International Journal of Environmental Research and Public Health

MDPI

Supplementary Table S1: Mapping 10 instruments to the ICF - overview

Instrument	Key features of instrument	Relationship to ICF	Insights/significance of new questions
ABS SDAC	Eligibility for inclusion in the survey is determined via screening questions focused on a list of long-term health conditions and impairments including 'any other health conditions resulting in restrictions'. Survey respondents are then asked a range of questions, including about difficulties they encounter with everyday activities.	Maps easily to ICF concepts of Activities and Participation (and activity limitations in terms of difficulty, or assistance needed); covers all domains of Activities and Participation. Maps to Body Functions and Structures (and impairments), and refers to health conditions. Weak relationship with Environmental Factors.	The SDAC questionnaire is the most extensive of those examined. Essentially, it is the standard for, and the source of, the most widely quoted Australian population data. It requires consideration in designing the D question, but does not provide guidance on the E questions.
ABS short survey module	The ABS 'short' module is used in social surveys to compare the experience of people with disabilities with that of the general population (e.g., in health, time use, expenditure; ABS, 2010). The module is not used for prevalence estimation.	Similar results to those for the full SDAC. Greater reliance on the screening questions, i.e., the illustrative list of health conditions, alongside general but varied questions about everyday restrictions. The Activities/Participation domains were not covered as fully as in the SDAC	Does not offer a succinct option for PSC questions. Has some disadvantages compared to full SDAC.
HILDA longitudinal survey	The 'health and view of life' section asks about any long-term health conditions, impairments or disabilities that restrict everyday activities (using a list similar to SDAC). Asks about specific restrictions in mobility and self-care.	Maps to a range of Body Functions and two Activities/Participation domains (i.e., mobility and self-care).	No advantage over the SDAC short module. Similar screening questions are used, but further conflate concepts (e.g., health conditions, impairments, disability).
UNCRPD	Article 1 offers an inclusion statement: 'Persons with disabilities include those who have long-term physical, mental, intellectual or sensory	Article 1 focuses on impairments, and is possibly more restrictive than a definition based on the ICF, which uses "disability" as an umbrella term for any or all	While there is good concordance of concepts, the UNCRPD focus on impairments could limit the scope of disability. For

	impairments which, in interactions with various barriers, may hinder their full and effective participation in society on an equal basis with others'.	impairments, activity limitations or participation restrictions which are due to a health condition. Maps well to ICF concepts of Participation and Environmental Factors (barriers or facilitators).	example, the ICF could alert someone with a chronic health condition and related participation restrictions that they can be included in the 'disability' category.
Washington Group questions	Six questions designed for use in national censuses. Based on the ICF and intended to increase international comparability. Designed for use alongside other census data, e.g., on employment.	The six questions map to three Activities/ Participation domains of the ICF (i.e., self-care, mobility and communication) and two Body Function domains (i.e., sensory functions: seeing, hearing; and mental functions: remembering or concentrating).	The questions give only partial coverage of the ICF. The use of these questions does not produce anything like ABS prevalence figures (e.g., ABS 2016b).
WFP data specifications	Question 1: 'A person who identifies as having a disability, i.e., as having one or more of the following limitations or restrictions.' Question 2: 'Whether some aspect of the work situation requires adjustment.' The way in which the questions are presented to employees in agency HR systems varies (e.g., some agencies include a definition of disability, whereas others do not).	Q1: There is a list of four health conditions, four Body Functions, and two Activity/Participation restrictions (i.e., learning and mobility). Q2: Examples of what is meant by 'aspects' cover three of the five ICF Environmental Factors domains: Chapters 1 (equipment), 4 (attitudes including behaviour) and 5 (job tasks, working hours).	The list for Q1 has some similarities with the (longer) ABS list, but contains some different items and varied wording.
Four other selected instruments	A *Participation Scale* was designed to reflect all ICF Activities/Participation domains.	Captures information on all ICF Activities/ Participation domains, using multiple questions for each.	The multiple questions and detailed wording may provide challenges for the design of a succinct question. Wording about 'equal opportunity' and peer comparison could be considered.
	PM-PAC was designed to be ICF-based and to measure patient-reported participation in rehabilitation settings.	Maps to five Activities/ Participation domains. Introduces other concepts such as 'role functioning'.	No new implications for the design of succinct questions.

	Keele Assessment of Participation was developed to capture 'person perceived participation', and was used in a large survey of older people.	Focused on mobility outside the home, i.e., one domain of Activities/ Participation, and on related Environmental Factors.	The phrasing of the questions (e.g., 'as and when I have wanted') could be of interest in exploring people's Participation.
	IMPACT-S is a screener for measuring Activities and Participation, developed using all nine chapters of the ICF to create a 33-item tool.	Reads like a rather direct translation of the ICF to a questionnaire. Long and detailed.	No evidence it would produce data comparable to the SDAC. Investigation of the 33 items could be useful in expanding the detail used from the nine ICF A/P domains.

Supplementary S1: Questions for focus groups to discuss

The material provided to focus group participants included the following:

Developing and testing new questions related to disability in the annual Workforce Profile Collection of the NSW public sector

Questions to discuss in QQQ focus groups

There are currently two questions relating to disability in the Workforce Profile Collection (WFP):

- one is intended to 'identify' disabilities generally according to people's responses;
- one to ask about environmental modifications or 'accommodations' that are needed.

Current PSC questions - and also for group discussion

The Workforce Profile Collection draws upon information from the agency's HR systems. The agency HR teams are requested to collect information concerning the two disability measures listed in the right-hand column in the table below; a definition of "disability" is provided in the left-hand column. The questions that agency HR teams ask their employees in order to gather this information may vary from agency to agency.

A person who identifies as having a disability, i.e., as having one or more of the following limitations or restrictions: • a long-term medical condition or ailment; • speech difficulties in their native language; • disfigurement or deformity; • a psychiatric condition; • head injury, stroke or any other brain damage; • loss of sight or hearing; • incomplete use of any part of their body; • blackouts, fits or loss of consciousness; • restriction in physical activities or physical work; • slowness at learning or understanding; • any other condition resulting in a restriction.	HR units are asked to make reports using the following measures: • A person who identifies as having a disability (using the definition provided). • For any employee identifying as disabled, indicate whether some aspect of the work situation requires adjustment in order to accommodate their needs. Adjustment can involve changes to any aspect of employment, including: o the tasks of the job; o the workplace or work area; o the behaviour of others at work; o the equipment used; o work hours.

For the purposes of the focus group discussions, we are splitting possible new questions into two groups along the same lines:

- **a question enabling the 'identification' of disability according to people's responses (generally, i.e., in everyday life, not just the workplace); the purpose of this is to allow the public sector workforce profile to be compared with that of the general population to see if the public sector is representative of the general population.**
- **a question about environmental modifications that are needed to make the workplace more inclusive.**

The discussion in the focus groups will help us sort concepts and improve words; there will be further 'plain English' efforts after the number of options is reduced.

The highlighted text shows some of the key 'disability' related concepts and terms in italics. Environment related words are underlined.

Questions enabling the 'identification' of disability in everyday life

Background for focus group participants

The United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) suggests that:

> '… disability results from the interaction between persons with *impairments* and attitudinal and environmental barriers that hinder their full and effective *participation* in society on an equal basis with others…'

and that:

> 'Persons with disabilities include those who have long-term physical, mental, intellectual or sensory *impairments* which in interaction with various barriers may hinder their full and effective *participation* in society on an equal basis with others.

The ABS Survey of Disability Ageing and Carers adds the further idea that disability can also relate to a *long-term health condition*, and that people may experience difficulty in everyday life.

Question 1D for discussion

Introduction to question: This question is designed to provide statistics for the sector that will enable us to monitor whether our workforce is as diverse as that of the NSW population. The question therefore uses similar concepts to ABS population surveys (recording difficulties with *activities/participation*), as well as the UNCRPD, which suggests that:

> 'Persons with disabilities include those who have long-term physical, mental, intellectual or sensory *impairments* which in interaction with various barriers may hinder their full and effective *participation* in society on an equal basis with others.

Question: In your experience, do interactions with the environment create barriers or difficulties for you in *participating* in everyday life (that is, in any of the following aspects: social or community life, work or education, mobility, self-care, communication, daily organization, learning, relationships or domestic life)?

Single response (two categories): No, sometimes or always

Question 2D for discussion

Introduction to question: The NSW public sector is building a positive workplace for all people and a workforce that reflects the diverse community it serves. The following questions are asked solely for the purposes of collecting data to inform policy interventions in order to improve progress in this area. The question recognises concepts in ABS population surveys (recording difficulties with activities/participation), while primarily reflecting those of the UNCRPD, which suggests that:

> 'Persons with disabilities include those who have long-term physical, mental, intellectual or sensory *impairments* which in interaction with various barriers may hinder their full and effective *participation* in society on an equal basis with others.

Question: Do you have difficulties related to *environmental* barriers when *participating* in everyday life (that is, in any of the following aspects: social or community life, work or education, mobility, self-care, communication, daily organization, learning, relationships or domestic life)?

Single response (two categories): No, sometimes or always

Question 3D for discussion

Introduction to question: This question is designed to provide data for the sector that will enable us to monitor whether our workforce is as diverse as that of the NSW population. The question therefore uses similar concepts to ABS population surveys (recording difficulties with activities/participation) as well as the UNCRPD, which, taken together suggest that:

> Disability results from interactions between *impairments* or *long-term health conditions* and attitudinal and environmental barriers that hinder people's full and effective *participation* in society on an equal basis with others

Note: No individual data from this question are used; its purpose is solely to obtain aggregated statistical data for policy purposes.

Question: Do you experience difficulties in *participating* in daily life as and when you want to because of interactions between the environment and *long-term health conditions* or *impairments* (physical, mental, intellectual or sensory)?

Single response (two categories): No, sometimes or always

Question 4D for discussion

Introduction to question: The NSW public sector is building a positive workplace for all people and a workforce that reflects the diverse community it serves. The following questions are asked solely for the purposes of collecting data to inform policy interventions in order to improve progress in this area. The question recognises concepts in ABS population surveys (recording difficulties with activities/participation), while primarily reflecting those of the UNCRPD, which suggests that:

> 'Persons with disabilities include those who have long-term physical, mental, intellectual or sensory *impairments* which in interaction with various barriers may hinder their full and effective *participation* in society on an equal basis with others.

Question: Do you experience difficulties doing activities or *participating* in any of the following areas of daily life because your physical, mental, intellectual or sensory *impairment* or *long-term health condition* is not accommodated in your environment?

- Social and community life
- Work or education
- Mobility
- Self-care
- Communication
- Daily organisation
- Learning
- Relationships
- Domestic life

Single response (two categories): No, sometimes or always

Question 5D for discussion

Introduction to question: This question is designed to provide statistics for the sector that will enable us to monitor whether our workforce is as diverse as that of the NSW population. The question therefore uses similar concepts to ABS population surveys (recording difficulties with activities/participation), as well as the UNCRPD, which suggests that:

> 'Persons with disabilities include those who have long-term physical, mental, intellectual or sensory *impairments* which in interaction with various barriers may hinder their full and effective *participation* in society on an equal basis with others.

Question: Do you have difficulty doing activities or *participating* in everyday life related to your environment(s) and also to *long-term health conditions and impairments*? 'Everyday life' includes social or community life, work or education, mobility, self-care, communication, daily organization, learning, relationships or domestic life.

Single response (two categories): No, sometimes or always

Questions about environmental modifications that are needed at work

Question E1 for discussion

What change(s) do you need in the workplace environment to enable you to *participate* more fully and effectively? For example:

- Support and relationships, e.g., support from colleagues or supervisors, behaviour of people in the workplace
- Attitudes e.g., attitudes of colleagues, supervisors or others
- Services, systems and policies, e.g., job design, working hours, flexibility, transport, employment policy, workplace and hiring policies
- Products and technology, e.g., work equipment, IT, furniture, building access
- Natural environment and human-made changes to environment, e.g., sound, light, air or water

Response: Tick any categories that apply

Question E2 for discussion

Question E2 (i): Do you have equal opportunities to your peers to *participate* in the work place?

- Not specified, not answered
- Yes
- Sometimes
- No
- Irrelevant, I don't want respond, I don't have to respond

Question E2 (ii): Which aspects of the work environment need to be changed to enable you to *participate* more fully and effectively?

- Personal space (workstation, IT tools, working time, alternative work arrangement, other)
- Office building environment (access, equipment)
- Organisation environment (attitudes, behaviours and support of management and colleagues; HR policies: job design and hiring)
- Outside the workplace (transport, family support)

Response: Tick any categories that apply

Question E3 for discussion

Could you perform activities or *participate* more effectively if your physical, mental, intellectual or sensory *impairment* or *long-term health condition* were better accommodated in your workplace? Which aspects of your workplace need to change? For example in:

- Support and relationships, e.g., support from colleagues or supervisors, behaviour of people in the workplace
- Attitudes e.g., attitudes of colleagues, supervisors or others
- Services, systems and policies, e.g., job design, working hours, flexibility, transport, employment policy, workplace and hiring policies
- Products and technology, e.g., work equipment, IT, furniture, building access
- Natural environment and human-made changes to environment, e.g., sound, light, air or water

Response: Tick any categories that apply

Question E4 for discussion

In your everyday experience of a *long-term health condition*, what aspects of your workplace need to be changed to enable you to do what you need to do and *participate* equally with your peers? For example:

- Support and relationships, e.g., support from colleagues or supervisors, behaviour of people in the workplace
- Attitudes e.g., attitudes of colleagues, supervisors or others
- Services, systems and policies, e.g., job design, working hours, flexibility, transport, employment policy, workplace and hiring policies
- Products and technology, e.g., work equipment, IT, furniture, building access
- Natural environment and human-made changes to environment, e.g., sound, light, air or water

Response: Tick any categories that apply

Question E5 for discussion

Which aspects of the workplace need to change so that you have equal opportunities to your peers to *participate* and effectively do your work? For example:

- Support and relationships, e.g., support from colleagues or supervisors, behaviour of people in the workplace
- Attitudes e.g., attitudes of colleagues, supervisors, family or others

- Services, systems and policies, e.g., job design, working hours, flexibility, transport, employment policy, workplace and hiring policies
- Products and technology, e.g., work equipment, IT, furniture, building access
- Natural environment and human-made changes to environment, e.g., sound, light, air or water

Response: Tick any categories that apply

Supplementary S 2: Online survey questions

Submitted as separate PDF files

Supplementary Table S2: Responses to disability questions

	Survey 1	Survey 2

Answer to test question (Q 1)	**D1**
	• 26.2% of respondents reported that they "experience difficulty related to a long-term health condition or impairment", including
	  ○ 14.4%, who answered "Yes, I sometimes or always experience difficulty."
	  ○ 11.8%, who answered "No, but I use equipment, technology, assistance or other techniques to avoid difficulty."
	• 73.8%, who answered "No difficulty."
		D2
		• 30.5% of respondents reported they "experience difficulty because of a long-term health condition or impairment (physical, mental, intellectual, sensory", including
		  ○ 22.7%, who answered "Yes, I sometimes or always experience difficulty."
		  ○ 7.7% answered "No, but I use equipment, technology, assistance or other techniques to avoid difficulty."
		• 69.5% answered "No difficulty."

Which (question) do you feel more comfortable answering? [User friendliness of the question] (Q 6)	• 93.3% rated question D1 as being "somewhat easy to understand", "easy to understand", or "very easy to understand." • 6.7% rated it as being "very hard to understand", or "not very easy to understand."	• 90.9% rated question D2 as being "somewhat easy to understand", "easy to understand", or "very easy to understand." • 9.1% rated it as being "very hard to understand", or "not very easy to understand."
Further explanation of wording needed (Q 7)	• 12.5% indicated that further explanation of the wording of D1 was needed. •	• 15.5% indicated that further explanation of the wording of D2 was needed. •
Which (question) do you feel more comfortable answering? (Q 8)	• 52.1% considered that D2 would be more comfortable to answer, vs 47.9% for D1.	• 62.7% considered that D1 would be more comfortable to answer, vs 37.3% for D2.
Listing of everyday life areas with examples (Q 9)	• 67.7% preferred having the examples of everyday life areas listed, as in D1.	• 69.1% preferred having the examples of everyday life areas listed, as in D1.
Examples of "long-term health conditions" (Q 10)	• 64.5% considered the examples of "long-term health conditions" in D1 helpful.	• 60.0% considered the examples of "long-term health conditions" helpful, as in D1
Reported yes/no to "do you have a disability"? (Q 11)	• 16.6% reported "having a disability." • 83.4% said "no"	• 26.8% reported "having a disability." • 73.2 reported "no"

Supplementary Table S3: Responses to environment questions

Answer to test question, i.e., need to improve/adjust aspects of the work environment (Q 13)	**EN1 – Improvement needed in:** • 23.0% - Support and relationships • 31.0% - Attitudes • 28.4% - Services, systems and policies • 25.6% - Products and technology • 20.4% - Natural environment and human-made changes • 40.6% No improvement needed	**EN2 – Adjustments needed in:** • 16.4% - Support and relationships • 16.4% - Attitudes • 20.5% - Services, systems and policies • 24.1% - Products and technology • 12.3% - Natural environment and human-made changes • 56.4% No adjustment needed
How easy is this question to understand? [User friendliness] (Q 14)	• 94.9% rated question EN1 as "somewhat easy to understand", "easy to understand", or "very easy to understand." • 5.1% rated it as "not very easy to understand"	• 98.6% rated question EN2 as "somewhat easy to understand", "easy to understand", or "very easy to understand." • 1.4% rated it as "very hard to understand", or "not very easy to understand."
Further explanation of wording needed? (Q 15)	• 7.1% indicated that further explanation of the wording was needed. • 92.9% reported no such need	• 11.4% indicated that further explanation of the wording was needed. • 88.6% reported no such need
Which question do you feel more comfortable answering? (Q 16)	• 58.8% indicated that they would be more comfortable answering EN1, vs 41.2% for EN2.	• 50.7% indicated that they would be more comfortable answering EN1, vs 49.3% for EN2.
Improvements/adjustments to aspects of the work environment (Q 18)	**EP1 – Improvement made in:** • 14.4% - Support and relationships • 9.3% - Attitudes • 12.5% - Services, systems and policies • 20.8% - Products and technology • 5.4% - Natural environment and human-made changes • 57.2% No improvement made	**EP2 - Adjustment made in:** • 11.6% - Support and relationships • 5.9% - Attitudes • 13.2% - Services, systems and policies • 17.3% - Products and technology • 7.3% - Natural environment and human-made changes • 64.5% No adjustment made
How easy is the question to understand? [User friendliness] (Q 19)	• 96.1% rated question EP1 as "somewhat easy to understand", "easy to understand", or "very easy to understand."	• 96.6% rated question EP2 as "somewhat easy to understand", "easy to understand", or "very easy to understand." • 3.4% rated it as "not very easy to understand."

	• 3.9% rated it as "very hard to understand", or "not very easy to understand."	
Further explanation of wording needed? (Q 20)	• 6.0% indicated that further explanation of the wording of Question 18 was needed • 94.0% reported no such need	• 10.3% suggested that further explanation of the wording was needed. • 89.7% reported no such need
Which question do you feel more comfortable answering? (Q 21)	• 54.8% indicated that they would be more comfortable answering EP1, vs 45.2% for EP2	• 52.0% indicated that they would be more comfortable answering EP1, vs 48.0% for EP2

Supplementary Table S4. Characteristics of Workforce Profile compared to People Matter Employee Survey

Workforce Profile (WFP)	People Matter Employee Survey (PMES)
Information collected in agency HR systems: individuals able to be identified in local HR systems, but not when aggregated and collected by PSC for WFP.	Not able to be identified; anonymous and confidential.
Dual purpose: workforce profile (to inform policy interventions) and agency HR.	Purpose: to inform policy interventions at the sector and agency levels.
Collected for all employees, although providing this information is not compulsory. The 2016 response rate to the disability question was 70.9%, which includes employees identifying as having a disability and those identifying as not having a disability. Response rates also vary across individual agencies.	Participation by employees is voluntary. The 2016 survey response rate was 36%. Of those employees who participated, the response rate to the two disability questions was 89.7%, which includes employees identifying as having a disability and those identifying as not having a disability, as well as "prefer not to say".
Relies on employees to update their information when their circumstances change.	Employees are asked to complete the survey each year.
Enables analyses with other data collected in the workforce profile (salary, age, job classification, tenure, etc.).	Enables analyses with other data collected in PMES, mainly focused on employee opinion rather than workforce profile.
As provided within the many and varied HR systems utilised across the sector, there is likely inconsistency in how the questions are presented to employees.	As the survey is centrally organised, the way in which the question is presented is controlled, providing a higher quality of responses.
Any change of the wording or nature of questions takes time and brings about expenses for each agency in reconfiguring their HR systems, and will likely lead to lower response rates for several years.	Easy and low cost to implement changes.

Source: Created with reference to PSC 2018a and 2018b [1,2]

Reference

1. Public Service Commission (PSC). *Workforce Profile Report*; PSC: New South Wales Australia, 2018a. Available online: https://www.psc.nsw.gov.au/reports---data/workforce-profile/workforce-profile-reports/workforce-profile-report-2018
2. Public Service Commission (PSC). *People Matter Employee Survey*; PSC: New South Wales Australia, 2018b. Available online: https://www.psc.nsw.gov.au/reports---data/workforce-profile/workforce-profile-reports/workforce-profile-report-2018