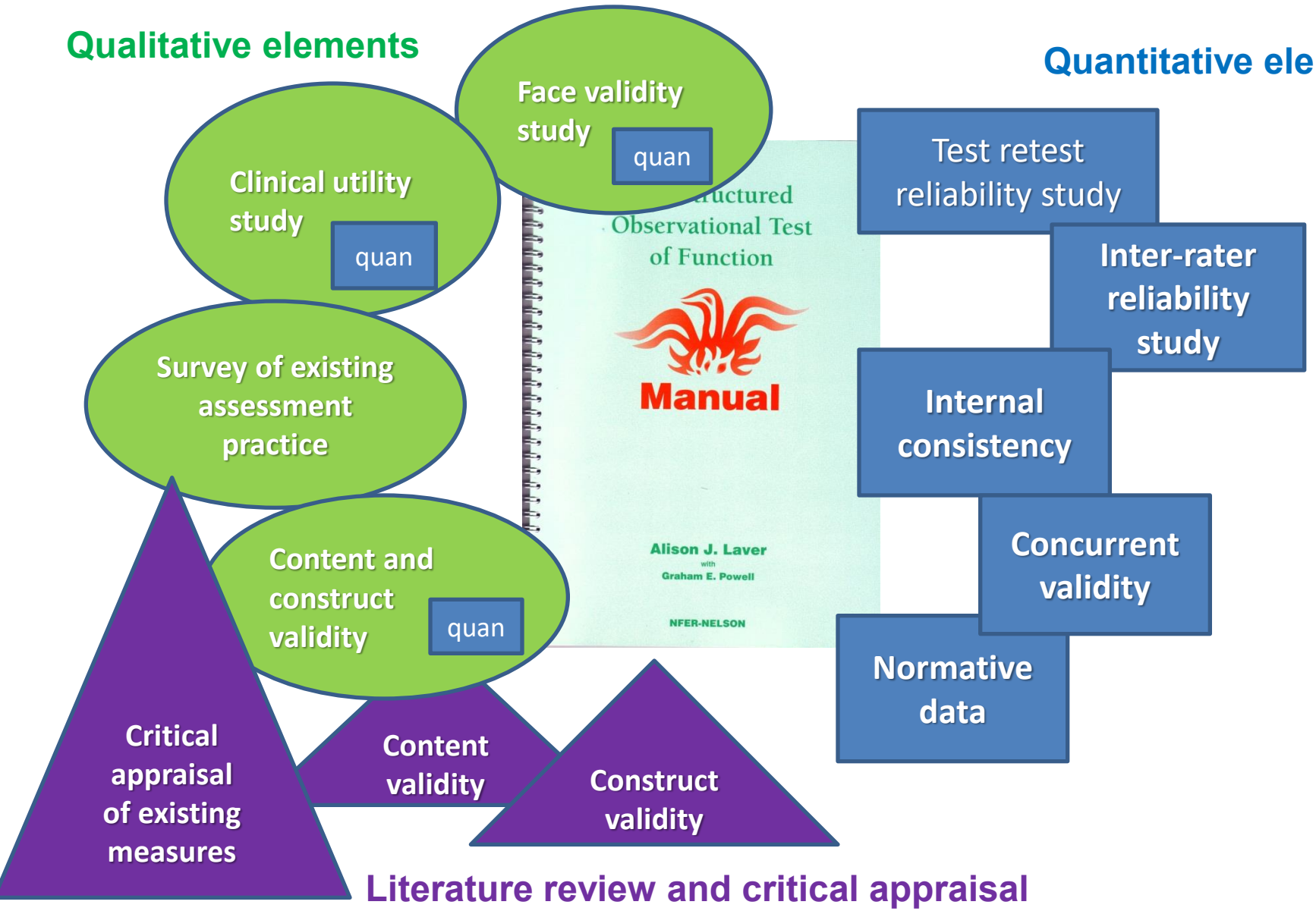
- Based on Activity theory (Vygotsky)
- Process oriented
- Transactional
- Flexible/individualised
- Measures change/response
- Quantitative and qualitative

While each assessment model has some attributes in common they are based on different philosophies and scientific paradigms

Background to the development of SOTOF

- I started developing the SOTOF in 1989 as I was frustrated by the limitations in both informal assessment and standardised tests available at that time – initial ideas emerged during a 1 week residential course on Standardised assessment.
- It became the focus of my MPhil/PhD studies
- It took 5 years of research to do this initial development work 1990 – 1995
- SOTOF was published in 1995

SOTOF – test development



SOTOF involves

Diagnostic reasoning

Dynamic assessment

Hypothesis generation

Diagnostic reasoning

- ‘In, in occupational therapy, diagnostic reasoning “is applied to profession-specific concepts… such as occupational performance [and] as diagnosticians, therapists seek to learn about a patient's functional performance and to describe it so that intervention can be initiated’
(Rogers and Holm, 1989a, p. 8-9)

Diagnostic reasoning

- Diagnostic reasoning involves the creating a clinical image of the person through cue acquisition, hypothesis generation, cue interpretation and hypothesis evaluation (Rogers & Holm, 1991)
- Diagnostic reasoning ‘is concerned with clinical problem sensing and problem definition’ (Schell, 1998, p. 93).
- Diagnostic reasoning ‘is applied to profession-specific concepts… such as occupational performance’ and ‘as diagnosticians, therapists seek to learn about a patient's functional performance and to describe it so that intervention can be initiated’
  - (Rogers and Holm, 1989, p. 8-9).

OT hypotheses

- A **hypothesis** has been defined as a tentative explanation of the cause(s) of observed dysfunction
  (Rogers & Holm, 1991)

- The delineation of the problem as a hypothesis involves the acquisition and interpretation of cues drawn from the assessment data.

Hypothesis testing

‘It is a structured procedure involving the process of generating and testing hypotheses during the assessment.’

(Missiuna,1987)

Hypothesis testing

‘This process is not a **haphazard re-administration of items** using a hodgepodge of modified procedures. The therapist must make some **initial hypotheses** concerning the cognitive capacity the child might be able to demonstrate with appropriate adult support’

(Greenberg Lyons, 1984 p. 446-451)

What is Dynamic Assessment?

‘Dynamic assessment is an **interactive procedure** that **systematically and objectively** measures the degree of change that occurs in response to **cues, strategies, feedback, or task conditions** that are introduced during testing’

(Toglia, 2009)

Study to enhance the dynamic assessment component

Eden Marrison was a 3rd year BHSc(Hons) Occupational Therapy student who collaborated in this study for her final year project (2015-16).

Aim: to contribute to the improvement of the dynamic aspect of the SOTOF

Objectives

- To critically evaluate how the dynamic concept is used within occupational therapy practice and other assessments.
- To develop an additional part to the SOTOF record form for cues/prompts section, to develop examples in the instruction cards and add a section in the SOTOF manual to explain how the dynamic element is assessed and reported.

Study to enhance the dynamic aspect of the SOTOF: Eden Marrison (2016)

- Given the advances in dynamic assessments and the appreciation of the value of dynamic assessment for occupational therapy practice since the SOTOF was developed, this study aimed to contribute to the improvement of the dynamic aspect of the SOTOF.
- The project was a test-development study.

What are dynamic assessments?

- Dynamic assessments focus on the process and how performance can improve due to some form of guidance (Hadas-Lidor, Weiss & Kozulin 2011)

- Dynamic assessments allows the clinician to focus on individual variations, changes and barriers to performance and explore how individuals can improve their performance with some form of guidance instead of focusing on normative data and typical performance

(Toglia and Cermak, 2009; Cotrus and Stanciu, 2014)

What are dynamic assessments?

- Dynamic assessments can provide occupational therapists with information to guide their intervention planning and to set realistic goals *(Katz et al., 2012a; Toglia, 2011)*

- Dynamic assessments view cognition as modifiable, they provide a direct link to intervention and are flexible and person-centred *(Toglia, 2011)*

What is Dynamic Assessment?

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What is Dynamic Assessment?

- 'Dynamic assessment is a **non traditional** approach to evaluation that **uses cues, mediation, feedback, or alterations of activity demands** during assessment to examine changes in performance.
- Unlike standardised assessments the focus is not on the **outcome** of performance but on the **process** of learning and change'

(Toglia, Golisz & Goverover, 2009)

- *Missiuna (1987)* Contrasts dynamic assessment with traditional assessment models: i.e. standardised and informal.
- Primary distinction lies in the **purpose** of the assessment
- 'dynamic assessment is a **model** of clinical assessment which emphasises how and why an individual learns a task or skill rather than **the more traditional assessment of what he has already learned'** *(p18)*

- ‘In contrast to static assessment, dynamic assessment **focuses on individual variations and changes rather than on comparison to normative or typical performance.**
- The goal is to measure how and to what extent performance can improve with guidance’.

(Toglia, 2009)

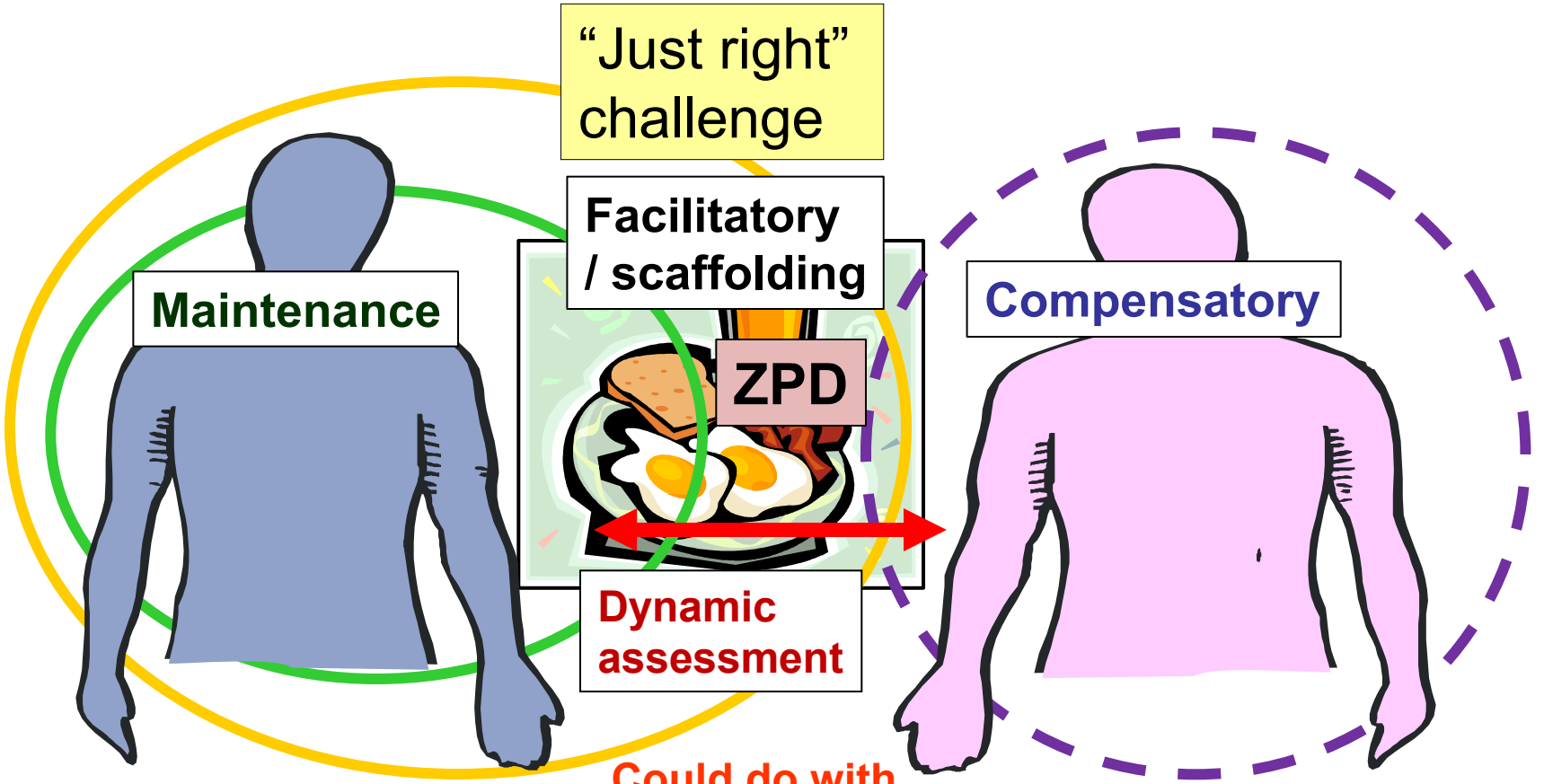
- Dynamic Assessment ‘differs from informal assessment in that **a systematic process is utilised** to determine an individuals characteristic **process** and behavioural functioning’.
- Role of therapist also differs – instead of adopting a neutral role ‘**the assessor becomes an active mediator** aiming to provide the best conditions for task success’.

(Missiuna, 1987)

- ‘Intervention techniques are **embedded** within assessment procedures in a deliberate effort to produce changes in performance that are **systematically observed and measured’.**

(Toglia, 2009)

Zone of Proximal development - Mark



Current level of independent functioning e.g. hold spoon, recognise food

Could do with mediation e.g. short feeding motor sequence, Attention to task, perceive plate

What Mark cannot do even with help e.g. use knife, collect food, manage risks

Key points - Dynamic assessment is:

- An interactive, collaborative and transactional process
- Structured and systematic
- Includes intervention and facilitation
  - You can use cues and prompts or other mediational techniques
  - You can enable interactive problem solving through feedback and facilitated strategy use
  - You can adapt demands within the task environment
  - You can use motivational techniques
- Potential focussed – plasticity
- Good fit with occupational therapy and person centred approaches
  - Core skills - activity analysis and therapeutic use of self central
- Grounded in modern theories of cognition and skill development

SOTOF (2nd edition) Graduated prompt protocol

As adapted from EFPT (Baum and Wolf, 2013) and DLOCTA-G (Katz et al., 2011)

0	Independent	The person is independent completing the task. No prompting or assistance is required from the clinician.
1	General prompt	This could be a statement (Katz et al., 2011) e.g. 'take your time' or could be a general question e.g. 'what do you think is the next step?' or 'what else might you need to complete this task?' (Baum and Wolf, 2013 p.3). This is not an action or telling the person what to do.
2	Gestural Cue	This could be miming the action that is required to complete the particular task or a movement that may guide the participant. This may include pointing to where they might find an item or pointing to equipment they may need to complete the task (Baum and Wolf, 2013).
3	Specific feedback/cue	This is a verbal cue. It may be feedback (Katz et al., 2011) such as 'there is a mistake, can you try and correct it' or a command such as 'pick up the cup' (Baum and Wolf, 2013 p.3).
4	Physical assistance / Co-active assistance/ modifications	This clinician physically supports the person to complete an action, e.g. hold the shirt whilst the person puts his / her first arm in the sleeve (Baum and Wolf, 2013). The clinician reduces the amount of stimuli or modifies the environment to reduce the task demand (e.g. changing the physical environment; Katz et al., 2011). The clinician may also do the action in order for the person to copy (Katz et al., 2011). The person should still be attending to the task (Baum and Wolf, 2013). The clinician physically guides the movement but allowing the person to lead and withdraws the physical assistance if the person takes over the movement (Sanderson and Gitsham, 1991).
5	Do for the person	The person is unable to complete the task so the clinician completes the task, or the part of the task, for the person.

What is Research impact?

- **‘Impact is defined as an effect on, change or benefit to the economy, society, culture, public policy or services, health, the environment or quality of life, beyond academia’**

- Research England, Research Evaluation Framework (REF) (2018)

SOTOF

Impact study aim and methods

ACS | UK

- **Aim:** To evaluate the implementation, impact and clinical usefulness of the ACS-UK and the SOTOF on the clinical practice of occupational therapists working with older people
- **Methods:** The study used a mixed methods design.
- Implementation of ACS-UK and SOTOF in two NHS Trusts was evaluated by 9 occupational therapists providing feedback through: interview (n = 1); focus group (n = 5); and online survey (n = 3). (Ethical was obtained from my University and governance approval from each NHS Trust).
- Evidence obtained from an MSc by Research study (Marrison, 2020) which examined the implementation, face validity and content validity of SOTOF on a stroke rehabilitation ward in another Trust. Data collections methods: 10 interviews with patients with stroke; focus group with 11 staff in a multidisciplinary team (MDT); and from another 8 MDT staff via an online-survey.
- **Further evidence**: feedback following training workshops; literature review; emailed feedback; and testimonial letters.
- **Data analysis:** interviews, focus group and workshop feedback qualitative data was transcribed verbatim. Content analysis was undertaken by question.

Pathways to impact: SOTOF and ACS-UK

- SOTOF and ACS-UK have been disseminated via:
  - Publications
  - Twitter
  - workshops delivered at YSJU and NHS Trusts
  - Conference presentations at national and European conferences and the OT Show
  - invited teaching e.g., in Austria, Belgium, Bangladesh and Singapore
  - Students introducing assessments on placements
- SOTOF requests from OTs in Australia, Austria, Belgium, Canada, Lithuania, New Zealand, Poland, Philippines, Singapore, Turkey, UK and USA

Impact of SOTOF: views of people with stroke

SOTOF

People with stroke reported doing the SOTOF was useful, interesting, and they learnt from doing it.

Following a stroke, reduced insight into functional problems can hamper people's engagement in rehabilitation, and stroke patients gained insight into their functional problems and abilities through doing SOTOF.

- One person commented: "*I was shocked actually…I thought I could do a lot more than that…I didn't follow them* [SOTOF instructions] *as straight as I thought I would'* (Participant 8).

The impact of stroke can lead to low mood and it is important for patients to see progression and improvements, to maintain morale during rehabilitation, SOTOF demonstrated progress with their recovery to patients,

- for example: *'Simple everyday tasks become a problem...and pouring the drink* [SOTOF task 3] *felt as though they were coming back'* (Participant 6).

[feedback collected through semi-structured interviews with 10 patients; Marrison, 2020].

Impact of SOTOF: occupational therapists' views

SOTOF

- Feedback from occupational therapists who have attended SOTOF training workshops indicated SOTOF
- *'…help[s] me identify patients' rehab. potential and to support my clinical reasoning and be more person-centred';*
- SOTOF assists with *'…being able to track change and help with insight'* and provides *'more accurate assessment of strengths and deficits to plan … interventions'*

Marrison (2020) reported that the SOTOF identified a patient had right / left discrimination problems which had not been discovered in previously undertaken functional or cognitive assessments and stated if SOTOF had not be undertaken the deficit may have gone unnoticed.

SOTOF's impact: MDT focus group

SOTOF

SOTOF's ability to identify functional improvements was reported by staff for example:

- '*it was a good assessment really to show that they had moved on considerably from when they were first on the ward'.*

SOTOF was useful to inform treatment planning:

- '*The scores show so clearly… where their difficulties are. And then we could … get together a really good programme of treatment and therapy*'.

[stroke rehabilitation ward multi-disciplinary team's view of SOTOF collected via survey n=8 and focus group n=11; Marrison, 2020].

SOTOF's use in Belgium

SOTOF

- Following a request to translate the SOTOF into Dutch, a project to evaluate SOTOF's use in practice was undertaken at a hospital in Belgium (with 10 neurological patients) leading to plans to implement it further in practice.
- Identified SOTOF strengths included: the use of everyday objects and tasks recognised by patients; clear instructions; low cost of equipment; free assessment; that the therapist can use one test (instead of several tests); and administration can be spread over time (which helps when patients have fatigue).
- '*The dynamic element of the test provides extra information on learning or coaching style of patient,* [and] *effective cues…*'

What do others say about SOTOF?

SOTOF is recognised as a useful assessment of body function and structure for occupational therapists specifically within neurology and for older people

(College of Occupational Therapists, 2003; 2004; Clarke et al., 2001)

Examples of SOTOF citations

College of Occupational Therapists (COT) (2004) Guidance on the use of the International Classification of Functioning, Disability and Health (ICF) and the Ottawa Charter for Health Promotion in occupational therapy services. London: COT

- *Page 30, Table 5: Common outcome measures categories within an ICF framework. Cites SOTOF as an assessment of body function / structure.*

College of Occupational Therapists (COT) (2003) Occupational Therapy defined as a complex intervention. London: COT

- *Page 40, cites SOTOF as an example of a standardised assessment tool used by occupational therapists*

Examples of SOTOF critiques

Clarke C, Sealey-Lapes C, Kotsch l (2001) Outcome measures: information pack for occupational therapy. London: College of Occupational Therapists

- *Page 98 gives half page entry gives brief summary of SOTOF*
- *Page 112 cited as a measure for neurology*
- *Page 113 cited as a measure for older people*

Asher I E (1996) Occupational Therapy Assessment Tools: An Annotated Index. 2nd edition. Bethesda, Maryland: American Occupational Therapy Association.

- *Critique of SOTOF*

Law M (1997) Self Care (Chp. 16) In J Van Deusen & D Brunt (eds) Assessment in Occupational Therapy and Physical Therapy. London: W B Saunders Company

- *Page 431 critique of SOTOF*

(Letts and Bosch, 2001; *p. 154-155, Table 10-17*)

- Provided an in-depth critique of the SOTOF
- They highlighted the strong link to occupational therapy theory and clinical reasoning processes, its usefulness for use with adult clients with neurological impairments and its ability to evaluate activities of daily living skills.
- It is stated that the SOTOF is not particularly useful if the clinician wanted to cover all areas of activities of daily living as the four tasks within the SOTOF are standardised.
- They highlighted that responsiveness to change has not yet been examined.

SOTOF Review by Douglas, Letts and Liu (2007)

SOTOF review on page 35, Table 4

Measure: Structured Observational Test of Function (SOTOF) (Laver & Powell, 1995)

Construction/ Administration Time:

- Consists of a Screening Assessment (vision, balance etc), followed by 4 ADL tasks (eating, washing hands, pouring and drinking, and dressing).
- Purchase required.

Scoring / Standardization

- Time: impaired clients may take 5–10 minutes for each task
- Checklist completed: independence in performance, intact skills, performance problems and underlying dysfunction (e.g., agnosia).
- Norm: Control: n = 86, age 60–97

SOTOF Review by Douglas, Letts and Liu (2007)

Reliability

- Test–retest: adequate
- Interrater: adequate
- Internal consistency: adequate

Validity

- Overall: Adequate.
- Criterion (concurrent): 1 study showed agreement with 5 measures. Criterion
- (predictive) authors stated predictive due to higher relationship with measures of ADL than neuropsychological function

Overall Comments

- Good. Low cost and training requirements, but this is balanced by poorer findings for reliability. Can be used as an initial screening test due to shorter administration time, and can be used before the client is able to mobilize.

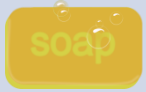
Any Questions?

How to administer and score SOTOF (2nd edition)

(Laver-Fawcett and Marrison, 2016)

Administering the SOTOF

- Screening test
- 4 subtests with an instruction card for each
  - 4 ADL subtasks and related a Neuropsychological checklist
- Assessor observes person performing task (using familiar equipment/setting if possible) and asks questions about the tasks
- Instruction cards guide assessment and provide **additional prompts and cues** to gain more information
  - e.g. **ASK**: "What can you see on the table?", **ASK**: "Which is the jug, mug, cup?" **INSTRUCT**: "Put the cup on the table to the left of the jug".
- Takes 10-15 minutes to complete (for normative sample)

Sub-test	Furniture	• Equipment	• Materials & (consumables)
Screening Assessment	Table and 2 chairs	• Cup Pen	• None required
Eating task	Table and 2 chairs  	• Bowl • Non-slip mat • Spoon	• Food  
Washing task	Table and 2 chairs  	• Washing bowl • Hand towel • Non-slip mat	• Warm water to ¾ fill washing bowl • Soap 
Pouring and Drinking task	Table and 2 chairs  	• Jug • Cup • Non-slip mat	• Cold drink to ½ fill jug 
Dressing task	Table, chair for tester, bed, plinth or chair for client.  	• Front fastening (buttons or zip) long-sleeved garment such as a shirt, blouse, cardigan or jacket of suitable size and type for client. • Large bright coloured button.	• None required 

Before each SOTOF task and the screen read the instructions for the equipment and materials needed and how to set up for the assessments

TASK 1: Eating from a bowl using a spoon

Task 1: Eating from a bowl using a spoon

Equipment: Table, chair, bowl, spoon, non-slip mat. Chose items in a range of different colours.

Materials: chosen food (e.g. piece of fruit in juice, cereal in milk, mince in gravy)

Set up: The person should be seated at a table on a chair that is the correct height for the person and which provides the appropriate level of support.

Place an empty bowl on a non-slip mat approximately 4 inches from the edge of the table, in line with the person's mid-line. Note the hand used to hold the spoon for eating.

Important: Do not let the person see the spoon and keep it out of sight as this item is used to test for stereognosis in the first test item for this Task.

The food is added into the bowl by the assessor for item 12 of this task.

Instruction options EL or ED:

Instructions marked with code **(EL)** can be administered to people with expressive language in tact who are able to respond verbally.

Instructions with the code **(ED)** are for alternative instructions and assessment methods that can be used with people with expressive dysphasia or dysarthria.

All the instructions should be given using the EL instructions, unless a problem with expressive language or dysarthria was identified during the screening test, in which case follow and use the instructions marked ED.

SOTOF Screening assessment

Screening test used to assess if the client will be able to attempt the four SOTOF ADL tasks.

The client should be able to:

- Comprehend verbal, written or demonstrated instructions (use hearing aid if the client usually has this)
- See objects placed on a table up to 45 inches from the client in the mid-line of his/her visual field (glasses should be worn if client has these)
- Should have gross function use of one upper limb sufficient to lift and manipulate test materials
- Be able to sit upright in a chair for the anticipated duration of the test (support cushioning may be used to assist sitting balance)

SOTOF (2nd edition) Graduated mediation protocol

As adapted from EFPT (Baum and Wolf, 2013) and DLOCTA-G (Katz et al., 2011)

0	Independent	The person is independent completing the task. No prompting or assistance is required from the clinician.
1	General prompt	This could be a statement (Katz et al., 2011) e.g. 'take your time' or could be a general question e.g. 'what do you think is the next step?' or 'what else might you need to complete this task?' (Baum and Wolf, 2013 p.3). This is not an action or telling the person what to do.
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3	Specific feedback/cue	This is a verbal cue. It may be feedback (Katz et al., 2011) such as 'there is a mistake, can you try and correct it' or a command such as 'pick up the cup' (Baum and Wolf, 2013 p.3).
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5	Do for the person	The person is unable to complete the task so the clinician completes the task, or the part of the task, for the person.

Example of Instruction card format

	Task 1: Eating (continued) Task and instruction	Possible area of deficit	Graduated mediation protocol examples	Further suggested assessment
13	**Note** if person: • Places spoon in bowl • Judges distance from spoon to bowl • Puts food on spoon	• Spatial relations: depth and distance • Figure-ground discrimination • Motor deficit • Apraxia	1. General verbal cue: ***'What is the next step now the spoon is in the bowl?'*** 2. Gestural Cue: Mime the action required. Point to the bowl and ask the client to put food on the spoon. 3. Specific feedback: ***'Scoop some of the food from the bowl onto the spoon'.*** 4. Physical Assistance/modifications: Support the person's hand to scoop food on to the spoon but allow him / her to lead the movement.	Note: if the person moves spoon directly to bowl or needs several attempts to judge the distance. Note: the quality of movement (e.g. jerky, smooth).
14	**Note** if person: • Lifts spoon to mouth	• Body scheme • Spatial relations: depth and distance • Motor deficit • Apraxia	1. General verbal cue: ***'Now the food is on the spoon what do you need to do to eat the food?'*** 2. Gestural Cue: Mime the action. 3. Specific feedback: ***'Use your hand to bring the spoon to your mouth so you can eat the food'.*** 4. Physical Assistance: Support the clients hand but allow the client to lead the movement.	Test identification of body parts through the identification of body parts on command, copying tester touching body parts, and naming body parts.
15	**Note** if person: • Takes food into mouth.	• Sensory deficit: proprioception • Sensory deficit: touch • Body scheme	1. General verbal cue: ***'Now the spoon is at your mouth, what do you need to do to eat the food off the spoon?'*** 2. Gestural Cue: Mime the action. 3. Specific feedback: ***'Open your mouth to put the spoon inside to eat the food'.*** 4. Physical Assistance/modifications: Support the person's hand to touch the spoon lightly on his / her bottom lip	Assess sensation: touch, deep pressure, pain, and temperature of face, lips and tongue. Assess proprioception.

SOTOF (2nd edition): Task 1 Eating revised instruction cards

Standardised instructions for administration

To aid diagnostic reasoning you also have suggestions for possible areas of deficit linked to each test item

Graduated prompt protocol specific test item examples

Suggestions for further prompts, cues and assessment

	TASK 1: Eating Task and instruction	Possible area of deficit	Graduated prompt protocol examples	Further suggested assessment
2.	(EL) Ask: 'What can you see on the table?' (ED) Ask: 'Which is the… bowl, mat, spoon?' Note if person: • Scans table for objects; • Fixes gaze on objects; • Recognizes objects by (EL) naming of (ED) pointing.	• Visual scanning • Visual field loss • Visual attention • Visual agnosia • Figure-ground discrimination	1. General prompt: 'Have a good look around the table'. 2. Gestural Cue: Point to an area of the table they have missed. 3. Specific feedback/cue: 'You have not named all the items…have another look'. 4. Physical Assistance/ modifications: Move the objects around the table/ in front of the person.	Assess for visual field loss, such as hemianopia. Assess visual fixation: point to an object and ask the client to look at the object for five seconds. (EL) Ask the person to describe what she can see.

COLUMN A	COLUMN B	COLUMN C	COLUMN D
Screening Assessment Task and instruction **(Standardised assessment phase)**	Possible area of deficit **(Aids hypothesis generation)**	Graduated mediation protocol examples **(Dynamic assessment phase)**	Further suggested assessment **(To aid diagnostic reasoning and test hypotheses further)**
(EL) Ask: 'What is your name?'	• Hearing • Language comprehension and/or expression • Orientation	1. General verbal cue: 'Can you tell me your name out loud?' 'What are you called?' 2. Gestural Cue: N/A 3. Specific feedback: 'My name is … What is your name?' 4. Physical Assistance/modifications: N/A	Check if client uses hearing aid. Test hearing, e.g. Free field hearing test. Test comprehension / expression. Test orientation, e.g. CAPE
Start by following the instructions in column A to administer the standardised element of the SOTOF. Instructions in italics tell you what to say. Note whether the person is able or unable to perform this test item following this instruction. If Able – move to the next item below in column A If Unable - move to column B →	This column advises you of the more common reasons a person may have been unable to successfully complete the item. It is helpful to have these possible areas of deficit in mind for the dynamic assessment element. Now move to column C →	This column gives you example instructions for administering the dynamic assessment for this SOTOF test item. Suggestions for mediation for levels 1 - 4 are provided. Start at level 1. Give 2 instructions at each level before moving to the next level. If the person responds note the level of mediation that was successful. Then go to the next item below in column A ← If they do not respond to any mediation, do the item for the person. Now move to column D for further ideas →	This column provides suggestions for further assessments and / or other things to observe and note down. This information can be useful when completing the SOTOF Scoring form and deciding if any further assessment is required. Then go to the next item below in column A ←

Instructions for applying the graduated mediation protocol

- The clinician should provide the prompts/cues in order of the graduated mediation protocol starting at level one before moving to the next higher level.
- The clinician should allow the person time before intervening with further mediation (Baum and Wolf, 2013).
- We recommend providing two cues on each level of the graduated mediation protocol before moving to the next level of the graduated mediation protocol (Baum and Wolf, 2013) for at least the first task assessed.
- For subsequent tasks, if the therapist has established the person does not respond to a level of mediation (e.g. general prompt level 1), they may start mediation at the next level. This must be documented on the record form of the relevant task(s).
- The clinician must ensure the task is finished even if this requires the highest level of the graduated mediation protocol, 'do for the person' (Baum and Wolf, 2013). This is because it is an interactive procedure and will contribute to maintaining the motivation for both yourself and the client

(Laver-Fawcett and Marrison, 2016)

Instructions for applying the graduated mediation protocol

- When using the record form tick the highest level of the graduated prompt protocol carried out in each subtest to complete the task.
- In the summary section of each task the clinician should comment on the learning potential of the person and how effective the prompts / cues / modifications / assistance were.
- The clinician should also comment on which graduated prompt methods were the most effective for that individual, as this could inform future assessments and/or interventions.

Instructions for applying the graduated mediation protocol

- The higher the score the more assistance is required by the person. In order to complete the final scoring in the neuropsychological checklist the clinician should look down all the scores within each task and whichever sub-test item scores the highest on the graduated prompt protocol is the one recorded for that task.
- This is because somewhere within the task the person needed that level of assistance in order to be successful.
- Examples of prompts / cues /modifications / assistance for levels 1 to 4 for each sub-test item can be found in the third column of the SOTOF (2nd edition) Instruction Cards.
- Unless they are not applicable for that type of sub-test item, for example, if the person has their eyes closed to offer a gestural cue is not appropriate.
- As level four has a variety of different prompting options for the clinician to use, when completing the record form the specific type of prompt / cue / assistance / modification provided at this level should be noted on the form.

Scoring SOTOF – 7 step process

1. For each SOTOF test item decide if the person was able or unable to complete the test item.
2. For any items where the person was unable to perform the test item, use dynamic assessment to support diagnostic reasoning and help refine understanding of the underlying problem by applying the **Graduated mediation protocol.** Record which level in the graduated mediation 0-5 protocol was required for that item
3. Summarise your hypotheses and observations for the ADL task in the summary section of the form and note the person's learning potential and which prompting method/level was most effective for the client.
4. Add up the scores for each item and place the final score at the bottom of the task.

(repeat steps 1 -4 for each of the 4 ADL tasks)

5. Tick boxes on the neuropsychological checklist to indicate strengths and crosses for deficits.
6. Rate level of independence in the 4 ADL tasks using the 0-5 point scale
7. Put the total scores for each task on the front page of the record form and calculate the percentages

1. For each SOTOF test item decide if the person was able or unable to complete the test item.

Record Form Task 1: Eating from a Bowl with a spoon

Structured Observational Test of Function (SOTOF) 2nd edition

Record Form Task 1: Eating

Key: (EL) items can be administered to clients with expressive language

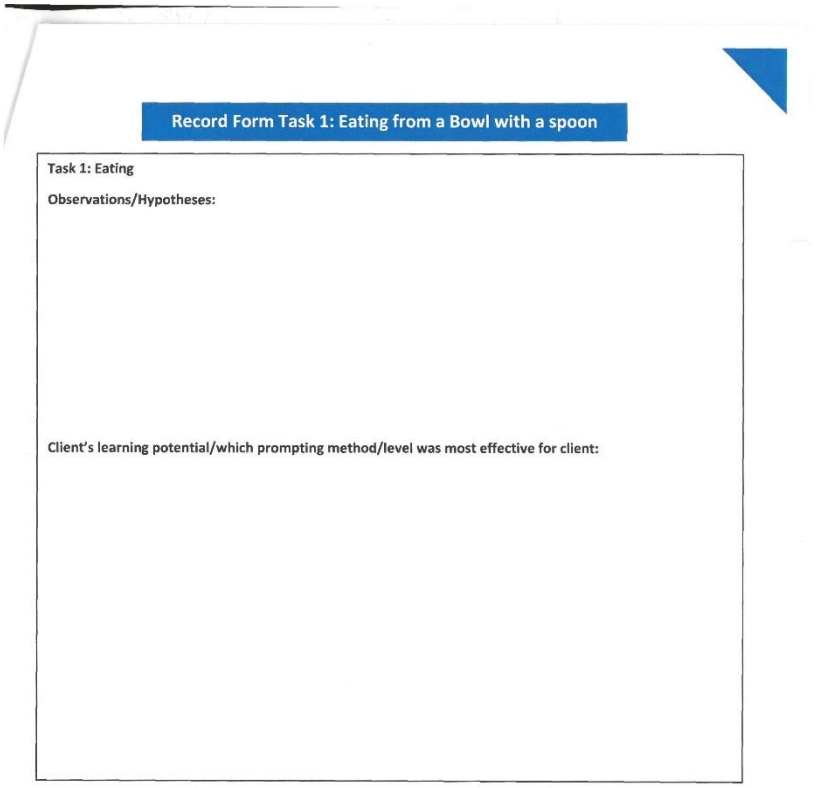
(ED) items provide alternative assessment methods for clients with expressive dysphasia

Tester's name:	Alison laver-Fawcett	**Date:**	3.6.2019
Dominant hand:	☑ Right ☐ Left	**Hand used for spoon:**	☑ Right ☐ Left

	Item	Able	Unable	Level of mediation required	Hypotheses, further assessments required, comments
1	Identifies spoon th...	☑ Right ☐ Left	☐ Right ☑ Left	0. Independent ☑ 1. General prompt ☐ 2. Gestural cue ☐ 3. Specific feedback/cue ☐ 4. Physical assistance ☐ 5. Do for client ☐	Tested left 1st. Able with right hand
2	Scans table for objects.	✓		0. Independent ☑ 1. General prompt ☐ 2. Gestural cue ☐ 3. Specific feedback/cue ☐ 4. Physical assistance ☐ 5. Do for client ☐	
2	Fixes gaze on objects.		✓	0. Independent ☐ 1. General prompt ☐ 2. Gestural cue ☑ 3. Specific feedback/cue ☐ 4. Physical assistance ☐ 5. Do for client ☐	
2	Recognises objects by (EL) naming or (ED) pointing.	✓		0. Independent ☑ 1. General prompt ☐ 2. Gestural cue ☐ 3. Specific feedback/cue ☐ 4. Physical assistance ☐ 5. Do for client ☐	
3	Put spoon on table on right of bowl		✓	0. Independent ☐ 1. General prompt ☐ 2. Gestural cue ☐ 3. Specific feedback/cue ☑ 4. Physical assistance ☐ 5. Do for client ☐	

2. Record which level in the graduated mediation 0-5 protocol was required for that item

Summary section on SOTOF (2nd edition) forms



Record Form Task 1: Eating from a Bowl with a spoon

Task 1: Eating

Observations/Hypotheses:

Client's learning potential/which prompting method/level was most effective for client:

Structured Observational Test of Function (SOTOF) 2nd edition

Neuropsychological Checklist and summary scores

Client's name:	
Tester's name:	**Date of testing:**
Diagnosis:	

To score: Place ticks in the boxes that correspond to the deficits you feel are indicated by the client's performance and the tasks in which the indicative performance was observed. Look down the left-hand column for deficit(s) and across the columns at the top for tasks.

DEFICIT	SCREENING ASSESSMENT	EATING TASK 1	WASHING TASK 2	POURING AND DRINKING TASK 3	DRESSING TASK 4
LANGUAGE					
Comprehension					
Expression					
HEARING					
Hearing acuity					
Auditory agnosia					
COGNITION					
Orientation					
Attention					
Short-term memory					
Long-term memory					
Initiation					
MOTOR					
Abnormal tone (spasticity or flaccidity)					

✓ = Intact - strength ✗ = Observed problems - deficit

DEFICIT	SCREENING ASSESSMENT	EATING TASK 1	WASHING TASK 2	POURING AND DRINKING TASK 3	DRESSING TASK 4
LANGUAGE					
Comprehension	✓	✓	✓	✓	✓
Expression	✓	✓	✗	✗	✓
HEARING					
Hearing acuity	✓	✓	✓	✓	✓
Auditory agnosia	✓	✓	✓	✓	✓
COGNITION					
Orientation	✓	✓	✓	✓	✓
Attention	✓	✗	✗	✗	✗
Short-term memory	✓	✓	✗	✗	✓
Long-term memory	✓	✓	✓	✓	✓
Initiation	✓	✗	✗	✗	✓
MOTOR					
Abnormal tone (spasticity or flaccidity)	✗	✗	✗	✗	✗

Overall Score for each of the four ADL tasks

To score: Place ticks in the boxes that correspond to the highest level of mediation required for any of the test items in that task.

OCCUPATIONAL PERFORMANCE	0 INDEPENDENT	1 NEEDED GENERAL PROMPT	2 NEEDED GESTURAL CUE	3 NEEDED SPECIFIC FEEDBACK / CUE	4 NEEDED PHYSICAL ASSISTANCE	5 DO FOR CLIENT
Eating: Client's ability to eat independently from a bowl.						
Washing: Client's ability to wash and dry hands.						
Pouring and Drinking: Client's ability to pour from a jug and to drink from a cup.						
Dressing: Client's ability to put on a front-fastening, long-sleeved garment.						

Summary:	
Signature:	**Date:**

Overall Score for each of the four ADL tasks

To score: Place ticks in the boxes that correspond to the highest level of mediation required for any of the test items in that task.

OCCUPATIONAL PERFORMANCE	0 INDEPENDENT	1 NEEDED GENERAL PROMPT	2 NEEDED GESTURAL CUE	3 NEEDED SPECIFIC FEEDBACK / CUE	4 NEEDED PHYSICAL ASSISTANCE	5 DO FOR CLIENT
Eating: Client's ability to eat independently from a bowl.			✓			
Washing: Client's ability to wash and dry hands.					✓	
Pouring and Drinking: Client's ability to pour from a jug and to drink from a cup.			✓			
Dressing: Client's ability to put on a front-fastening, long-sleeved garment.					✓	

Summary:

Mrs P was able to complete these PADL tasks with gestural prompts for washing and pouring / drinking and with physical, co-active assistance for eating and dressing. Main areas of deficit include: attention, fine motor skills, ideational apraxia and perseveration.

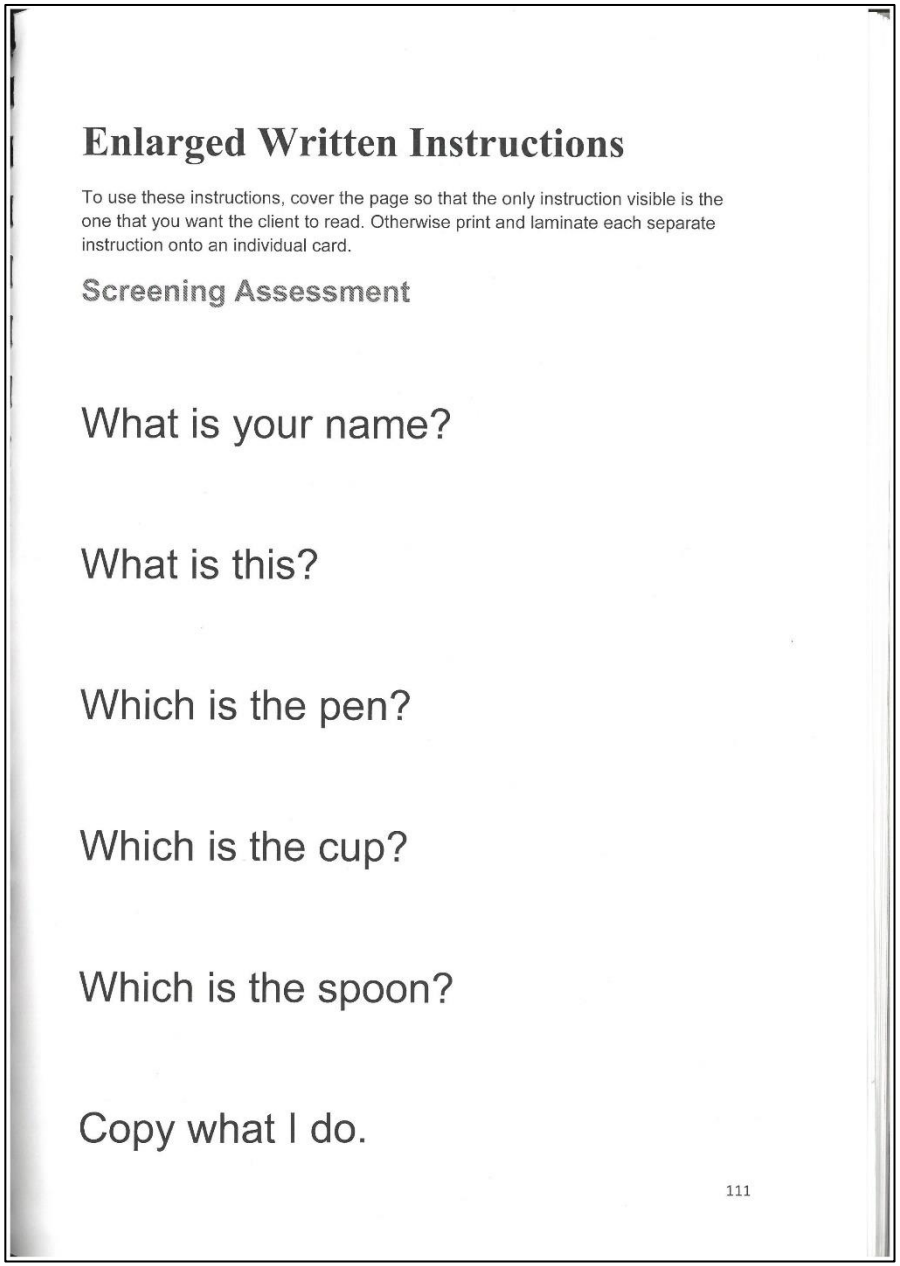
Client's learning potential/which prompting method/level was most effective for client:

Mrs P benefits from simple, 1 stage instructions and responds well to gestural prompts. She responds well to an errorless learning approach.

Signature: **Date:**

Written instructions are provided. These can be useful for:

- people with hearing deficit
- people with dementia can benefit from written, as well as verbal instructions.
- If the person is struggling with verbal instructions written cards can be used to assess whether the person can function better with written instructions.
- This assessment can be useful for identifying possible intervention with written instructions and word cue cards.



Enlarged Written Instructions

To use these instructions, cover the page so that the only instruction visible is the one that you want the client to read. Otherwise print and laminate each separate instruction onto an individual card.

Screening Assessment

What is your name?

What is this?

Which is the pen?

Which is the cup?

Which is the spoon?

Copy what I do.

111

Role play: Mrs Harris (stroke)

Background to case:

- Mrs. Geraldine Ivy Harris is a 71-year-old lady. She was admitted to hospital after experiencing a stroke. She was referred to occupational therapy on admission for an ADL assessment and a cognitive and perceptual assessment. She is a retired school dinner-lady and lives with her 69 year old husband in a three bedroom terraced house.
- According to Mrs Harris' medical notes, on admission she has some left sided weakness, flaccidity and clumsy movements. She also has mild dysarthria and a left visual field deficit. Eye movements are normal. Tactile, proprioceptive and pain sensation are normal. She is orientated for time and place.
- Mrs Harris is compliant and motivated to answer questions and attempt assessment tasks. She is a bit nervous initially but overall, as she lacks some insight and judgement.

Role play: Mrs Wilson (dementia)

Background to case:

- Mrs. Iris Mary Wilson is a 76-year-old lady. Iris was diagnosed with Alzheimer's dementia four years ago. Iris has recently been referred to community mental health team due to a decline in her ability to perform activities of daily living (ADLs) independently. Iris is a retired secretary who lives with her 78-year-old husband Paul in a detached two-bedroom bungalow. The couple have lived there for 17 years and Iris is orientated to her home. Iris scored 61 on the ACE III and she is categorised as exploratory activity level by the Pool Activity Level. Iris has been referred to occupational therapy to maximise her task performance potential and establish the level of support she will need when completing ADLs. This information will inform her home care plan and provide her husband Paul with strategies to support his wife effectively.
- Mrs Wilson is compliant and motivated to answer questions and attempt assessment tasks. She is a bit nervous and hesitant throughout as she is aware of her memory deficit despite some insight and judgement deficiencies.

Any Questions?

Evidence base underpinning SOTOF (1st edition)

(Laver, 1994)

Background to development of SOTOF

Survey of occupational therapists to review current assessment practice and the need and scope for a new assessment

Initial content and construct validity work included: literature review, results of critiques of current assessments, consultation with expert OTs, results from clinician OT survey

Developed 1st version of test and piloted with a sample of people with stroke

Construct and Concurrent validity

Concurrent validity: is "the extent to which the test results agree with other measures of the same or similar traits and behaviours"

(Asher, 1996, p. xxx)

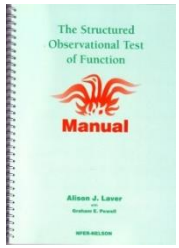
Note: also sometimes referred to as **congruent** validity.

Construct: "a product of scientific imagination, an idea developed to permit categorization and description of some directly observable behaviour"

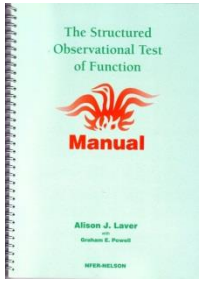
(Crocker and Algina, 1986, p. 230)

Construct and criterion-related validity

- This study examined matched items of SOTOF with other published measures including: MEAMS, RPAB, COTNAB, RADL for stroke, NART
- Also examined SOTOF ADL independence scores with results from an ADL interview schedule
- Sample = 22 people with a primary diagnosis of stroke age 62 – 92 years
- Overall dysfunction in ADL performance and identification of neuropsychological deficits was mirrored by the identification of dysfunction and deficits on the other matched items from other tests.
- SOTOF related highly ($p<0.05$) to measures of ADL and some matched items from other neuropsychological (cognitive and perceptual tests)



(Laver, 1994; Laver and Powell, 1995)



Psychometric studies: SOTOF

Inter-rater and test retest reliability:

- A study with 32 occupational therapists and 37 participants (of which 15 had dementia). Percentage agreement calculated.

	Test-retest	Inter-rater
Screening assessment	97.7%	97.5%
Average values for the 4 ADL scales	90.3 - 93.8% (Kappa: 0.5-0.77)	89.5 - 91.6% (Kappa: 0.37-0.67)
Neuropsychological checklist	95.2% (Kappa: 0.55)	95.2% (Kappa: 0.54)

Internal consistency

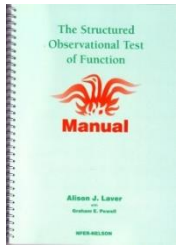
‘The degree to which test items all measure the same behaviour or construct’

(Laver-Fawcett, 2007, p.422)

Internal consistency studies explore if test items are measuring the same construct or trait and whether test items vary in difficulty

Internal consistency

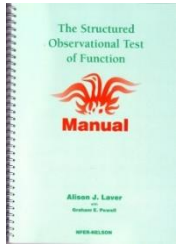
- 37 participants with primary diagnosis of stroke
- Statistical analysis of matched items with Fisher's exact probability test.
- Majority of matched items on the SOTOF neuropsychological checklist were significantly related ($p<0.05$)
- Some matched items for the $ ADL tasks were significantly related ($p<0.05$)
- Established internal consistency across the whole test.
- Variability across the 4 ADL tasks indicates that all tasks should be administered.
- But some items in tasks 3 and 4 can be removed if client's ability is clearly established in Tasks 1 and 2: e.g. right and left and position in space items; colour identification; naming objects; identifying objects through touch.



(Laver, 1994;
Laver and Powell, 1995)

Face validity

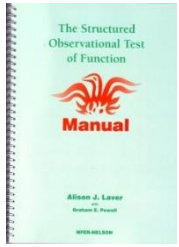
- Interviews with people following SOTOF test administration with 44 participants with primary diagnosis of stroke.
- 95% of clients felt the SOTOF tasks represented activities they would normally do.
- None minded being asked to do the tasks.
- The majority found the SOTOF to be:
  - interesting (87.5%)
  - useful (87.5%)
  - enjoyable (85%)
- 12.5% reported finding the test stressful.



(Laver, 1994;
Laver and Powell, 1995)

Original clinical utility study (1991-92)

- Sample = 44 OTs working in UK, Ireland and Belgium
- OTs were working in hospital settings with stroke patients aged 60 years and over.
- The SOTOF's administration instructions and protocol were found to be fairly easy to follow and understand by the majority of the participants.
- Half of the participants perceived the record forms as easy to complete.
- The majority of therapists found the SOTOF materials easy to: obtain (72.7%); carry (86.4%); clean (90.9%); store (88.6%) and appropriate for their client (86.4%).
- average overall time to complete SOTOF was 55 minutes.



(Laver, 1994; Laver and Powell, 1995)

Norm-referenced test

- A test that is used to evaluate performance against the scores of a peer group whose performance has been described using a normative sample.

- **Norms:** Norms are sets of scores from clearly defined samples of a population *(Kline, 1990)*
- A wider definition refers to norms as "a standard, a model, or pattern for a specific group; an expected type of performance or behaviour for a particular reference group of persons"

- *(American Occupational Therapy Association, as cited in Hopkins and Smith, 1993, p.914)*

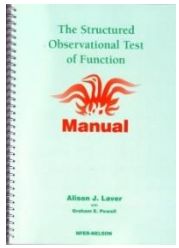
Norm-referenced test

- If it is a norm-referenced test, is the normative sample well described?
- Are there norm-tables from which you can compare a client's score with the distribution of scores obtained by the normative group?
- If you are using a normative assessment – look carefully at the sample used and consider generalisability

Normative study

- Normative data collected based on sample of 86 adults 60-97 without neurological deficits in the UK.
- Established normative standards for performance on SOTOF (time and ability)
- SOTOF found to discriminate between patients with neurological damage and adults for both ability and time taken to complete the four tasks.
- Established normative standards for descriptive responses.

- Additional normative study undertaken in Canada.
- Also pilot work for 2 IADL SOTOF sub-scales was undertaken in Canada:
  - Telephone use
  - Paying a bill by writing a cheque



(Laver, 1994; Laver and Powell, 1995)

Study to enhance the dynamic aspect of the SOTOF: Eden Marrison (2016)

- Three separate literature searches were used focusing on the dynamic concept, occupational therapists' use of the dynamic concept and specific dynamic assessments.
- Other dynamic assessments and their manuals were reviewed to identify their dynamic elements, in order to develop recommendations and ideas for the SOTOF.
- Owing to the nature of this study the data analysis used a narrative approach to analyse and interpret the data.

Evidence base underpinning SOTOF (2nd edition)

(Laver-Fawcett and Marrison, 2016)

Study to enhance the dynamic aspect of the SOTOF: Eden Marrison (2016)

Results:

- Occupational therapists have skills and knowledge surrounding the dynamic concept.
- Dynamic assessments provide an in-depth analysis of an individual's abilities and document how this can change owing to some form of prompt or guidance.
- The SOTOF can remain standardised whilst introducing a more dynamic aspect, therefore, drawing on identified literature and test manuals, aspects of the SOTOF have been further developed to enhance the dynamic element.

Conclusion

- It is evident from the findings that dynamic assessments are valuable tools and occupational therapists have the unique skills to practice the concepts of dynamic assessment.
- This study contributed to providing occupational therapists with an updated dynamic assessment tool to use for adult clients with neurological impairment.

Content validity study – Expert Panel

Sarah Annis and Pawel Piotrak

BHSc(Hons) Occupational Therapy Students
Supervised by Alison Laver-Fawcett

To explore the content validity of the SOTOF 2nd edition which has included the formalisation of the dynamic assessment with the addition of a six level graduated mediation protocol

Objectives

Elicit

Elicit the views of a panel of experts in order to evaluate the formalised dynamic assessment element of SOTOF 2nd edition.

Explore

Explore the expert panel's views and evaluation with regards to the SOTOF's dynamic assessment instructions.

Study

Study the division and content of levels in the six-level mediation protocol and its relevance to occupational therapy profession.

Consider

Consider if the six-level graduated mediation protocol has relevant prompt suggestions for a variety of cultures.

Methodology

- A literature review of content validity, expert panel studies found 4 relevant studies which informed the method for this study
- Three of the four studies reviewed utilised a mixed method design.
- Studies utilised convenience, purposive and snowball sampling.
- Likert scales and qualitative questions used.
- It was not clear if either of the studies conducted a pilot of these questions prior to sending to the expert panel.
- Ethics approval obtained from York St John University ethics committee.

Sampling: identifying Panel Members

To achieve the aim and objectives researchers found panel members purposively from two books, the internet and authors cited in the SOTOF 1st edition.

Rubio et al (2003) established that samples should range between 3 and 10 experts for content validity studies.

Panel members must have developed an assessment tool relating to

- Stroke
- ADL
- Perception
- Cognition
- Have expertise occupational therapy

22 experts potential experts were located and approached via email.
They were invited to suggest other panel members (snowball sampling)

The Survey

- The researchers developed an online survey and utilised the Bristol Online survey (BOS) tool to distribute to the experts.
- A three point Likert scale was utilised with open and closed questions.
- Utilising the BOS enabled the researchers to gather data in a time effective manner and analyse the information accordingly (Fowler, 2014). A pilot study was conducted to ensure that the BOS survey was user friendly and questions were relevant and a high response rate could be achieved *(Creswell, 2014)*

The questions and time scales

Researchers:

- Followed-up emails with reminders
- Sufficient time scales to allow experts to give full and clear feedback.
- Extended the deadline.

Fowler (2014) suggests that response rates can be improved with appropriate follow-up.

Expert panel sample

The sample comprised five participants from four countries:

- Australia
- Canada
- Ireland
- USA

They had an average of 39 years (range 27 to 50 years) experience as occupational therapists Qualifications: PhD (n=3); Professional Doctorate (n=1); and MRes (n=1)

Questions 6 -12	Responses from experts
Do you think all the levels are easy to interpret?	4 – Easy to interpret 1 – Not easy
Are the instructions for applying the SOTOF graduated mediation protocol appropriate for application by occupational therapists?	4 – Appropriate 1 – Unsure
Level 4 has multiple options including Physical assistance, Co-Active assistance, Modifications and Demonstration. Do you think these options for mediation should be separated?	2– separate 2 – unsure 1 – No answer given
The SOTOF has been design to be used internationally with clients from different cultures. Do you think the six levels of the graduated mediation protocol would be applicable to people from different cultures?	3 – Applicable 2 – Unsure

In the Instruction cards for each SOTOF task item examples for suggested mediation for levels 1 to 4 of the graduated mediation protocol are provided for that specific test item. Are these examples useful to guide the occupational therapist to apply the graduated mediation protocol?	4 – Useful 1 – Unsure
Do you anticipate any challenges or problems for occupational therapists applying the six level mediation protocol to the SOTOF test items?	2 – Problems anticipated 2 – Unsure 1 – No problems anticipated
If you have any further comments and / or suggestions, please provide them here:	2 – Comments 3 – No Comments

- 4 out of 5 participants agreed that the SOTOF 2nd edition is easy to interpret and appropriate for use within occupational therapy

- Responses suggested some useful ideas for improving SOTOF further.

Online Survey Results

Strengths, Limitations and future research

Strengths

- The use of a pilot prior to the survey being sent to the experts, allowing time efficiency
- Experienced panel members

Limitations

- Small sample size
- Limited international spread

Recommendations for future research

- A normative study was undertaken with SOTOF (Laver and Powell, 1995) and could be repeated with the 2nd edition.

Clinical utility study 2016-17

Vicky Barcroft and Siobhan Cuddy
BHSc(Hons) Occupational Therapy Students

Supervised by Alison Laver-Fawcett

The addition of a formalised dynamic assessment component in the 2nd edition, has prompted the re-evaluation of the assessment's clinical utility

2nd Clinical utility study (SOTOF 2nd edition)

Aim

- To explore the Structured Observational Test of Function 2nd edition's clinical utility from the perspective of occupational therapists working with older adults.

Method

- A cross-sectional on-line survey with a concurrent mixed methods, including ratings scales and open questions.
- Utilised the Bristol Online survey (BOS)
- A purposive sample was obtained from a recruitment email circulated to College of Occupational Therapists specialist section for older people members.
- This email was also sent to a convenience sample of therapists who had previously requested a copy of the assessment.
- Participants were emailed the essential materials and following review completed an online survey.

Sample

- Sampling frame – 39 OTs were sent the SOTOF
- Seven participants completed the survey (17% response rate)
- Work place: hospital (n = 2), community (n = 4), care home (n = 1); NHS = 6, Independent = 1
- Highest level of qualification: MSc/MA = 1; BSc/BA = 5; Diploma = 1
- Years working as an OT: 3-22 (mean 12 years)
- Band 5 = 1, Band 6 =3, Band 7 = 3

Results

	Impossible	Difficult	Fair	Easy	Very Easy
Were the test administration instructions easy to understand?	0	2	2	3	0
Were the test administration instructions easy to follow?	0	1	1	4	0
Was the graduated mediation protocol easy to understand? (missing = 1)	0	1	1	3	1
Was the graduated mediation protocol easy to follow?	0	1	3	2	1
Were the record forms easy to complete? (missing =2)	0	1	1	3	0

Ease of use of the administration instructions, graduated mediation protocol and record forms

"I thought that the manual and instructions were easy to understand" (P4)

"very thorough" (P1)

	Very inappropriate	Inappropriate	Fair	Appropriate	Very appropriate
Did you feel the four SOTOF activities were appropriate for …your client? (missing 1)	2	0	2	0	2
… the majority of older adults with a neurological impairment? (missing 1)	1	1	2	1	1
Did you feel the graduated mediation examples for the SOTOF test items were appropriate for ..your client? (missing 2)	1	0	2	1	1
…the majority of older adults with a neurological impairment? (missing 1)	1	0	3	1	1

	Not at all useful	Not useful	Fair	Useful	Very useful
How useful did you find the application of the SOTOF graduated mediation protocol?	0	0	0	3	2
Do you feel this assessment will be useful to inform the development of intervention plans? (missing 1)	0	0	1	3	2
Do you feel this assessment is useful to inform your clinical reasoning and decision making? (missing = 2)	0	0	1	2	2

	Very stressful	Stressful	Fair	Not stressful	Not at all stressful
Did the assessment appear to be stressful for your client? (missing = 3)	0	0	3	0	1
Do you think the assessment would be stressful for your clients? (missing = 1)	0	0	4	2	0

SOTOF (2nd ed) Administration Time

Average administration was **47.25** minutes (n=4)

3/5 participants stated they do not use other standardised assessments in practice.

P7: SOTOF was quicker than AMPS to administer.

Participants considered this lengthy compared to unstandardised assessment

P 7: felt the length of administration was similar to the Erlangen-ADL Test (Graessel et al. 2009) however, they stated this does not provide "*the same comprehensive results*" as SOTOF.

Results

Views on the ease of use, format and time required were varied.

All participants reported the graduated mediation protocol to be useful.

The assessment was also deemed useful to inform intervention plans, clinical reasoning and decision making.

Strengths: in depth nature of results; the ease of accessibility; the usefulness in clinical decision making and intervention planning; and the standardisation of the SOTOF

Reported barriers to using the SOTOF 2nd ed: a lack of familiarity with the assessment; the length of administration and scoring; and contextual factors such as time constraints and discharge pressures.

2nd clinical Utility study Findings

SOTOF was found to assess "*relevant activities*" (P3)

Provoked discussion with the client regarding these activities (P2)

P4 stated that the tasks "*were not challenging enough"* for their community based client group who are in the "*early stages of dementia*", are expected to be "*able to carry out these tasks*".

Clinical Utility: Conclusion

The Structured Observational Test of Function 2nd edition appears to be more complex to administer and score than the original version.

Administration time similar to SOTOF 1st ed at an average 47 compared to 55 minutes

A training video would be beneficial for therapists learning to administer and score the assessment.

Limitations

- Small convenience sample (n=7)
- The use of a focus group would have allowed more in-depth information to be gathered

Test-retest reliability and internal consistency – SOTOF 2nd edition

- Study by Sophie Weston (Pre-registration OT Masters student at YSJU). Supervised by Alison Laver-Fawcett
- Used a convenience sample to recruit participants diagnosed with a stroke.
- Sample: 3 males and 1 female aged between 62 and 83 years (Mean 71, Standard Deviation (SD). 8.846) were recruited.
- SOTOF (2nd edition) was administered at two time periods (Mean interval= 22 days).
- To analyse data, intraclass correlation coefficient (ICC) and percentage agreement (PA) was used for Test retest reliability (TRR) and Cronbach's alpha for internal consistency (IC).

Test-retest results for the sub-tests (ICC values) (Weston, 2019)

Sub-Tests	Participants				
	#001	#002	#003	#004	Average ICC value for sub-tests
Screening Assessment	1.00	1.00	1.00	1.00	1.00
Task 1	.91	.81	.86	.78	0.84
Task 2	.89	.86	.84	.81	0.85
Task 3	.81	.71	.80	.73	0.76
Task 4	.82	.87	.88	.78	0.84
Average ICC value for SOTOF					0.86

Test-retest results for the Neuropsychological Checklist

(Weston, 2019)

Sub-test	Range of % agreement across all deficit items	Average % agreement for sub-test
Screening Assessment	94.2% - 97.1%	95.7%
Task 1	88.5% - 97.1 %	94.2%
Task 2	91.4% - 100%	96.4%
Task 3	88.5% - 100%	92.7%
Task 4	94.2% - 97.1%	96.4%
Average % agreement for SOTOF		95.1%

Test-retest pilot study conclusions (Weston, 2019)

- SOTOF (2nd edition) is highly stable when administered to a sample of four community dwelling adults with a diagnosis of stroke within a 3-week interval.
- SOTOF (2nd edition) demonstrated good to excellent TRR for each subtest (ICC=.86), good reliability for the Neuropsychological Checklist (PA=95.1%).
- The results demonstrate initial findings that therapists can use SOTOF (2nd edition) reliably to assess an older adults' ability to perform PADL after suffering a neurological deficit.
- The tool allows therapists to identify underlying perceptual, cognitive, sensory and/or motor deficits and be reasonably confident that it reflects a person's overall profile of functional status and associated neuropsychological deficits.

Internal Consistency study (Weston, 2019)

- There were common deficits that were picked up across the sample (n = 4): right/left discrimination; visual attention; visual object agnosia; ideational apraxia; ideomotor apraxia; and colour agnosia.
- Cronbach's alpha was analysed for all matched items of SOTOF (2nd edition) results demonstrated good to excellent IC on items within a homogeneous item group.
- The IC for 10 domains was good to excellent (α=.833-994). 'Visual attention', 'Visual object agnosia' and 'Colour Agnosia' were three domains that identified excellent IC (α=.943-.994).
- Cronbach's Alpha analysis could not be run for 10 items on the Neuropsychological Checklist because none of the participants in the sample showed a deficit.
- 'Items with no alternate forms (12 items)' on the Neuropsychological Checklist identified poor IC (.333) as expected.

Internal Consistency

(Weston, 2019)

Domain	Cronbach's Alpha	Mean	Variance	Std. Deviation
Stereognosis	.889	.75	2.250	1.500
Right / left discrimination	.833	4.00	2.000	2.000
Visual scanning	.879	2.00	7.333	2.708
Visual attention	.970	3.75	8.250	2.872
Visual object agnosia	.943	4.50	9.667	3.109
Ideational apraxia	.876	3.25	5.583	2.363
Ideomotor apraxia – miming	.862	6.25	8.250	2.872
Ideomotor apraxia – demonstrates	.852	4.75	4.250	2.062
Colour Agnosia	.994	5.75	44.250	6.652
Action on command	.867	2.25	6.917	2.630
Items with no alternate forms (12 items)	.333	1.00	.667	.816

Internal Consistency: conclusions

(Weston, 2019)

- All 4 SOTOF tasks are essential to administer because although some items have parallel forms, some are measuring different deficits.
- There are sufficient SOTOF items containing alternate forms, within the same task or across tasks, to measure the same type of performance or represent the content domain.
- Task items related to 'Visual attention', 'Visual object agnosia' and 'Colour agnosia' may be omitted from Task 3 and 4; this prevents reassessing an item which is too easy or too demanding and reduces the overall administration time for SOTOF.
- For a small sample, the findings are encouraging and indicate that the changes to the scoring system of SOTOF improved reliability and internal consistency.

Other studies

- Further exploration of clinical utility and face validity with a sample of people with dementia
- Face validity with a sample of 10 patients with stroke and content validity and usefulness from the perspective of an MDT

Future Research

- Test-retest and inter-rater reliability study with a larger sample (30 + participants)
- Internal consistency study with a larger sample (30+ participants)
- Responsiveness to change study

QR code for CPD day evaluation form

SOTOF references

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How to get a copy:

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