McMaster University

Family Medicine

David Braley Primary Care Research Collaborative

@McMasterFamMed

Validating Tools

[Watch a recording of the session here]

Matt Kwan & Jeff Graham

April 23rd, 2019

Michael G. DeGroote SCHOOL OF MEDICINE

McMaster University

Family Medicine

Research Knowledge and Skill Builder: Validating Tools

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McMaster University Family Medicine

University of Toronto Faculty of Kinesiology & Physical Education

Michael G. DeGroote School of Medicine

Objectives of this Session:

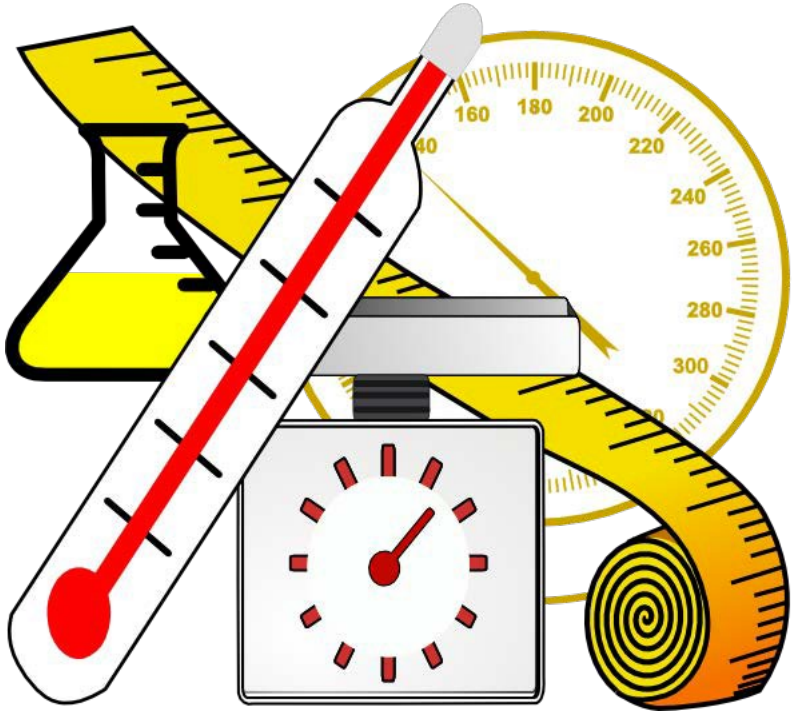
(1) Provide an overview of validity and reliability;

(2) Highlight the importance of validating research tools;

(3) Provide examples within INCH of how we have validated tools and test for reliability;

(4) Facilitate discussion or answer questions.

Validating Tools



What are tools?

What are tools?

ndds.ca
nipissing district developmental screen®

Child's Name: _____
Birthdate: _____ Today's Date: _____

The Nipissing District Developmental Screen is a checklist designed to help monitor your child's development.

Y	N		BY **EIGHTEEN MONTHS** OF AGE, DOES YOUR CHILD:
O	O	1	Identify pictures in a book? *("show me the baby")**
O	O	2	Use a variety of familiar gestures? *(waving, pushing, giving, reaching up)**
O	O	3	Follow directions using "on" and "under"? *("put the cup on the table")**
O	O	4	Make at least four different consonant sounds? *(b, n, d, h, g, w)**
O	O	5	Point to at least three different body parts when asked? *("where is your nose?")**
O	O	6	Say 20 or more words? *(words do not have to be clear)*
O	O	7	Hold a cup to drink?**
O	O	8	Pick up and eat finger food?
O	O	9	Help with dressing by putting out arms and legs?**
O	O	10	Walk up a few stairs holding your hand?
O	O	11	Walk alone?
O	O	12	Squat to pick up a toy and stand back up without falling?
O	O	13	Push and pull toys or other objects while walking forward? A
O	O	14	Stack three or more blocks?
O	O	15	Show affection towards people, pets, or toys?
O	O	16	Point to show you something?
O	O	17	Look at you when you are talking or playing together?

18 MONTHS English

* Examples provided are only suggestions. You may use similar examples from your family experience.
** Item may not be common to all cultures.

Always talk to your healthcare or childcare professional if you have any questions about your child's development or well being. See reverse for instructions, limitation of liability, and product license. Nipissing District Developmental Screen © 2011 Nipissing District Developmental Screen Intellectual Property Association. All rights reserved.

ndds.ca
nipissing district developmental screen®

Emotional | Fine Motor | Gross Motor | Social | Self-Help | Communication | Learning & Thinking

The following **activities for your child** will help you play your part in your child's development.

I feel safe and secure when I know what is expected of me. You can help me with this by following routines and setting limits. Praise my good behaviour.

I like toys that I can pull apart and put back together—large building blocks, containers with lids, or plastic links. Talk to me about what I am doing using words like "push" and "pull".

I'm not too little to play with large crayons. Let's scribble and talk about our art work.

Don't be afraid to let me see what I can do with my body. I need to practise climbing, swinging, jumping, running, going up and down stairs, and going down slides. Stay close to me so I don't get hurt.

Play some of my favourite music. Encourage me to move to the music by swaying my arms, moving slowly, marching to the music, hopping, clapping my hands, tapping my legs. Let's have fun doing actions while listening to the music.

Let me play with balls of different sizes. Take some of the air out of a beach ball. Watch me kick, throw, and try to catch it.

I want to do things just like you. Let me have toys so I can pretend to have tea parties, dress up, and play mommy or daddy.

I like new toys, so find the local toy lending library or play groups in our community.

I am learning new words every day. Put pictures of people or objects in a bag and say "1, 2, 3, what do we see?" and pull a picture from the bag.

Pretend to talk to me on the phone or encourage me to call someone.

Help me to notice familiar sounds such as birds chirping, car or truck motors, airplanes, dogs barking, sirens, or splashing water. Imitate the noise you hear and see if I will imitate you. Encourage me by smiling and clapping.

I like simple puzzles with two to four pieces and shape-sorters with simple shapes. Encourage me to match the pieces by taking turns with me.

I enjoy exploring the world, but I need to know that you are close by. I may cry when you leave me with others, so give me a hug and tell me you will be back.

I may get ear infections. Talk to my doctor about signs and symptoms.

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ASQ-3™

The developmental screener trusted across the country

Screening with a valid, reliable tool helps you check that children's development is on track, identify strengths and needs, and plan learning activities that help the kids in your program reach key milestones.

Trusted for nearly 20 years, ASQ-3™ is a quick, family-friendly screener that makes it easy to check child development. This practical tool-kit will help you get started with ASQ-3! Use these handouts, checklists, charts, and other resources to **learn about ASQ-3**, **involve families** in the screening process, and **track child development**. You'll also learn from the success stories of programs like yours and see how they used ASQ-3 to enhance their current practices.

Whether you're new to screening or looking to improve your existing program, these resources will help you take full advantage of everything ASQ-3 has to offer.

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Order ASQ-3 ..... BACK COVER

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What are tools?

PATIENT HEALTH QUESTIONNAIRE (PHQ-9)

NAME: _____ **DATE:** _____

Over the last 2 weeks, how often have you been bothered by any of the following problems?
(use "✓" to indicate your answer)

	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself—or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed. Or the opposite—being so figety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead, or of hurting yourself	0	1	2	3
	add columns	+	+	
	TOTAL:			

(Healthcare professional: For interpretation of TOTAL, please refer to accompanying scoring card).

10. If you checked off *any problems*, how *difficult* have these problems made it for you to do your work, take care of things at home, or get along with other people?

- Not difficult at all _____
- Somewhat difficult _____
- Very difficult _____
- Extremely difficult _____

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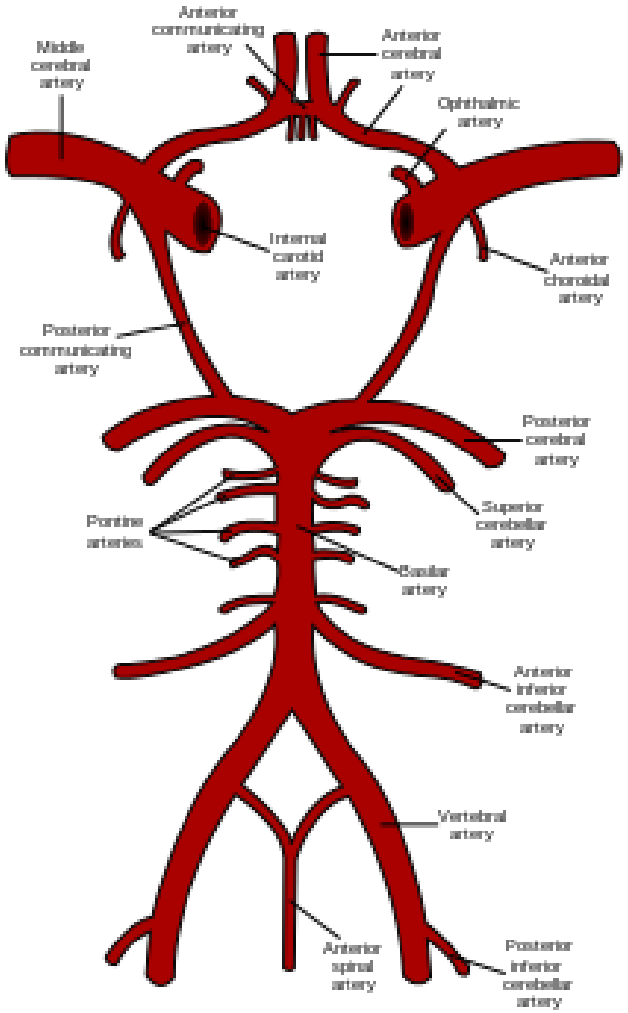
A2663B 10-04-2005

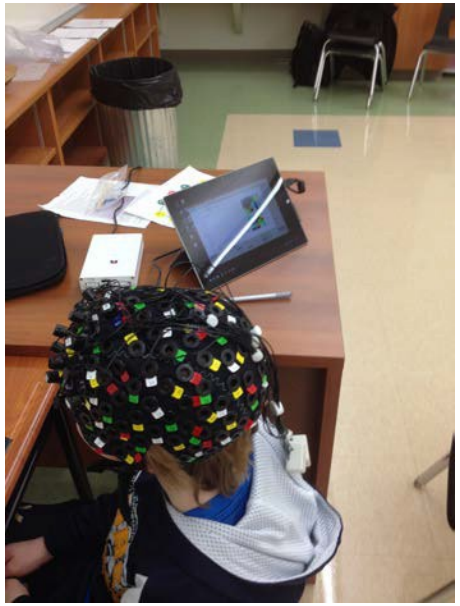
Name_____Date_____

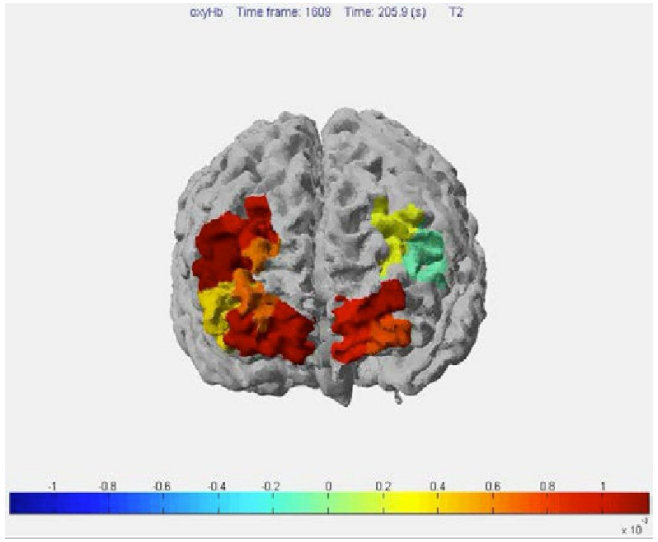
For all questions, please circle the answer *most* commonly related to you. Questions 3 and 6 automatically receive a score of one if the proceeding question was 'none of the time'.

In the past four weeks:	None of the time	A little of the time	Some of the time	Most of the time	All of the time
1. About how often did you feel tired out for no good reason?	1	2	3	4	5
2. About how often did you feel nervous?	1	2	3	4	5
3. About how often did you feel so nervous that nothing could calm you down?	1	2	3	4	5
4. About how often did you feel hopeless?	1	2	3	4	5
5. About how often did you feel restless or fidgety?	1	2	3	4	5
6. About how often did you feel so restless you could not sit still?	1	2	3	4	5
7. About how often did you feel depressed?	1	2	3	4	5
8. About how often did you feel that everything is an effort?	1	2	3	4	5
9. About how often did you feel so sad that nothing could cheer you up?	1	2	3	4	5
10. About how often did you feel worthless?	1	2	3	4	5
Total:					

What are tools?







Features of a Good Outcome Measure

Understanding the basics of reliability and validity

Features of Good Outcome Measures

- Reliability – the extent to which an instrument yields the same results in repeated administrations in a stable population
- Validity – the extent to which an instrument measures what it is intended to measure
- Sensitivity to Change – the ability to measure change
- Responsiveness – the ability to measure clinically meaningful change

Features of Good Outcome Measures

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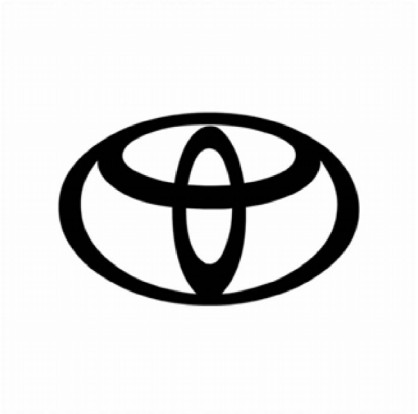
- **Validity** – the extent to which an instrument measures what it is intended to measure
- Sensitivity to Change – the ability to measure change
- Responsiveness – the ability to measure clinically meaningful change

What is reliability



- **Reliability** – the extent to which an instrument yields the same results in repeated administrations in a stable population

  Fundamental way to reflect the amount of error both random and systematic, inherent in any measurement

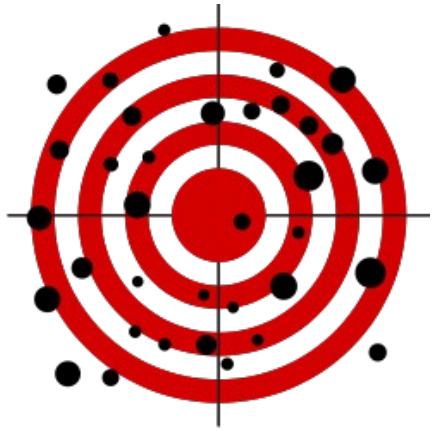
  – Error occurs – in every context, but we want to ensure that we limit variability

What is validity

- **Validity** – the extent to which an instrument measures what it is intended to measure
- To get at what is being measured and the relationship of that variable to the purported cause
  - Quantifying something that cannot be easily observed and measured directly

Illustration of Validity & Reliability

Unreliable & Unvalid



Unreliable, But Valid

Reliable, Not Valid

Both Reliable & Valid

Unreliable & Not Valid
Not precise nor accurate

Unreliable but Valid
Not precise but accurate

Reliable but Not Valid
Precise but not accurate

Reliable & Valid
Precise and accurate

Reliability

- **Intra-rater** – within-rater agreement
  - e.g. TA 1 grades same assignment (consistency between ratings)
- **Inter-rater** – between raters
  - e.g. TA 1 and TA 2 grade same assignment (consistency between raters)
- **Test-retest** – between administrations
  - e.g. Administer PLAYtool at time 1 and again 2 weeks later (stability of administration)
- **Internal Consistency** – between items (are items tapping into the same construct)
  - e.g. 10 item QoL scale ➔ $0.7 < \alpha < 0.9$

Measuring Validity

- **Criterion** – behaves as expected compared to gold/reference standard or other like measures (**predictive/concurrent**)
  - e.g. Self-report PA measure to doubly-labeled water
  - e.g. 20m shuttle run ➔ cycle ergometer (VO_2 max)
- **Construct** – behaves as expected to accurately represent reality (**convergent/discriminant**)
  - e.g. Depression – data structure to represent the affective and behavioural domains
- **Face** – perceived as something that accurately represent reality
  - e.g. Quality of Life – interdisciplinary expert panel ratings

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Canadian Campus Wellness Survey (CCWS)

Canadian Campus Wellbeing Survey | Bien-Être sur les Campus Canadiens

CCWS: Context

Okanagan Charter: Engaging higher education institutions to advance the health-promoting campuses movement within Canada

- Robust data required to take a '<u>whole campus</u>' approach to wellbeing.
- ***In the absence of a Canadian surveillance mechanism***, Canadian institutions have participated in the National College Health Assessment service of the American College Health Association (NCHA-ACHA).

Vision of CCWS

- Long-term vision is building and implementing a comprehensive and coordinated Canadian Post-secondary Health Surveillance System
- To create a campus-based data collection and knowledge exchange system designed to inform and guide the

    1. development,
    2. evaluation, and
    3. targeting

    of programs, policies and resources designed to promote wellbeing among students (*staff and faculty*).

Rowing in the same direction

- NSSE/Undergraduate Experience Survey
- Campus Climate Survey
- CPADS (Canadian Postsecondary Education Alcohol and Drug use Survey (CPADS)
- Bell Let's Talk and The Rossy Family Foundation commit $1 million to develop a national standard for post-secondary student mental health with the Mental Health Commission
  - **With plans to develop an institutional audit tool**

Measures of Student Wellness

1. **Campus-level**
   - Programs and Policies Audit

2. **Student-level**
   - Canadian Campus Wellbeing Survey (CCWS)

Primary Task: Develop a comprehensive yet succinct tool that can reliably assess student wellness across a variety of PS contexts

Canadian Campus Wellbeing Survey | Bien-Être sur les Campus Canadiens

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Delphi survey & panel (April-May 2018)

Broader consultation via CACUSS/CHPC (July-Aug 2018)

Research panel (September 2018)

Development and formative testing (October-December 2018)

Pilot testing (Spring 2019/Fall 2019)

Development Process

- 19 panelists (26 perspectives); 12 post-secondary institutions; 5 provinces
  - Student Service Stakeholders
- 3-round Delphi: 9 sections and associated indicators generated from existing population surveys
  - National College Health Assessment (NCHA)
  - Healthy Minds Study (HMS)
  - Positive Health Surveillance Indicator Framework (from PHAC)
  - Canadian Health Measures Survey (CHMS)

What are the most salient themes and indicators?

Round 1		Round 2 M(*SD*)	Round 3 M(*SD*)	Final M(*SD*)
Mental health assets	1	Mental health assets 1.7(*1.3*)	Campus climate and culture (i.e., social determinants of health 2.8(*1.2*)	Mental health assets 1.7(*0.9*)
Mental health deficits	2	Campus climate and culture 4.0(*2.1*)	Mental health assets 2.8(*1.6*)	Campus climate and culture (i.e., social determinants of health 2.0(*1.1*)
Mental health service utilization/help-seeking on campus	3	Mental health deficits 4.2(*2.4*)	Mental health deficits 3.9(*2.6*)	Mental health deficits 3.3 (*1.5*)
Campus climate and culture	4	Physical health and health behaviours 4.3(*1.9*)	Mental health service utilization/help-seeking on campus 4.3(*1.5*)	Mental health service utilization/help-seeking on campus 4.1(*1.0*)
Substance use	5	Mental health service utilization/help-seeking on campus 4.3(*2.2*)	Physical health and health behaviours 4.8(*2.2*)	Physical health and health behaviours 4.9(*1.4*)
Eating and body image	6	Academic achievement 5.4(*2.9*)	Academic achievement 5.5(*1.3*)	Academic achievement 5.4(*1.5*)
Sexual health behavior	7	Substance use 5.9(*1.6*)	Substance use 6.6(*1.3*)	Substance use 6.7(*0.8*)
Academic achievement	8	Eating and body image 7.3(*1.2*)	Eating (nutrition) and body image 8.5(*1.6*)	Eating (nutrition) and body image 7.6(*0.6*)
Physical health and health behaviours	9	Sexual health behavior 7.5(*1.6*)	Sexual health behavior 9.7(*1.7*)	Sexual health behavior 9.0(*0.3*)
	10		Adverse childhood experiences 11.7(*2.1*)	Adverse childhood experiences 9.68(*0.9*)

May Panel Meeting, UBC

Canadian Campus Wellbeing Survey | Bien-Être sur les Campus Canadiens

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Measurement Expert Meeting, Toronto September 2018

Round 1		Round 2 M(*SD*)	Round 3 M(*SD*)	Final M(*SD*)
Mental health assets	1	Mental health assets 1.7(*1.3*)	Campus climate and culture (i.e., social determinants of health 2.8(*1.2*)	Mental health assets 1.7(*0.9*)
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	10		Adverse childhood experiences 11.7(*2.1*)	Adverse childhood experiences 9.68(*0.9*)

- Operationalize indicators
- Identify valid/reliable measures
- Identify measures within population databases

Canadian Campus Wellbeing Survey | Bien-Être sur les Campus Canadiens

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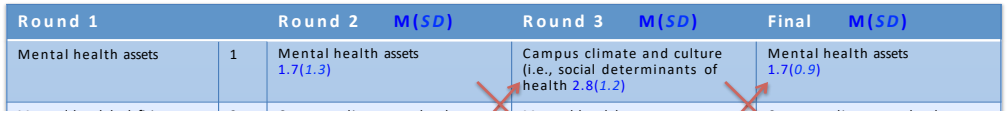
Example Case: Mental Health Asset



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Flourishing (14 items; Keyes, 2005)

(i) happy,

(ii) interested in life,

(iii) satisfied…

Warwick-Edinburgh Mental Well-being Scale (WEMWBS) (14 items; Stewart-Brown et al. 2008)

(i) I've been feeling useful

(ii) I've been thinking clearly

(iii) I've been interested in new things

Validation of WEMWBS

Validation to date has been performed in the UK with those aged 16 and above. WEMWBS was initially validated in student samples recruited at the universities of Warwick and Edinburgh in 2006, and subsequently discussed by two mini-focus groups in Scotland and England (Tennant *et al.*, 2006; Tennant *et al.*, 2007). WEMWBS was then included in two national Scottish population surveys in 2006 allowing validation using population data.

Table 1 below lists whether or not the psychometric tests involved in validating a scale have been performed on WEMWBS and if so the sample(s) used. Details of the results are given on the following pages.

Table 1: Psychometric testing of WEMWBS

Psychometric test	Tested	Sample
Principal components factor analysis	✓	Student population samples & Scottish general population samples
Construct validity	✓	Student population samples & Scottish general population samples
Internal consistency	✓	Student population samples & Scottish general population samples
Test-retest reliability	✓	Student population samples
Response Bias	✓	Student population samples
Face (or content) validity	✓	WEMWBS research advisory group & Focus groups
Rasch analysis	✓	Scottish general population samples
Sensitivity to change	x	Currently being assessed
Criterion validity	x	'Gold standard' measure to assess WEMWBS against does not currently exist
Cross-cultural validity	x	Interest has been expressed in using WEMWBS in other countries. An Icelandic version has been created by translation and back-translation.

Criterion Validity

Table 2: Correlation of WEMWBS to other scales

Scale	n	Correlation with WEMWBS$^{\alpha}$
WHO-Five Well-being Index	79	0.77**
Short Depression Happiness Scale	71	0.76**
Positive and Negative Affect Scale – Positive Subscale	63	0.73*
Positive and Negative Affect Scale – Negative Subscale	63	-0.55**
Satisfaction With Life Scale	79	0.72**
Global Life Satisfaction Scale	77	0.55**
Scale of Psychological Well-being	63	0.73**
EQ-5D Thermometer	72	0.42**
Emotional Intelligence Scale	67	0.51**

$^{\alpha}$ Pearson's correlation coefficient

* => significant at 0.05 level

** => significant at 0.01 level

Test of Reliability

Internal consistency

Considers whether the scale describes a consistent underlying theme – in this case, it considers the extent to which WEMWBS's items are focused on assessing mental well-being. Scores range from 0 to 1 and are measured by Cronbach's alpha coefficient. The higher the co-efficient, the more highly correlated the items in the scale. A coefficient of 0.7-0.8 is ideal (Nunnally, 1978), and higher coefficients may suggest that some degree of item redundancy exists in the scale.

Cronbach's alpha coefficient = 0.89 (n = 348).

This high coefficient suggests that, while there is a good level of internal consistency, there may be scope to reduce even further the number of items in the scale (analyses are currently underway to explore the potential for a shortened scale, see section 10)

Test-retest reliability

Considers the stability of responses over a period of time. Test-retest reliability is determined by calculating the correlation between two sets of scores for the same group of people who repeat the test after a set period of time. For WEMWBS, the time period was one week.

Correlation$^{\alpha}$ = 0.83 after one week (n = 124)

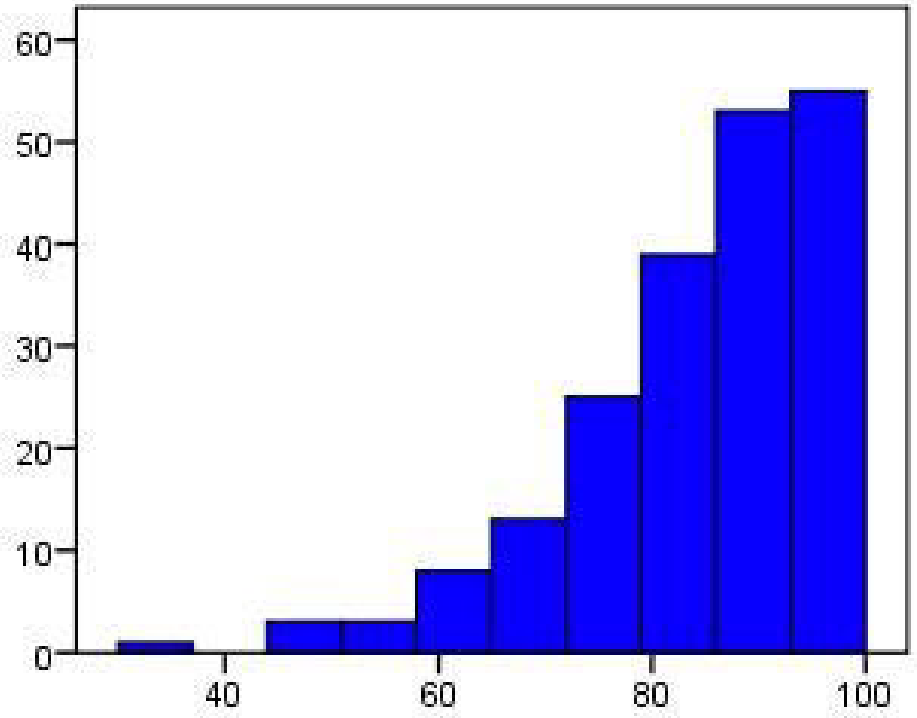
$^{\alpha}$ Intra-class correlation coefficient

The test-retest reliability score was high for WEMWBS after one week. This suggests that the transient fluctuations that a person may experience from one day to the next are not reflected in the scores, and these scores remain robust over a short period of time.

Measured in the Scottish Health Education Population Survey (N= 2075)

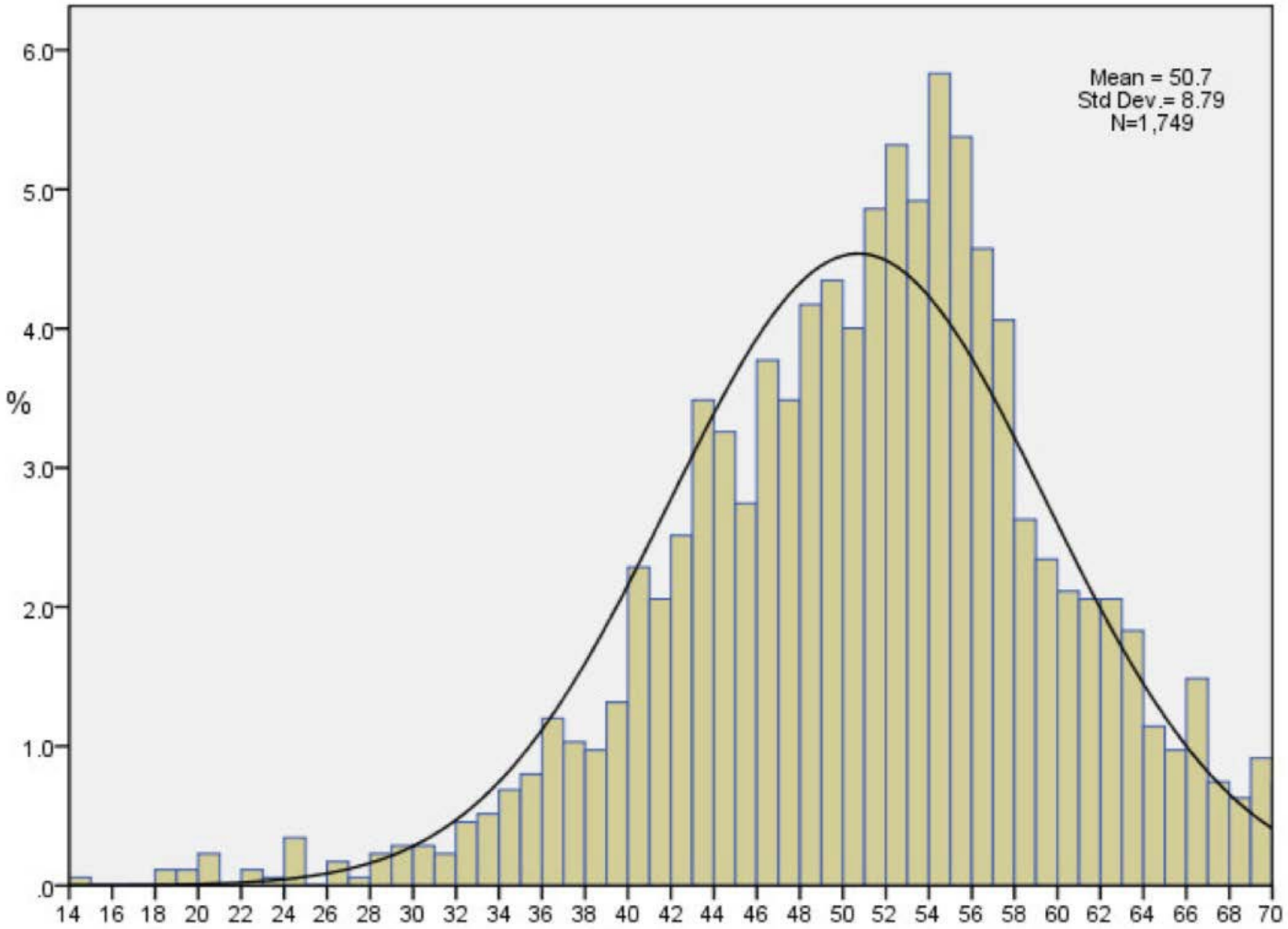
Analysis of combined data from these two population surveys (n = 2075 for the combined datasets, with complete WEMWBS scores for n = 1749 and complete GHQ 12 scores for n = 1239) have confirmed the findings of the student validation (Tennant *et al.*, 2007):

- verification of a pre-hypothesised single underlying factor (n = 1749)
- Cronbach's alpha = 0.91 (n = 1749), again indicating that while there is a good level of internal consistency, there may be scope to reduce the number of items in the scale even further
- good performance against accepted criteria, discriminating population groups largely as expected and in a way consistent with other population surveys (see section 7 and Appendix iii)
- significant moderate negative correlation to the General Health Questionnaire 12 (GHQ 12) (see section 7).



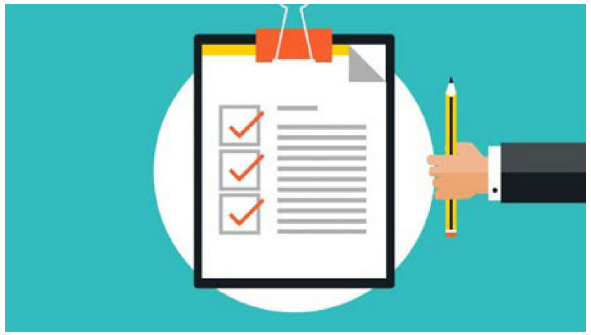
Flourishing

Figure 2: Distribution of WEMWBS scores for the combined HEPS (wave 12) and Well? 2006 datasets (n = 1749)



WEMWBS Score

Next Steps for CCWS



- Pilot testing content (Think Aloud)
- Test-Retest of CCWS (UBC & Humber College)
- CACUSS: Panel discussion to university services (June)
- Formal Piloting: BC Gov't funding all postsecondary schools to administer the CCWS in Fall 2019.
- Development of a corresponding institutional audit tool

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Sport for Life

Mitacs

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Physical Literacy

PLAYfun Tool

CANADA'S NATIONAL BALLET SCHOOL

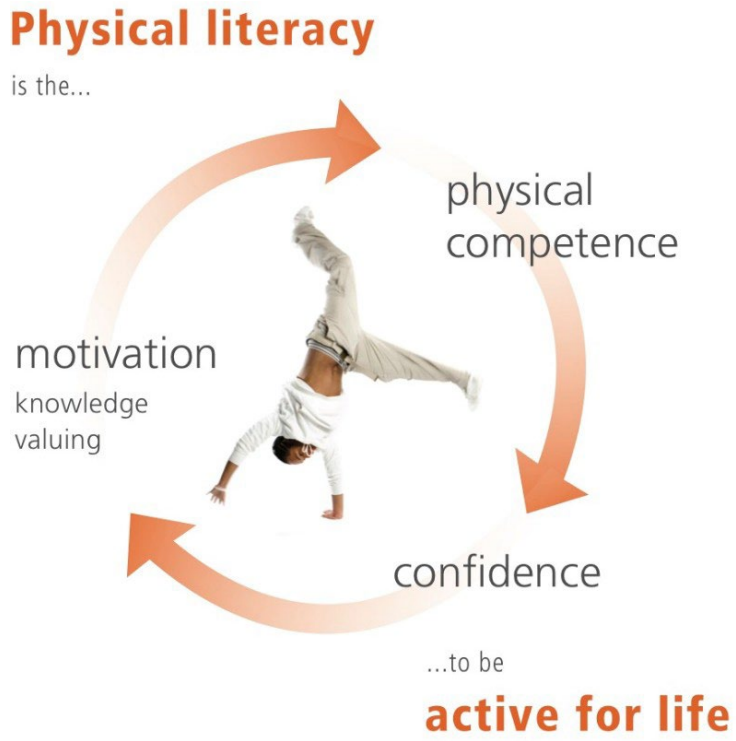
Sharing Dance

Physical Literacy

- **Physical Literacy** refers to the **competence, confidence, motivation, knowledge and understanding necessary for continued engagement in physical activity** (IPLC, 2014)

  – Multidimensional construct

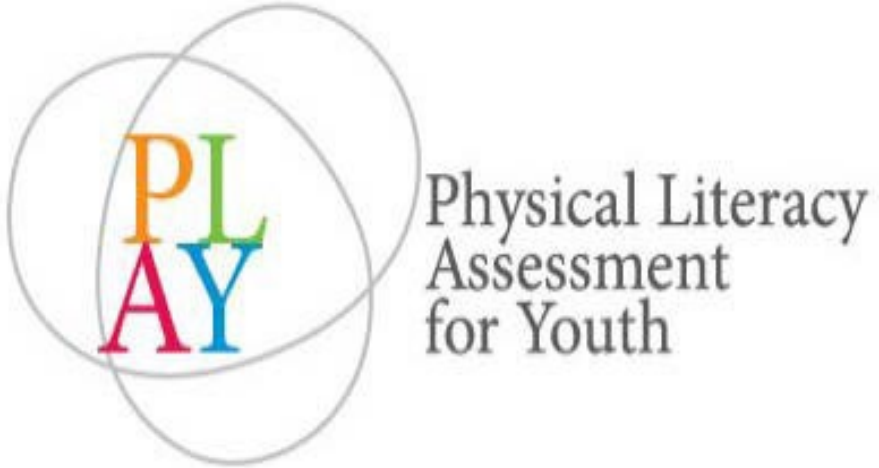
  – Measuring physical literacy using valid and reliable tools
    - Physical Literacy Assessment for Youth (PLAY) tools
    - Canadian Physical Literacy Assessment (CAPL)



Physical Literacy Assessment for Youth (PLAY tools)

- Collection of workbooks, forms and score sheets, which comprise the tools designed to assess physical literacy in children and youth.

- Assess individuals **aged 7 and up** and track physical literacy over time.



Domains

- **Physical**
  - Competence
  - Environments
  - Diversity
- **Cognitive/Affective**
  - Comprehension
  - Self-efficacy
  - Worry
  - Confidence
- **Behavioural**
  - Participation

Tools

- PLAY Fun
  - Motor Competence
  - Confidence
  - Comprehension of terms
- Perception
  - PLAY Self
  - PLAY Parent
  - PLAY Coach
- Participation/ Behaviour
  - PLAY Inventory
    - Number of activities
    - Environment

PLAYfun tool

- Assessment of 18 tasks that cover key **movement skills** across 5 domains
  - Running
  - Locomotor
  - Object Control – Upper Body
  - Object Control – Lower Body
  - Balance, Stability, & Body Control

Tasks

1. Run a square
2. Run there and back
3. Run, jump, then land on two feet
4. Crossovers
5. Skip
6. Gallop
7. Hop
8. Jump
9. Overhand throw
10. Strike with stick
11. One-handed catch
12. Hand dribble stationary & moving forward
13. Kick ball
14. Foot dribble moving forward
15. Balance walk (heel-to-toe) forward
16. Balance walk (heel-to-toe) backward
17. Drop to ground & back up
18. Lift & lower

Domains

1. Running
2. Locomotor
3. Object control – upper body
4. Object control – lower body
5. Balance, stability, and body control

PLAYfun Scoring Form

Task	Competence			
	Developing		Acquired	
	Initial	Emerging	Competent	Proficient
1. Run a square			X	
2. Run there and back				
3. Run, jump, then land on two feet				
4. Crossovers				
5. Skip				
6. Gallop				
7. Hop				
8. Jump				
9. Overhand throw				
10. Strike with stick				
11. One-handed catch				
12. Hand dribble stationary & moving forward				
13. Kick ball				
14. Foot dribble moving forward				
15. Balance walk (heel-to-toe) forward				
16. Balance walk (toe-to-heel) backward				
17. Drop to ground & back up				
18. Lift and lower				

PLAYfun tool

- **Establishing Reliability**
  - INCH lab training workshops (1.5 – 2 day)
    - Introduction to Physical Literacy
      - Multidimensional nature of the construct
    - Use of videos
      - Group and individual scoring
    - Hands-on practice
      - Familiarity of administration and scoring
    - **Assessment of inter-rater reliability**
      - Everyone assesses the same children (n = 10) individually

PLAYfun Training Video - Skipping

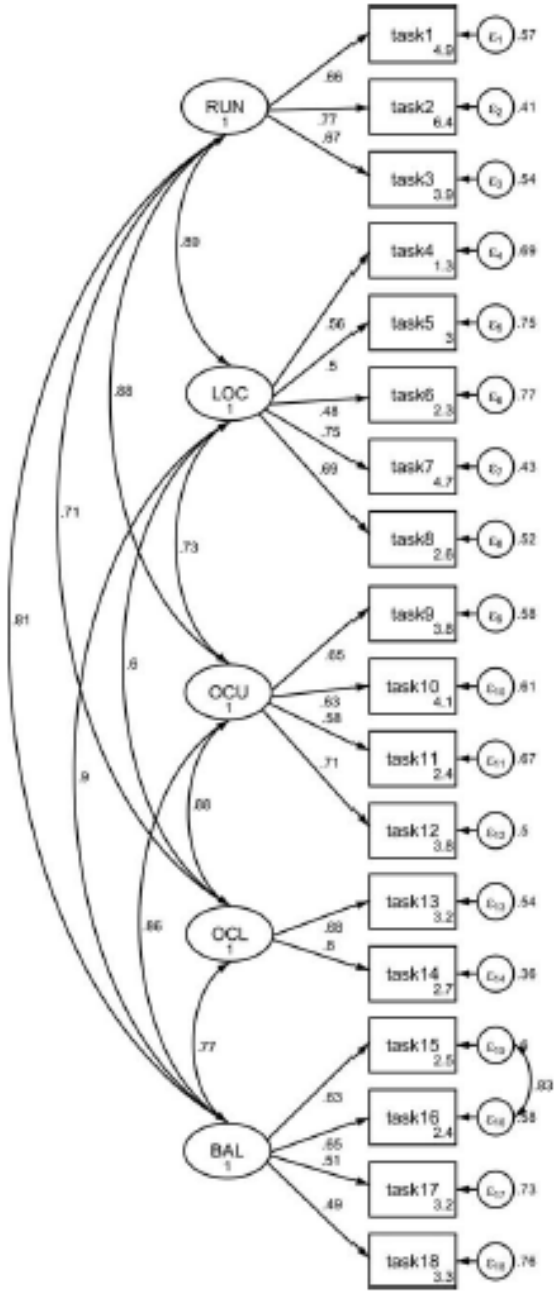
PLAYfun tool

- **Inter-rater reliability/agreement**
  - Intraclass correlation (ICC) was good (0.87)
    - INCH members generally assessing the same children at the same “level” of movement competence
      - Doesn’t matter who does the assessment
    - Necessary for testing in multiple settings and locations
      - Gym, large or small space, different cities
    - Necessary for assessing change overtime
      - Impact of interventions
    - Physical Literacy for Communities project (PL4C)
      - 6 communities across Canada, tracking ~2000 grade 2-3 children over 3-5 years

	Competence			
	Developing		Acquired	
Task	Initial	Emerging	Competent	Proficient
1. Run a square			X	
2. Run there and back		X		
3. Run, jump, then land on two feet		X		
4. Crossovers				
5. Skip				
6. Gallop				
7. Hop				
8. Jump				
9. Overhand throw				
10. Strike with stick				
11. One-handed catch				
12. Hand dribble stationary & moving forward				
13. Kick ball				
14. Foot dribble moving forward				
15. Balance walk (heel-to-toe) forward				
16. Balance walk (toe-to-heel) backward				
17. Drop to ground & back up				
18. Lift and lower				

PLAYfun tool

- **Establishing Construct Validity**
  - Does PLAYfun assess different domains of motor competence?
    - Do the different tasks that make up each domain “map” onto each domain?
  - Cairney et al (2018)
    - Sample of 215 children across Ontario
    - Confirmatory factor analysis confirmed five-factor model of PLAYfun
      - Items map onto unique domains



PrePLAY tool

- PLAYfun tool limited to children 7 year of age and older
- **PrePLAY → Pre-school Physical Literacy Assessment Tool**
  - 19-items across 3 domains
    - Movement competence, Coordinated movements, Motivation and enjoyment

Compared to other children the same age, how would you rate this child on each of the following skills:

1. Sending upper body (using body only/no equipment; e.g., arms/hands/head):

Does not Display Skills	Displays Skill with Instruction	Displays skills without instruction	Displays with other skills	Displays creativity combining skills

PrePLAY tool – Reliability and Validation

- Cairney et al. (2018) – 78 children (19-49 months), brief 45-min training session with Early Childhood Educators across 5 childcare centres in Hamilton

  - **Inter-item reliability was good**
    - Degree items appeared to measure a consistent construct (sending vs. receiving items)
  - **Intra-rater reliability was good**
    - Same rater was consistent overtime
  - **Inter-rater reliability was good**
    - Raters were consistent between each other for the same child
  - **Criterion validity was acceptable**
    - PrePLAY scores similar to gold-standard for assessing gross motor skills in preschool aged children (Peabody Developmental Motor Scale)

McMaster University

Family Medicine

Developing Quality Sport Experiences

A measure for Children and Youth

SSHRC CRSH

Sport Experience Measure: Children and Youth (SEM:CY)

ELSEVIER

Addictive Behaviors

Volume 39, Issue 3, March 2014, Pages 497-506

Sport participation and alcohol and illicit drug use in adolescents and young adults: A systematic review of longitudinal studies

Matthew Kwan [a, b], Sarah Bobko [c], Guy Faulkner [d, e], Peter Donnelly [d], John Cairney [a, b, d, f, g, h]

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https://doi.org/10.1016/j.addbeh.2013.11.006

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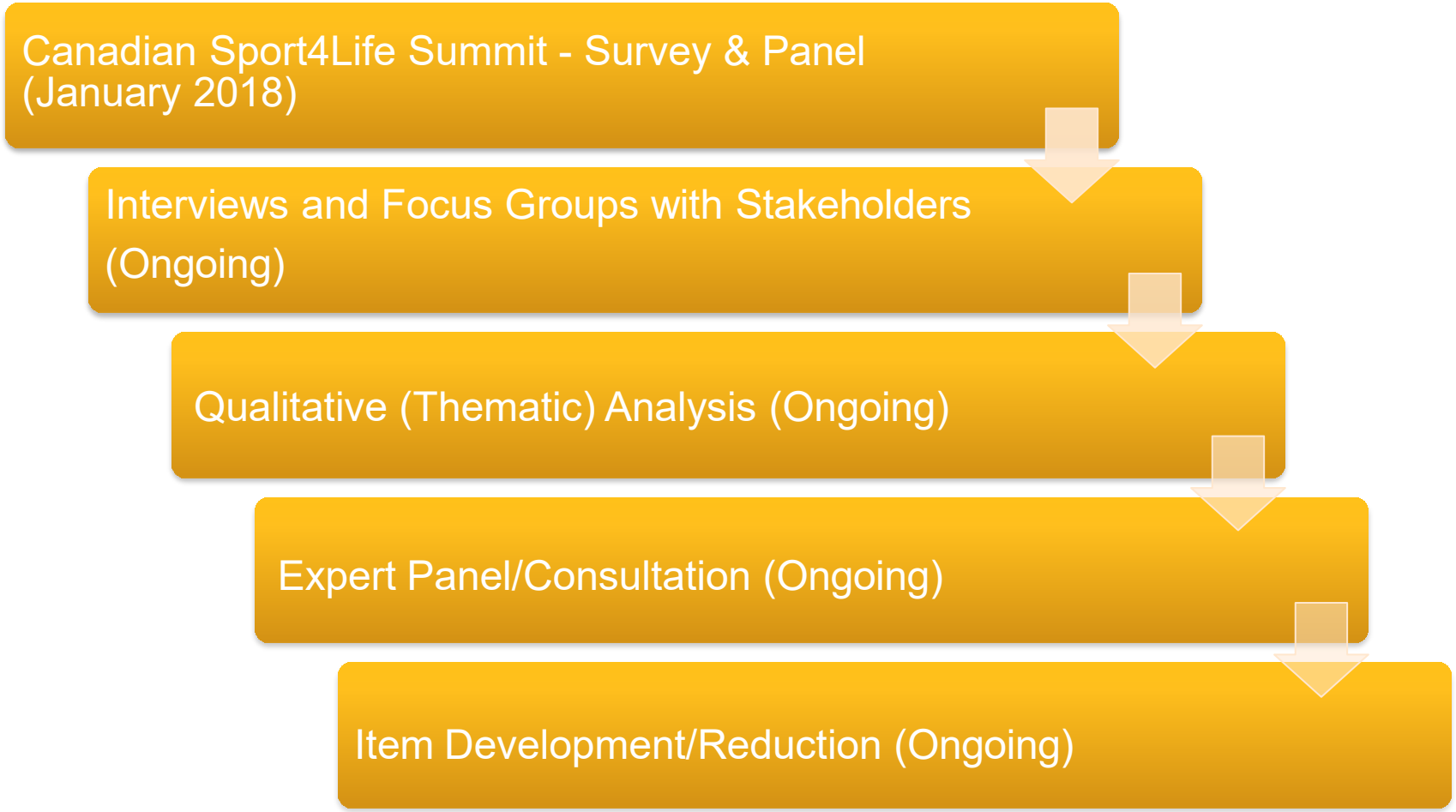
- **Blunt measure of sport (i.e., yes/no)**
- **No mention of quality**
- **Not all engagement is good engagement**

Development Phases



Development of the SEM:CY

Phase 1 (Crowd-Sourcing)

- Canadian Sport for Life 2018 – 80 participants

RSEQ Réseau du Sport étudiant du Québec in Outaouais

Seneca college Volunteer

City of Gatineau

New York road runners (non profit org.) - strategy, planning, and org. Operations

Ouje-Bougoumou Cree Nation Director of youth and recreation

RA Centre Coordinator

Boxing ontario ED

New York Road Runners

Academia, professor, scientist

Development of the SEM:CY

Phase 1

- **How do different stakeholders impact a youth's experience in sport?**

- **How would you define a quality sport experience in youth?**

- Booth + Special session for data collection
  - Paper and pencil survey, video interviews, focus groups, Mentimeter

Development of the SEM:CY

Phase 2 (Qualitative Work)

- Identify common themes that define a quality sport experience
  - Interviews and focus groups with different stakeholders within the sport community
    - Coaches, parents, youth, sport policy and community leaders

Interview Guide 1

Parents, Coaches, Community Leaders

What does a quality sport experience mean to you?

What do you feel are some key ingredients of a quality sport experience?

How do you feel that … **coaches/parents/teammates** … can impact a youth's experience in sport?

What does it look like when a youth is having a quality sport experience?

Out of all of the stakeholders, which group do you feel has the biggest impact on a youth's experience in sport?

Interview Guide Two

Youth

What are your favourite things about playing sports?

What are some ways that … **coaches/parents/teammates** can help you have a good experience in sport?

What are some ways that … **coaches/parents/teammates …** help you have a good experience in sport?

How important is winning to your … **coach/parents/teammates**?

How important is helping you play better to your … **coach/parents/teammates**?

What are some things that you have learned in sport?

Development of the SEM:CY

- **Phase 3 → Expert Panel**
  - Based on overarching themes
    - Did we miss anything? If so, go back and do Phases 2 + 3 again?
- **Phase 4 → Item generation**
  - Item reduction 1 – INCH team + experts in the field
  - Item reduction 2 – Factor analysis and/or structural equation modelling

Development of the SEM:CY

- Phase 5 – Test items against other measures (is this even possible though if others don't exist)?
- Phase 6 – Collect data across a variety of positive youth development outcomes to verify quality sport leads to them?

Summary:

- Important to consider validation and reliability of research tools – rigorous (sometimes onerous) yet necessary process

- Provided different examples of how we examine validity and reliability for projects within INCH

- Prompted some thinking about how validating tools and testing for reliability may be applicable in your specific projects

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