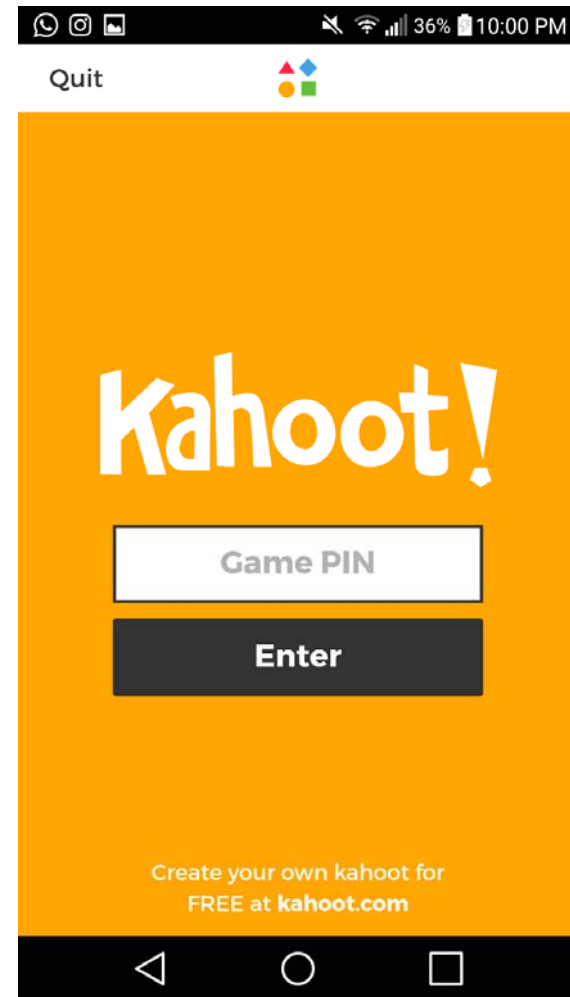
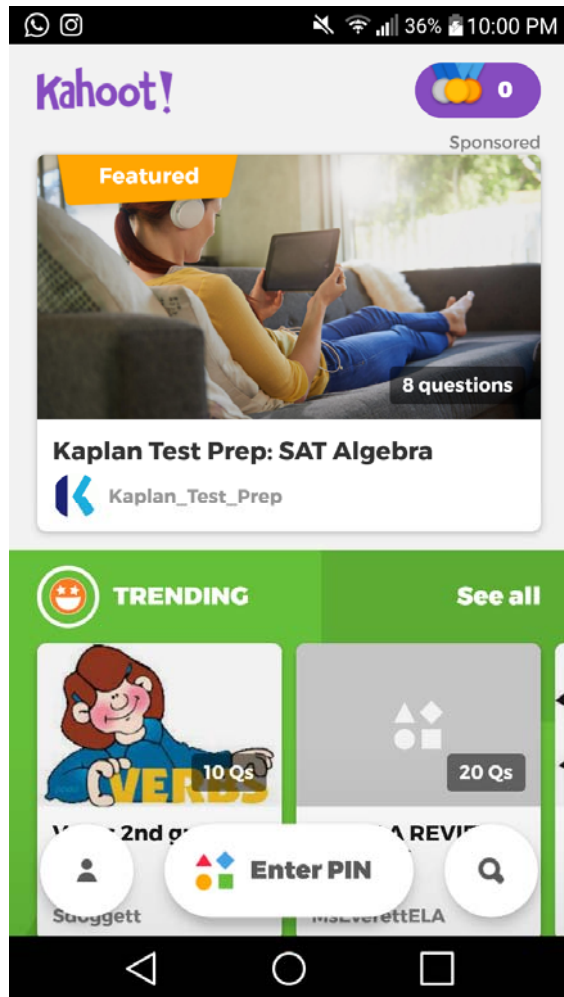


## Download Kahoot on your phone



# Development and evaluation of a consistent rating tool for knowledge uptake and use

Dr. Kelly Skinner, Program Lead, Master of Health Evaluation, School of Public Health and Health Systems

Jasmin Bhawra, PhD Candidate, School of Public Health and Health Systems

Steve Montague, Performance Management Network, Performance and Planning Exchange

Performance and Planning Exchange Symposium

May 16, 2019



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# Overview

- Measurement and evaluation of knowledge transfer, uptake and use
- Development of the KUUT
  - Examples of KUUT adoption
- 3 Phases to re-develop and build validity evidence
  - Phases 1 & 2: Scoping review and evaluating the KUUT
  - Phases 2 & 3: Engage CoP and experts and build evidence/pilot test
- Preliminary adaptations and table of specifications
- Interactive poll on Kahoot



# Getting to know the room

- What sector do you work in?
- What is your field of work?
- Do you evaluate knowledge translation products or processes in your work?
- How many people have heard of the Knowledge Uptake and Utilization Tool (KUUT)?
  - For those who said yes, how many attended this session last year?



# Review of definitions

- Knowledge transfer and exchange (KTE)
  - Knowledge generated through research and other activities is synthesized and disseminated to relevant stakeholders
- Knowledge product
  - Any information product used to share information with stakeholders
  - Commonly generated as part of a dedicated KTE or dissemination strategy
  - May also be part of a program, organization, or research initiative's general deliverables
  - E.g. documents, data, websites, workshops, training activities

(Graham et al., 2006; van Eerd et al., 2011)

(CIHR, 2015)



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# Evaluating Knowledge Translation

- Organizations are increasingly monitoring and evaluating their knowledge products and processes
- Variety of measures being used to evaluate KTE and knowledge product effectiveness and impact
- Few tools have incorporated theoretical frameworks
- Even fewer tools can be applied across disciplines or unique knowledge products

(Straus et al., 2010, Graham et al., 2006; Crew 2012; Gervais et al., 2015)



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# Knowledge Uptake and Utilization (KUU)

Term	Definition	Key priorities
<b>knowledge uptake and utilization (KUU)</b>	<p>The process of implementing research-generated knowledge into practice and policies</p> <p>(Graham et al., 2006; Estabrooks et al., 2003)</p>	<ul style="list-style-type: none"><li>• Using research findings, often in written form, to use and apply to health policies and programs</li></ul> <p>(Kothari, Birch, &amp; Charles, 2005)</p>



# KUU in health research contexts

- KT goals, activities, and rationale increasingly requested by funders
- Yet, it is rare for funders and researchers/authors to publish how the KT efforts were taken up, utilized, and resulted in change

(Scott et al., 2012; Scott et al., 2014)

- Very few evaluate the impact of KT products or initiatives

(LaRocca et al., 2012; Salter & Kothari, 2014; Bhattacharyya et al., 2011; Yamada et al., 2015)

- In literature reviews of KT practices and outcomes, no consistent or validated tools to evaluate the uptake of KT products were identified

(Clark, 2008; CREW, 2012; Gervais et al., 2015)



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## Initial goal (2004)

- To find quantitative models or scales to be used to measure the reach and **uptake** of disseminated practices

## WHY?

- Resource stewardship, effective dissemination and interaction between knowledge **producers** and knowledge **users**



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## Development of the tool in 2004

- 1) **LIT SEARCH**: a search for published, unpublished, and grey literature related to measuring outcomes of efforts to encourage knowledge use;
- 130+ resources retrieved
- Numerous models and strategies for effective dissemination

HOWEVER...

no concrete measurement tools



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## Development of the tool in 2004

- 2) **KEY PAPERS**: selection of key articles and reports from the search, chosen for their applicability to developing a tool to measure knowledge exchange as they exhibited specific scales that could be adapted into a framework;
- 3) **COMPARED SCALES**: measurement scales from these sources were compared for overlapping concepts; and
- 4) **DEVELOPED INTO QUESTIONNAIRE**: key ideas emerged and scale categories were adapted and expanded to develop specific questions (which operationalized the concepts in the scales into items) to assess reach and uptake following knowledge dissemination or transfer/translation of an information or knowledge product.



# Developing a tool to measure “knowledge exchange outcomes”

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49

## DEVELOPING A TOOL TO MEASURE KNOWLEDGE EXCHANGE OUTCOMES

Kelly Skinner  
University of Waterloo  
Waterloo, Ontario

**Abstract:** This article describes the process of developing measures to assess knowledge exchange outcomes using the dissemination of a best practices in type 2 diabetes document as a specific example. A best practices model consists of knowledge synthesis, knowledge exchange (dissemination/adoption), and evaluation stages. Best practices are required at each stage. An extensive literature review found no previous knowledge syntheses of concrete tools and models for evaluating dissemination or exchange strategies. This project developed a practical and usable tool to measure the reach and uptake of disseminated innovations. The instrument itself facilitates an opportunity for knowledge exchange to occur between producers and adopters. At this point the tool has a strong theoretical basis. Initial pilot-testing has begun; however, the accumulation of evidence of validity and reliability is only in the planning stages. The instrument described here can be adapted to other areas of population health and evaluation research.



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# The Knowledge Uptake and Utilization Tool (KUUT)

- Intended to measure the uptake and utilization of information
- 2 Sections
  - Section 1: Use/Uptake
  - Section 2: Non-use
- Scoring the “Level of Use”



# KUUT Section 1: Use (Uptake)

- 44-item questionnaire
- 9 Categories: (Knott & Wildavsky, 1980; Hall et al., 1975)
- Question design informed by: (Landry et al., 2001a,b; Estabrooks, 1999)



# Categories – Stages of Knowledge Utilization

**Table 2: Stages/Standards of Knowledge Utilization<sup>a</sup>**

Stage	Category	Description
	Awareness	awareness of the information <sup>b</sup>
1	Reception	receiving information/ information is within reach
2	Cognition	read, digest, and understand information
3	Discussion	altering frames of reference to the new information
4	Reference	information influences action/adoption of information
	Effort	effort to favour information over others
5	Adoption	influences outcomes and results
6	Implementation	adopted information becomes practice
7	Impact	tangible benefits of information

<sup>a</sup>Stages 1-7 summarized from Knott and Wildavsky (1980) with categories Awareness and Effort added by Skinner (2007).

<sup>b</sup>the term “information” could be substituted by: document, evaluation, initiative, innovation, intervention, knowledge, practice, policy, product, program, project, research, etc.

# Terminology

The term “*information*” by Knott & Wildavsky was initially replaced by “*document*” or “*practice*”.

Examples:

**Awareness** (I know the document exists)

**1 Are you aware of the document ?**

YES (go to question 3)

NO (go to question 2)

**Adoption** (document influences adoption of a practice/practice adopted from document)

**25 Have you adopted a practice outlined in the document ?**

FULLY (go to question 28)

PARTIALLY (go to question 28)

NOT AT ALL (go to question 26)

Now using the term: ***knowledge product*** or ***<name>***



# Examples of application of the KUUT

Has been used by: PHAC, CPAC, PHO, Health Canada, NCCPP, and others

Some examples:

- as **part of a toolkit** designed to support knowledge transfer and exchange (KTE) design, planning, and evaluation within Canadian Partnership Against Cancer initiatives (CPAC, 2016)
- **assessing knowledge uptake** for individual public health unit Healthy Baby Healthy Children (HBHC) process implementation evaluation **reports** (H. Manson, personal communication, September 8, 2017)
- **as a standardized instrument recommended for use by Health Canada for their funded projects** to enable grantees to assess impact at the project level, and to allow for the funding program to roll up the KUUT data for analysis at the program level
  - used by 7 recipients of Health Canada funding, across a range of substance use health promotion, prevention and treatment related initiatives across the country
  - for most was implemented at end of project (M. Hunter, personal communication, April 12, 2017)



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# The KUUT

- A theory-based questionnaire tool to generate performance information and evaluate how information (or knowledge products/processes) are being taken up and utilized
- Current work to re-develop and build validity evidence for the KUUT
  - E.g., fewer questions, language



# 3 Phases to Re-develop and build validity evidence for the KUUT

**1. Gather and synthesize (review) information**

**2. Gather and evaluate content validity information**

**3. Re-develop KUUT with evidence from Phases 1 & 2**

## PARTNER, KNOWLEDGE USERS & EXPERTS



Performance & Planning Exchange (PPX)



Public Health Ontario's Healthy Baby Healthy Children (+ others)



Subject Matter Experts



Experiential Experts



non-health knowledge user



Dr. Costello (Homewood Research Institute)



Dr. Manson (Public Health Ontario)

## PHASE 1

Review information:

- (1) literature on KUUT
- (2) past and present use of KUUT
- (3) people/organizations that have used the KUUT

## PHASE 2



Gather and evaluate content validity information with **subject matter experts** and **experiential experts** using a *Table of Specifications*.



Consensus from subject matter experts and experiential experts.

## PHASE 3

Re-develop KUUT with evidence from Phases 1 and 2. Pilot test the KUUT with knowledge users, conduct factor analysis, and test-retest reliability.



FINAL KUUT

# Evaluating Knowledge Products and the Knowledge Utilization and Uptake Tool (KUUT)



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**Jasmin Bhawra, MSc, PhD(c)**

**School of Public Health & Health Systems**

# Overview

- Evaluating knowledge utilization and uptake: a scoping review
- Knowledge Uptake and Utilization Tool (KUUT) user feedback



# **Evaluating Knowledge Utilization and Uptake: A Scoping Review**



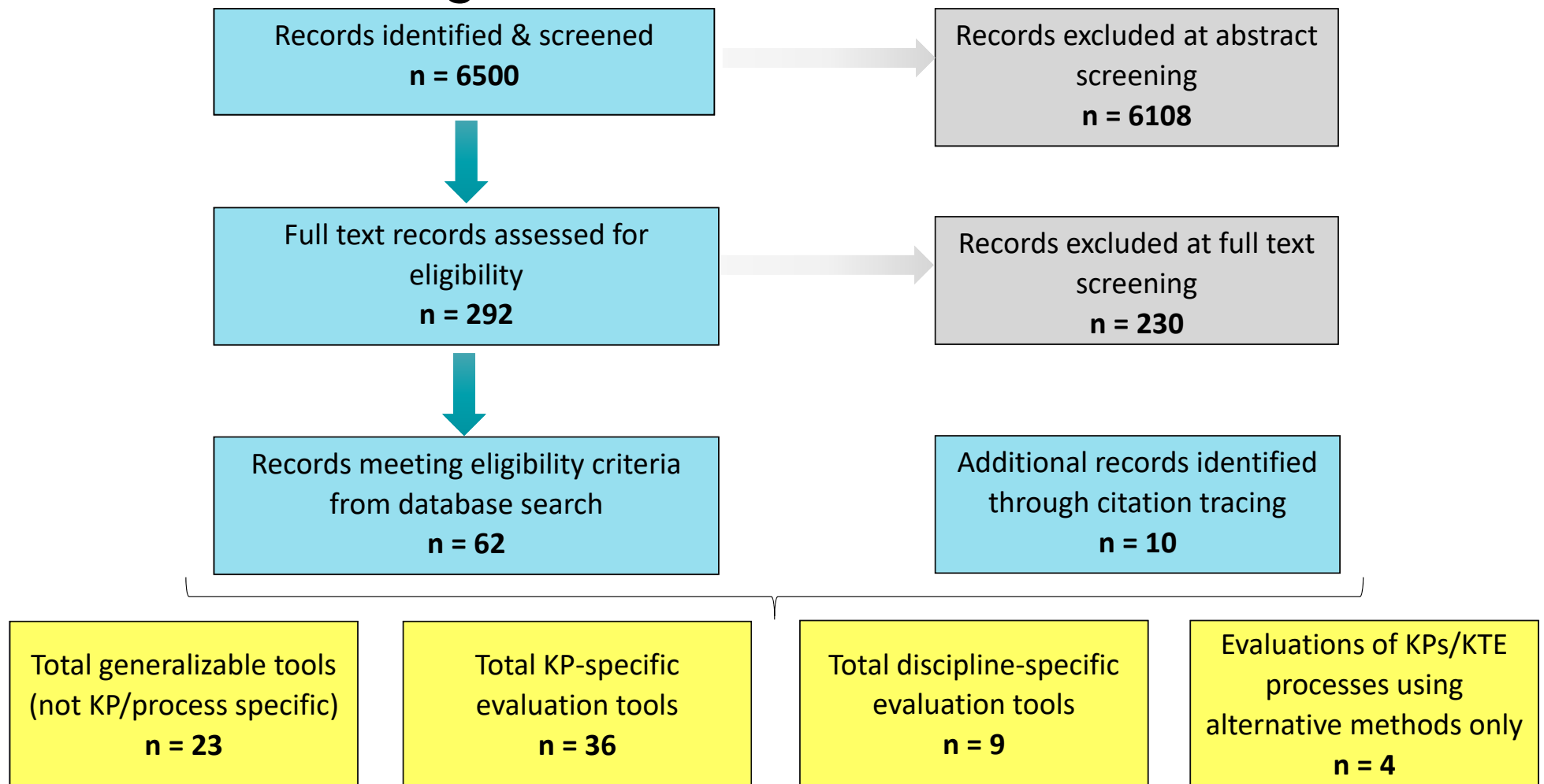
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# Objective

- Key Questions:
  - What tools and/or frameworks are used to evaluate knowledge translation, uptake, and utilization?
  - What are the evaluation criteria (i.e., domains) used to assess KUU from KPs and KTE processes?
- Knowledge products and processes include, but are not limited to, any documents, reports, websites, or activities intended to share knowledge
- Evaluation refers to a formal assessment of the knowledge product/process' usability, uptake, utilization, relevance, and other domains



# Literature Flow Diagram

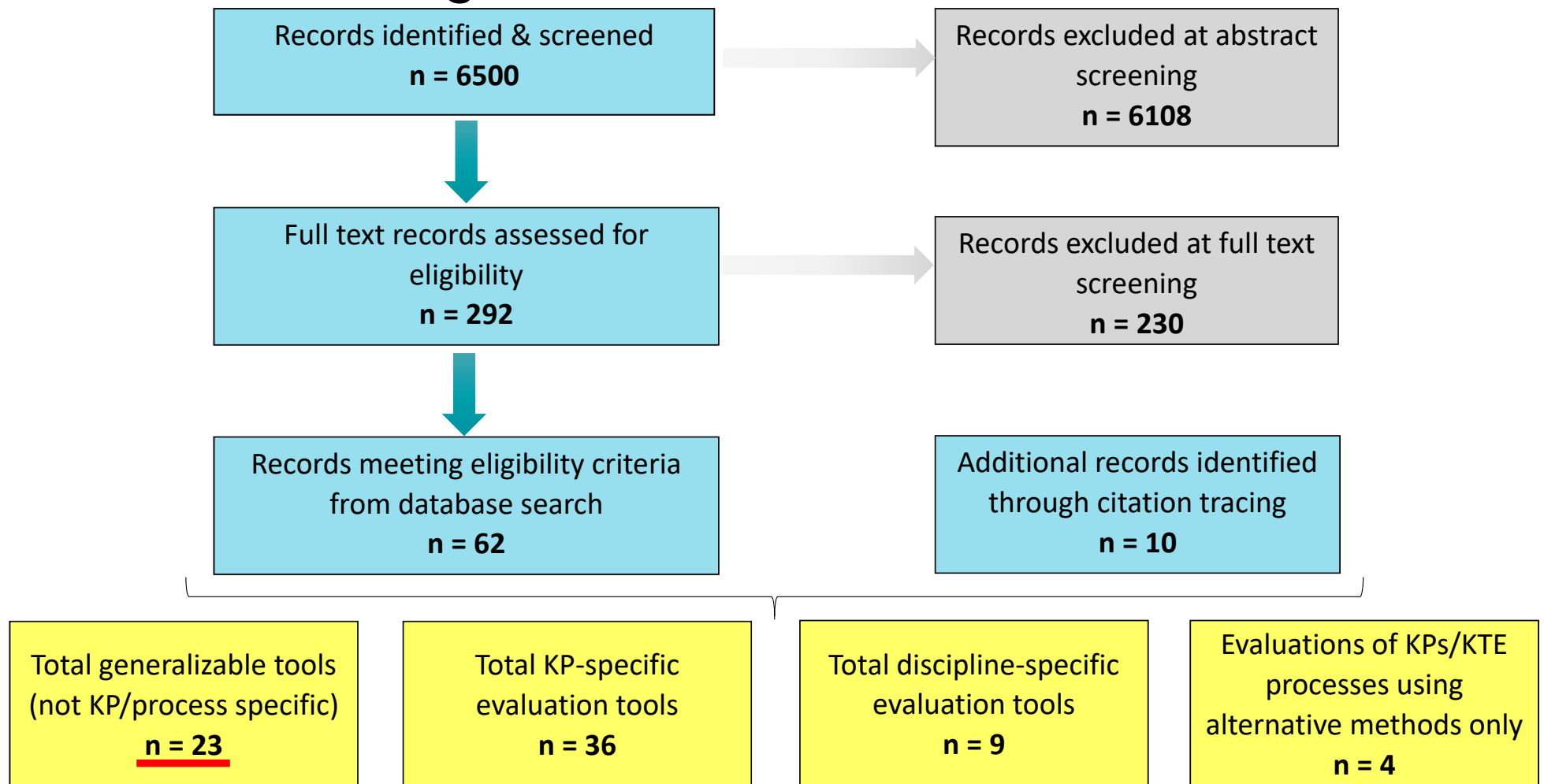




# Example of knowledge product-specific tool

Tool	Description	Sample Questions
<b>Mobile App Rating Scale (MARS)</b>  (Stoyanov et al., 2015)	<ul style="list-style-type: none"> <li>• Mobile health app quality rating tool</li> <li>• Assesses engagement, functionality, aesthetics, information quality, subjective quality</li> <li>• 23-item scale</li> </ul>	<p><b>SECTION D: Information – Contains high quality information (e.g. text, feedback, measures, references) from a credible source.</b></p> <p><b>13. Accuracy of app description (in app store): Does app contain what is described?</b></p> <p>1 Misleading. App does not contain the described components/functions. Or has no description</p> <p>2 Inaccurate. App contains very few of the described components/functions</p> <p>3 OK. App contains some of the described components/functions</p> <p>4 Accurate. App contains most of the described components/functions</p> <p>5 Highly accurate description of the app components/functions</p> <p><b>14. Goals: Does app have specific, measurable and achievable goals (specified in app store description or within the app itself)?</b></p> <p>N/A Description does not list goals, or app goals are irrelevant to research goal (e.g. using a game for educational purposes)</p> <p>1 App has no chance of achieving its stated goals</p> <p>2 Description lists some goals, but app has very little chance of achieving them</p> <p>3 OK. App has clear goals, which may be achievable.</p> <p>4 App has clearly specified goals, which are measurable and achievable</p> <p>5 App has specific and measurable goals, which are highly likely to be achieved</p>

# Literature Flow Diagram



# Generalizable to

Tool	Description
<b>LOKUS (Level of Knowledge Use Survey)</b>	<ul style="list-style-type: none"><li>Assesses level of knowledge engagement, awareness, and use</li><li>Two types of “use as intended” the knowledge creator,” and modified by knowledge recipient”</li><li>47-item questionnaire</li></ul>

(Lane et al., 2015)

7) You indicated that you are preparing to use the new knowledge from \*AUTHOR’S\* study (\*DESCRIPTION OF NEW KNOWLEDGE\*), but have not used it yet.

Please review each statement and choose all options that represent your current position.

- ☐ I am aware of the benefits of using the new knowledge from this study, but I need more information such as practical needs, resources and timing.
- ☐ In order to prepare to use the new knowledge from this study, I am looking for information and resources specifically related to using it.
- ☐ I am sharing information with others about resources needed for initial use of the new knowledge from this study. To prepare myself for first use, I join others in opportunities such as pre-use training, planning for resources, practical set up and scheduling.
- ☐ I am identifying the resources needed and available, as well as the steps and procedures necessary for initial use of the new knowledge from this study.
- ☐ I have prepared myself for initial use of the new knowledge from this study- such as, studying reference material, sharing information, arranging my schedules, resources and practical set up, and receiving any needed training.

# Summary of Findings

- Majority of tools, whether validated or not, focus on **usability**
- Most tools are developed for a specific project or purpose
  - Few tools can be applied more generally to all knowledge products/processes
- Advantages of the KUUT:
  - Can be applied to any knowledge product/process, irrespective of the sector or product type
  - Assesses 9 different domains
    - Captures *how* a knowledge product/process was used



# Commonly used domains



# Evaluating the Knowledge Uptake and Utilization Tool (KUUT)



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# Who has used the KUUT?

- Interviews with KUUT users (n = 12)
- Type of organization:
  - Academic/research
  - Governmental or partner governmental
  - Private consulting
  - Non-profit
- Users/user organizations are from a range of disciplines and sectors
  - Public health and health care
  - Education
  - Evaluation
  - Regulatory affairs
  - Energy sector



# What was the KUUT used for?

- Types of projects
  - Evaluation
  - Research
  - KTE
- To assess a variety of knowledge products or processes
  - Workshop
  - Organizational/project report
  - Organizational training plan
  - KTE toolkit
  - KTE process
  - KT report





# How was the KUUT adapted?

- **Content**

- Revising question phrasing to make more applicable to own knowledge product
- E.g. rephrasing or removing term “best practice,” inserting name of own report/product to improve question clarity

- **Length**

- Cutting sections or questions within subsections
- Note: This has implications for applying scoring

- **Administration**

- Online (i.e., survey app)
- Over the phone
- Paper



# Reported Use of KUUT Domains

	Number of users (total 12)
<b>Awareness</b>	10
<b>Reception</b>	8
Cognition	7
<b>Discussion</b>	8
Reference	5
Effort	5
<b>Adoption</b>	9
<b>Implementation</b>	9
Impact	7
Non-Use	6



# User Feedback

Q: Have you used or considered using any other knowledge uptake and/or utilization tools?

*“No. The reason we liked the tool is that it’s easy to adapt, easy to administer, [it] provided us with quantifiable information which made it very tangible.*

*At the end of the day, [we were] providing results to the director in charge of our research unit. Other tools were a lot more qualitative in nature.”*

*- KUUT User 1*



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# User Feedback

Q: Suggestions for improvement?

*“One of the pitfalls of that tool is that it’s fairly long. It intimidates people.*

*Any possibility to have an abbreviated or long version with slightly different intent for their use. If there was a short version that could be used in any type of evaluation interview to look at use of a certain product, that might useful.”*

*- KUUT User 1*



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# Example of tentative revisions based on user feedback

## Knowledge Product Definition

**Knowledge Product Definition:** A document, report, website, or activity produced by a program or organization intended to share knowledge. This includes, but is not limited to, information products.

**Knowledge Product Name:** \_\_\_\_\_

**Note:** The adoption, implementation, and impact sections would be optional depending on if the knowledge product has been used.

\*This definition is still being refined based on user feedback.



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# Example of revisions based on user feedback

## Reception Section (Original)

### **Reception (I have a copy of the document OR know how to access the document)**

Have you received/accessed a copy of the document ?

YES (go to question 6)

NO (go to question 4)

Did you retrieve/access a copy of the document on your own ?

YES (go to question 6)

NO (go to question 5)

Do you plan to retrieve/access the document in the future ?

YES

MAYBE

NO (discontinue questions)

DON'T KNOW

Even before reading it, did you think the document might be useful ?

YES

MAYBE

NO

DON'T KNOW

## Reception Section (Revised)

### **Reception (I have a copy of the knowledge product OR know how to access it)**

Have you received/accessed a copy of [insert knowledge product]?

YES

NO

Do you plan to 'revisit, reconsider, reexamine, reassess, re-access' the [insert knowledge product] at some time in the future?

YES

NO



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# Example of Shortened Version of the KUUT (Montague)

We understand that you have been a user of the ----- report [link to study](#). Is this information correct? If so, we would like to proceed to ask you a few short questions about the report.

**1. Have you read the report?**

NOT AT ALL  
PARTIALLY (go to Question 3)  
FULLY (go to Question 3)

**2. Was the report presented in a clear understandable fashion?**

NO  
YES

**3. Have you discussed or made other colleagues aware of this report?**

NO  
YES

*If no, do you plan to?*

NO  
YES

*If yes, have you cited or quoted this report in your own reports or documents?*

NO  
YES

**4. Have you favoured using the information in this report over other sources of information?**

NO  
YES

**5. Have you adopted a practice outlined in the report?**

NOT AT ALL  
PARTIALLY  
FULLY

*If no – do you plan to?*

NO  
YES



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# Example of Shortened Version of the KUUT (Montague)

6. Have you employed strategies for using information in this report?  
NO  
YES
7. Have you collaborated with colleagues and / or other organizations with similar objectives and mandates?  
NO  
YES
8. Have you explored other documents or practices that could be used in combination with, or in place of, the current report to improve implementation?  
NO  
YES
9. Has your use of the report changed a current practice or routine in your work?  
DON'T KNOW  
NO  
MAYBE  
YES
10. Have you pursued a colleague(s) to adopt (action) the information in this report?  
NO  
YES
11. Are there additional comments or influences or impacts you would like to mention?  

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12. Given your assessment, what factors would you say were most important in terms of your use (or non-use)?  

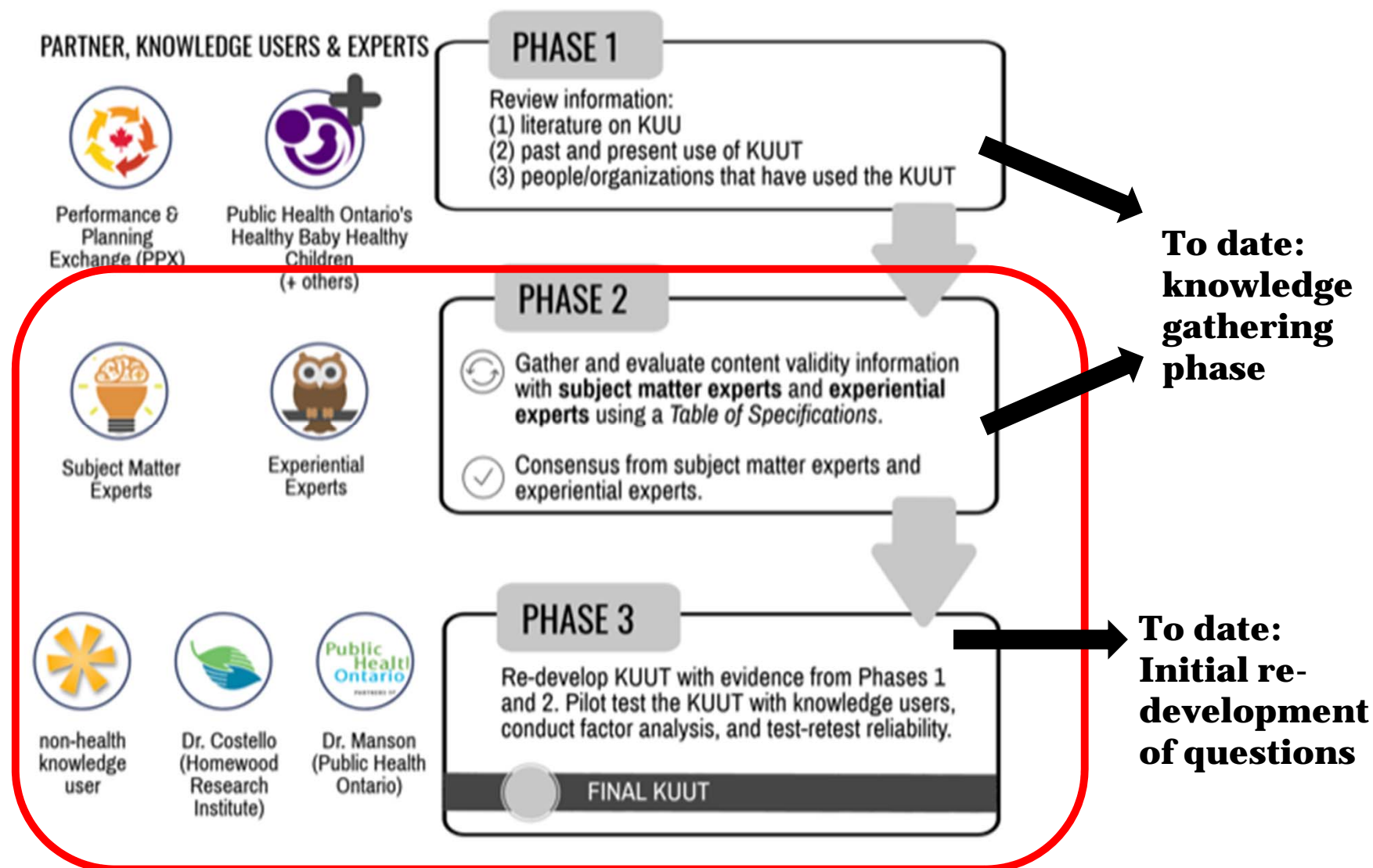
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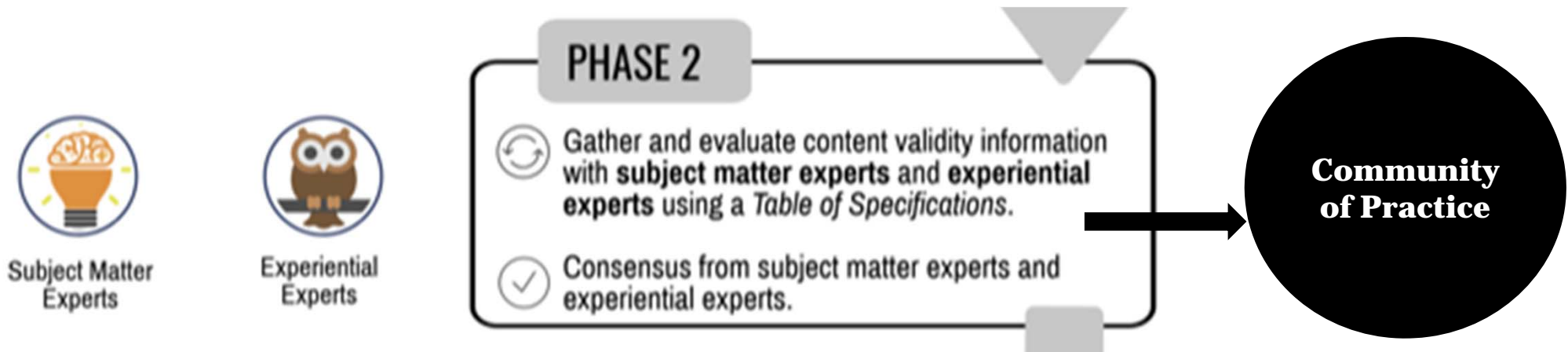
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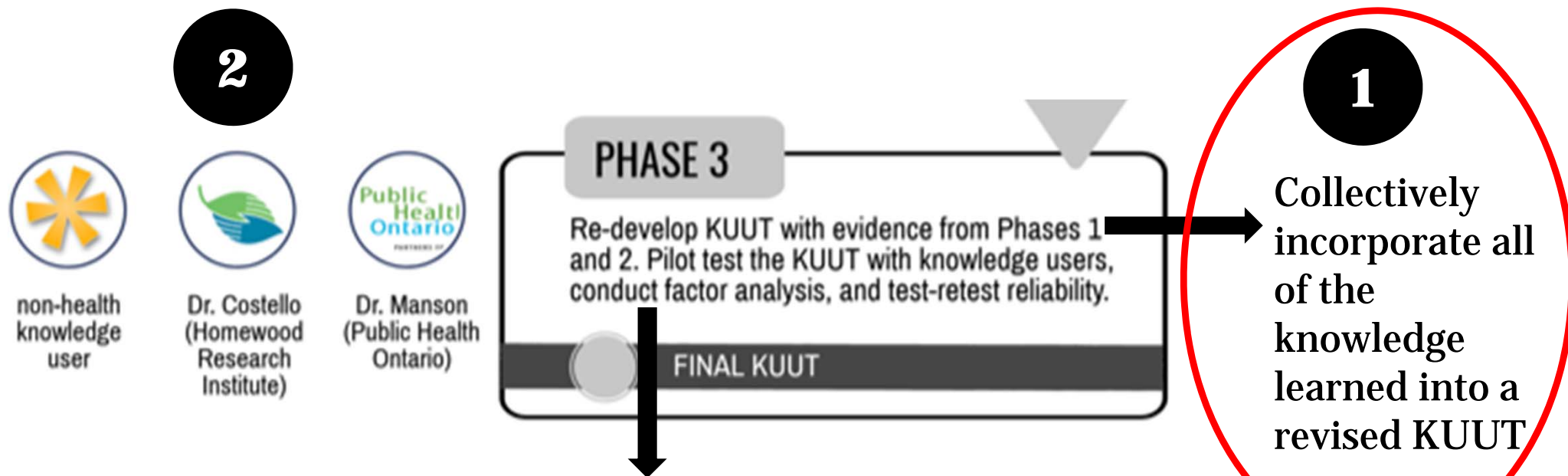






SMEs and EEs will be invited to examine:

- the content domains of the KUUT and judge the quality and representativeness of items included on the tool, which may include:
  - examination of the structure of the KUUT
  - simplification of the response options for each question
  - scrutiny of each question/item for its necessity as part of the tool
  - examination of the phrasing of each question for clarity



**3**

Factor analysis to determine:

- how many factors are actually tapped by items
- whether the 9 factors/categories (based on theory from Skinner, 2007) fall under one construct or whether they present as multidimensional
- the dimensionality of the tool and confirm a scoring structure

# Table of specifications

ITEM	Stage	KUU	Scoring	Relation to theory and construct
<b>Have you received/accessed a copy of the [insert knowledge product]?</b>	Reception	Uptake	YES NO	Uptake ____ OR Utilization ____ (check best)  Other comments:
Do you have any other comments about <u>reception</u> (e.g. adding, deleting or changing items)?				
<b>Have you engaged with the [insert knowledge product] (e.g. read, participated, used)?</b>	Cognition	Uptake	YES NO	Uptake ____ OR Utilization ____ (check best)  Other comments:
Do you have any other comments about <u>cognition</u> (e.g. adding, deleting or changing items)?				
<b>Have you discussed or plan to discuss [insert knowledge product] with</b>	Discussion	Uptake	YES	Uptake ____ OR Utilization ____ (check best)

# New Re-developed KUUT

Domain	Original # of items	Revised # of items
Awareness	2	Screeners questions



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# New Re-developed KUUT

Domain	Original # of items	Revised # of items
Awareness	2	Screeners questions
Reception	4	2



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# New Re-developed KUUT

Domain	Original # of items	Revised # of items
Awareness	2	Screeners questions
Reception	4	2
Cognition	6	3



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# New Re-developed KUUT

Domain	Original # of items	Revised # of items
Awareness	2	Screenener questions
Reception	4	2
Cognition	6	3
Discussion	6	2



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# New Re-developed KUUT

Domain	Original # of items	Revised # of items
Awareness	2	Screeners questions
Reception	4	2
Cognition	6	3
Discussion	6	2
Reference	4	3



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# New Re-developed KUUT

Domain	Original # of items	Revised # of items
Awareness	2	Screenener questions
Reception	4	2
Cognition	6	3
Discussion	6	2
Reference	4	3
Effort	2	1



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# New Re-developed KUUT

Domain	Original # of items	Revised # of items
Awareness	2	Screeners questions
Reception	4	2
Cognition	6	3
Discussion	6	2
Reference	4	3
Effort	2	1
Adoption	6	1



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# New Re-developed KUUT

Domain	Original # of items	Revised # of items
Awareness	2	Screeners questions
Reception	4	2
Cognition	6	3
Discussion	6	2
Reference	4	3
Effort	2	1
Adoption	6	1
Implementation	10	2



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# New Re-developed KUUT

Domain	Original # of items	Revised # of items
Awareness	2	Screeners questions
Reception	4	2
Cognition	6	3
Discussion	6	2
Reference	4	3
Effort	2	1
Adoption	6	1
Implementation	10	2
Impact	4	1



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# New Re-developed KUUT

Domain	Original # of items	Revised # of items
Awareness	2	Screeners questions
Reception	4	2
Cognition	6	3
Discussion	6	2
Reference	4	3
Effort	2	1
Adoption	6	1
Implementation	10	2
Impact	4	1
OVERALL	44	Screeners + 15 questions

# Next steps...

- Phase 1: Publish scoping review and submit protocol study
- Phase 2: Build the Community of Practice
  - Website
- Phase 3: Refine KUUT and pilot test with knowledge users
  - Funding for pilot testing
  - App
- Papers
  - Scoping review manuscript submitted
  - Protocol for the study ready to submit
  - Experiences of KUUT users (in prep)
  - KUUT Manual (in prep)
  - KUUT Validity



# Interactive Poll on Kahoot - KUU



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**Enter PIN number to start**



Quit



# Kahoot!

Game PIN

Enter

Create your own kahoot for  
FREE at [kahoot.com](https://kahoot.com)



# General questions for CoP, SMEs, EEs

1. Are the items in the KUUT reflective of knowledge utilization?
2. Are there other scale categories, items, or domains that should be included to represent knowledge utilization?
3. How should context be incorporated?



# Get involved!

Want to join the Community of Practice, or see yourself as a Subject Matter Expert (on KUU) or Experiential Expert (on the KUUT)?

**If interested, email: [kskinner@uwaterloo.ca](mailto:kskinner@uwaterloo.ca)**

Thank you for the Special Research Project funding from PPX and UW:



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