Developing and Validating Sense of Belongingness (SoB) Scale in Postgraduate online distance learners
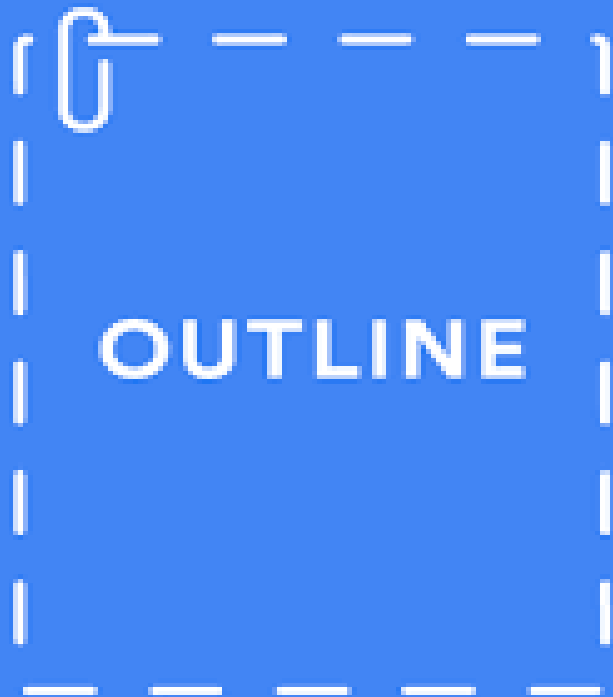
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OUTLINE

The terms "Belonging" and "Belongingness"…………

The word belonging derives from the

Old English word **gelang,** *meaning dependent, or the*

Middle English word **bilongen,**

which means long dependent (Watkins, 2000).

The term **"belonging"** *as explained by oxford dictionary*

as a noun "the feeling of being comfortable and happy in a particular situation or with a particular group of people" .

Belongingness, *a noun,*

refers to the state or condition of belonging.

Synonyms for belonging and belongingness include;
acceptance,
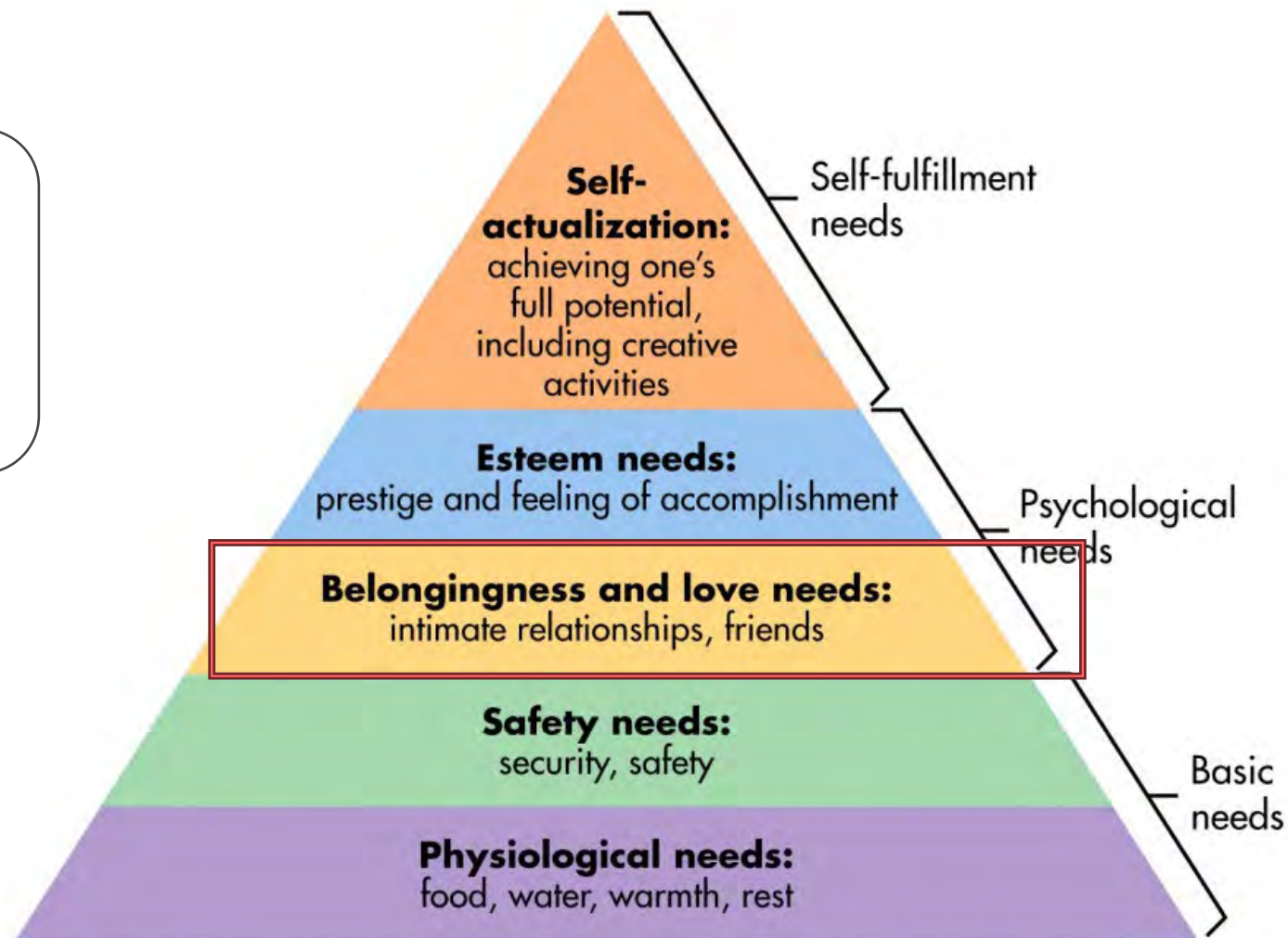affinity,
association,
attachment,
fellowship,
inclusion,
rapport and relationship

(Roget, 2023)

Maslow's Hierarchy of Needs

Self-actualization: achieving one's full potential, including creative activities — Self-fulfillment needs

Esteem needs: prestige and feeling of accomplishment — Psychological needs

Belongingness and love needs: intimate relationships, friends

Safety needs: security, safety — Basic needs

Physiological needs: food, water, warmth, rest

Maslow (1968) stated that humans have a fundamental need to belong and other needs, such as learning, cannot be met without satisfying this need of belongingness.

Sense of Belongingness in Educational Environment ....

Being accepted, valued, included, and encouraged by others

(teachers and peers) in the academic classroom and of feeling oneself to be an important part of the life and activity of the class.

More than simple perceived liking or warmth, it also involves support and respect for personal autonomy and for the student as an individual.

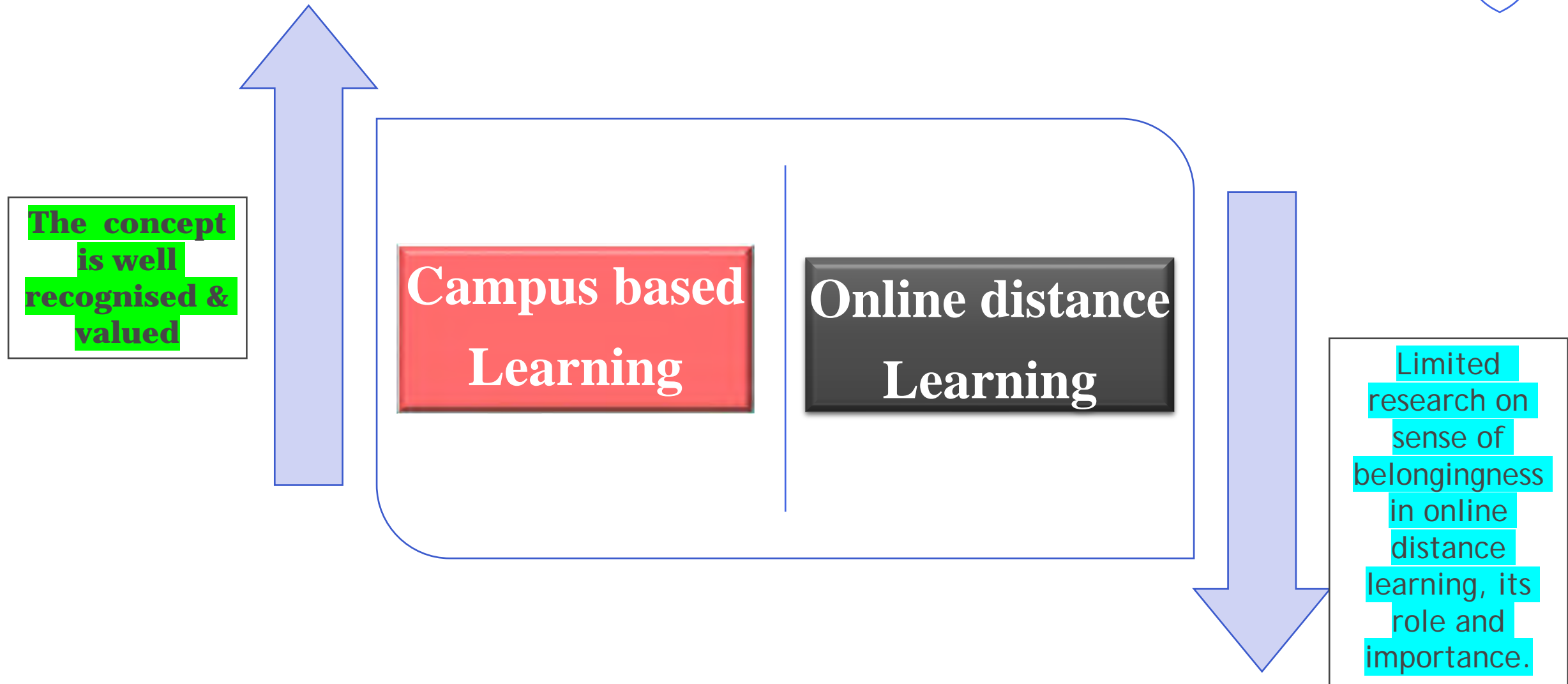(Goodenow, 1993,p.25).

Importance of Sense of Belongingness

"the greater a student's sense of belonging to the university, the greater is his or her commitment to that institution ... and the more likely it is that he or she will remain"(Goodenow p. 228).

Strayhorn (2012) deduces that if a sense of belonging is not developed, learners' ability to attend to the task at hand (studying and fulfilling the goals of higher education) will be impeded.

The lead author of an extensive research project involving 22 higher educational institutions in the United Kingdom concludes that "at the heart of successful retention and success is a strong sense of belonging in [higher education] for all students" (Thomas, 2012, p. 6).

Sense of Belongingness

The concept is well recognised & valued

Campus based Learning

Online distance Learning

Limited research on sense of belongingness in online distance learning, its role and importance.

Literature Gap

An extensive literature search identified no large-scale (country-wide) study that explored the sense of belongingness experiences in online distance learning.

Research specifically exploring sense of belongingness in distance learning is limited. There is no validated tool for measuring belongingness in online distance learning.

Many of the existing SoB scales are available for programs offered on campus, however these cannot be used to evaluate programs offered through online distance learning.

(Susi Peacock, John Cowan, Lindesay Irvine, and Jane Williams 2020).

Project Goal

Develop and validate an instrument that measures sense of belongingness in postgradautes online distance learners.

Research Questions and Respective Studies

**Study 1
Qualitative Study**

RQ1: How do postgraduates' health professions education online distance learners perceive sense of belongingness? How can they define and describe this concept?
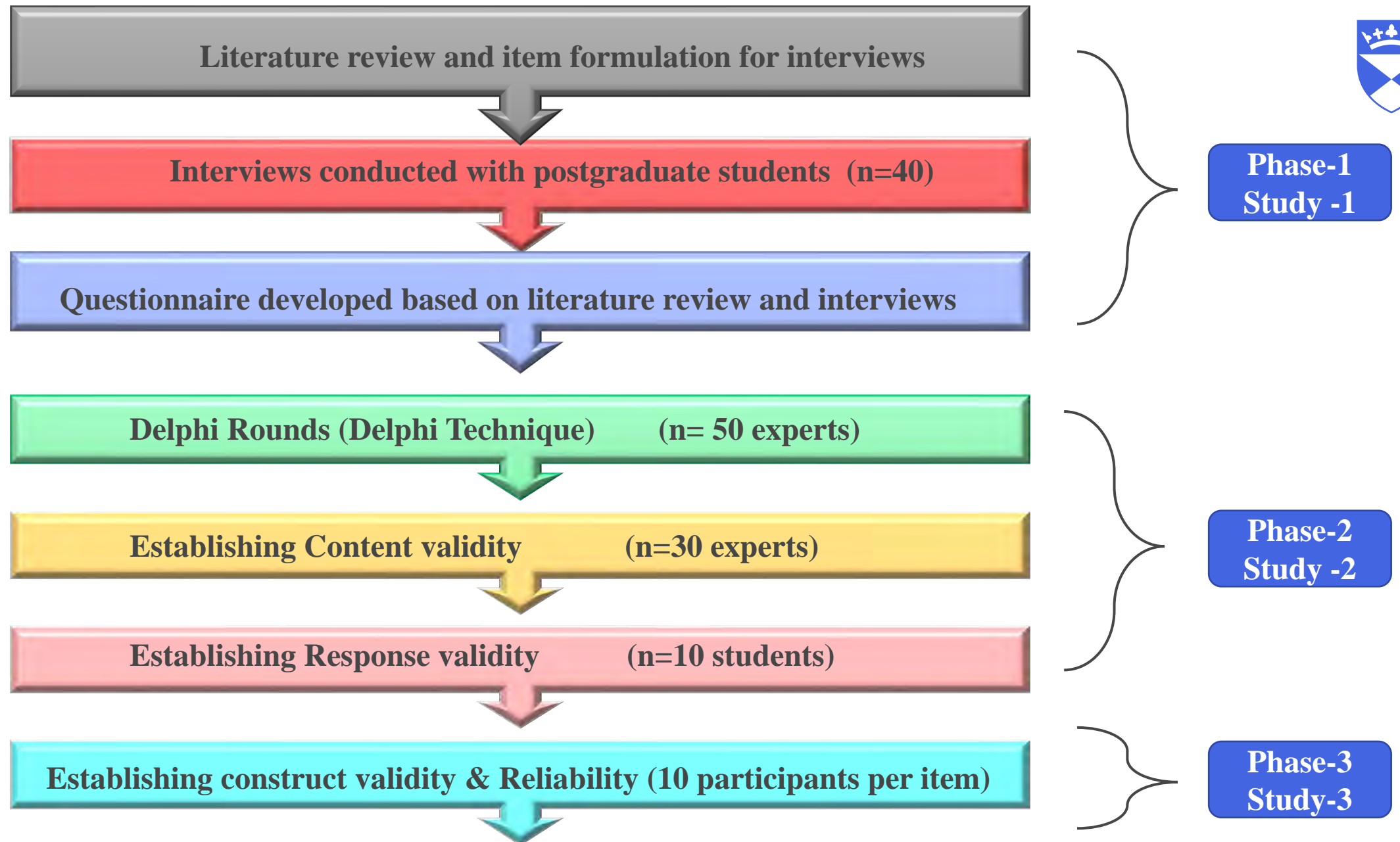
**Study 2
Delphi Study**

RQ2: Which constructs of the sense of belongingness instrument do education experts agree upon, and how do they rank them according to their importance?

**Study 3
Psychometric
Validation**

RQ3: What is the valid and reliable instrument that can measure sense of belongingness in online distance learning programs in postgraduate settings?

Literature review and item formulation for interviews

↓

Interviews conducted with postgraduate students (n=40)

↓

Questionnaire developed based on literature review and interviews

↓

Delphi Rounds (Delphi Technique)   (n= 50 experts)

↓

Establishing Content validity   (n=30 experts)

↓

Establishing Response validity   (n=10 students)

↓

Establishing construct validity & Reliability (10 participants per item)

↓

Phase-1 Study -1

Phase-2 Study -2

Phase-3 Study-3

Study 1

Methodology

Study Design - Qualitative Study

Study Setting – Four Universities of Pakistan

Duration - 08 Months

Sampling – Postgraduate students enrolled in online distance learning program

Ethical Approval granted: UoD

Sampling

Peshawar	Lahore	Islamabad	Karachi

10   10   10   10

Total = 40

Step 1: Familiarization with data

Step 2: Generation of initial codes

Step 3: Searching for themes

Step 4: Reviewing themes

Step 5: Defining and naming themes

Step 6: Producing the report

Braun & Clarke's

Thematic Analysis

"I feel more connected when tutors could call me by my name anytime and that even brought me more attach towards my facilitators if they are always available on emails"

"I strongly believe that communication is the key to belongingness"

"I feel very much connected when I asked for some query from my tutors, peers and or other supporting staff and they could immediately respond me back"

"I always learn best by discussing and group work activities. So, for me, it is very, very important that I work with peers"

I look up to the tutor, peers and professional services staff for guidance and help and if provided I really do feel belong to them"

Quotes

Usability

E-Immediacy

THE TIME IS NOW

Immediacy Is Not New In Mobile.

Themes

Interact

Chat

Share

Send

help   faq   solution

service   advice

Support

customer   it support   assistance

RIGHT

PARTICIPATION

WE HAVE THE RIGHT TO PARTICIPATE!

		EI= Extremely Important, **VI**=Very Important, **MI**=Moderately Important, **SI**=Slightly Important, NIA=Not Important at All						

SNO	Items	EI	VI	MI	SI	NI A	Please provide reason, if you select 'extremely important' or 'not important at all	

Usability

1.	I have accessibility of IT support in this online program.							
2.	I can easily use digital resources in online learning.							
3.	I have been provided the orientation session for using digital resources in this online learning.							
4.	The information about using digital resources is clearly mentioned and communicated to me.							
5.	The online discussion forums are user friendly in this online learning environment.							
6.	The internet connectivity issues are creating a hurdle in my belongingness to this course.							
7.	The learning management system (LMS) is user-friendly.							

Interaction & Communication

8.	I find it easy to interact with the facilitator(s) during this online course.							
9.	I can easily interact with my peers during this online course.							
10.	I can easily discuss my ideas during this course.							
11.	I can easily communicate with professional services staff during this online course.							
12.	I cannot communicate easily, and the others cannot communicate to me very easily in this distance learning program.							

Immediacy

|								
18.	The facilitator(s) provide timely response to my email or any query.							
19.	The delayed response on my assignment/emails from my facilitator(s) makes me less connected.							
20.	The facilitator(s) actively involve us during this distance learning course.							
21.	I feel less connected when my facilitator(s) interacts in only written format in social media groups or discussion boards.							
22.	My facilitator(s) provide timely feedback on my assignment.							
23.	I can easily asks questions or share my ideas with the facilitator(s).							
24.	I can easily get in contact facilitator(s) through calls and/or messages or emails.							
25.	I can easily get in contact with professional services staff through calls and/or messages or emails.							
26.	My facilitator(s) are always available and respond back to me.							
27.	The professional services staff are always available and respond back to me, whenever I have any query or require any assistance.							
28.	My facilitator(s) praises me when I work well.							
29.	The lack of responsiveness from the facilitator(s) leaves me demotivated during the course.							

69 Items

Comfort and Support

37.	I have been provided by both social and emotional support during this course.							
38.	I feel psychologically safe and taken care of in this course.							
39.	My facilitator(s) care about me how I'm learning and what I'm learning.							
40.	I can freely express myself in this online environment.							
41.	I sometimes feel that I am not a part of this course.							
42.	I have a very strong sense of belonging to this online programme.							
43.	My fellows are very supportive.							
44.	I feel comfortable to introduce myself during this course.							
45.	The professional services staff are very supportive.							

Participation and Engagement

56.	The group activities in this program makes me feel well engaged.							
57.	I feel that I am a part of team with common interest and goals.							
58.	Online discussions help me to develop strong sense of belongingness to this course.							
59.	My peers help me to get involved during discussion.							
60.	My facilitator(s) encourage me to participate during online discussion.							
61.	My facilitators keep all of us engaged during this course.							
62.	I enjoy discussion boards.							
63.	I enjoy break out rooms.							
64.	I cannot work well with peers during group activities.							
65.	I feel that my belongingness has increased with my peers and improved over time during this course.							

Study - 2

Delphi Study → Content validity → Response Validity → Final Items
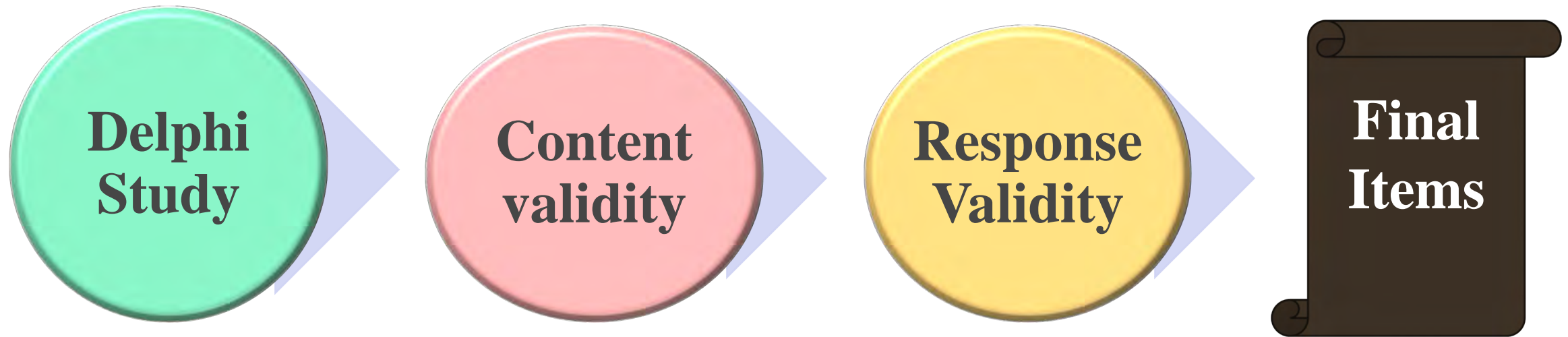
Study 2

Delphi Study

A Delphi study to determine the constructs of sense of belongingness scale through consensus

ITERATION 1　　ITERATION 2　　ITERATION 3

Experts

1. Postgraduates who completed Masters in Health Professions Education or equivalent course through distance learning.

2. Instructors involved in teaching and supervising distance learning health professions education programs.

3. Experienced professionals, research psychologists, psychometric specialists, other academics involved in distance learning in higher education.

4. Those involved in the administration and coordination of distance learning programs.

Rating of items on 5-point likert scale

3 I have accessibility of IT support in this online program. *

Extremely Important
Very Important
Moderately Important
Slightly Important
Not important at all
Show less

Add item

a Please provide reason, if you select 'extremely important' or 'not important at all'

Add item

Add item

Add item

4 I can easily use digital resources in online learning. *
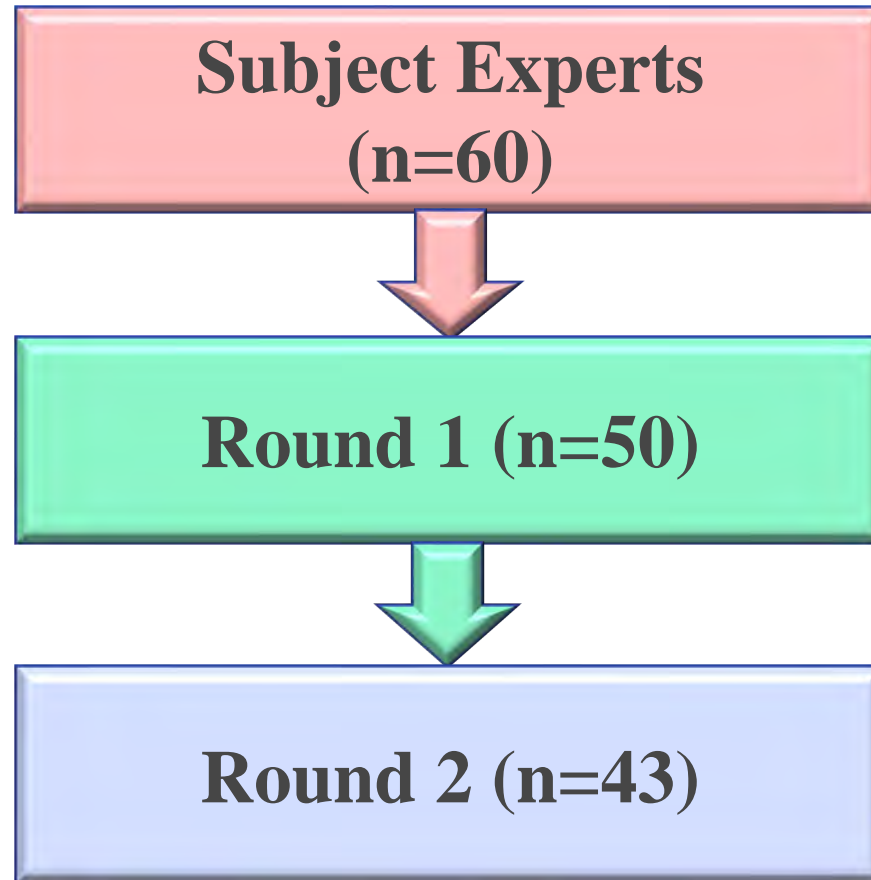
Extremely Important
Very Important
Moderately Important
Slightly Important
Not important at all
Show less

Add item

3 ◎ I have accessibility of IT support in this online program. *

Extremely Important

Very Important

Moderately Important

Slightly Important

Not important at all

Show less

Add item

a ▤ Please provide reason, if you select 'extremely important' or 'not important at all'

Add item

Add item

Add item

4 ◎ I can easily use digital resources in online learning. *

Extremely Important

Very Important

Moderately Important

Slightly Important

Not important at all

Show less

Add item

69 items
(Sense of belongingness

Round 1

50 experts

Percentage agreement=80%

Median=4

Interquartile range (IQR)= 1or less

Calculated for each statement

Decision	Criteria
Included for ranking	Met all consensus criteria, for all participants and for individual professional groups
Included for re-rating	Met two consensus criteria and/or disagreement between groups (all participants, individual professional groups)
Removed From study	Met one or no consensus criteria, for all participants and for individual professional groups

Items	All participants (n=42)		
	Median	IQ range	% agreement
3	4	2	89
4	5	2	90
5	4	2	90
6	4	1	82
7	4	2	71
8	4	2	90
9	4	1	67.8
10	4	3	54.9
11	4	1	51.7
12	4	2	51.7
13	4	2	51.6
14	3	2	48.4
15	3	1	45.2
16	3	2	38.7
17	3	2	35.5
18	3	2	35.5
19	3	1	32.2
20	3	1	29
21	3	2	29

Round 1

Consensus achieved on 26 items

Round 2 Results

Consensus achieved on 17 items

Consensus Achieved 43 Items

CONTENT VALIDATION PROCEDURE

Preparing	Preparing content validation form
Selecting	Selecting a review panel of experts
Conducting	Conducting content validation
Reviewing	Reviewing domain and items
Providing	Providing score on each item
Calculating	Calculating Content Validity Index (CVI)

Preparing content validation form
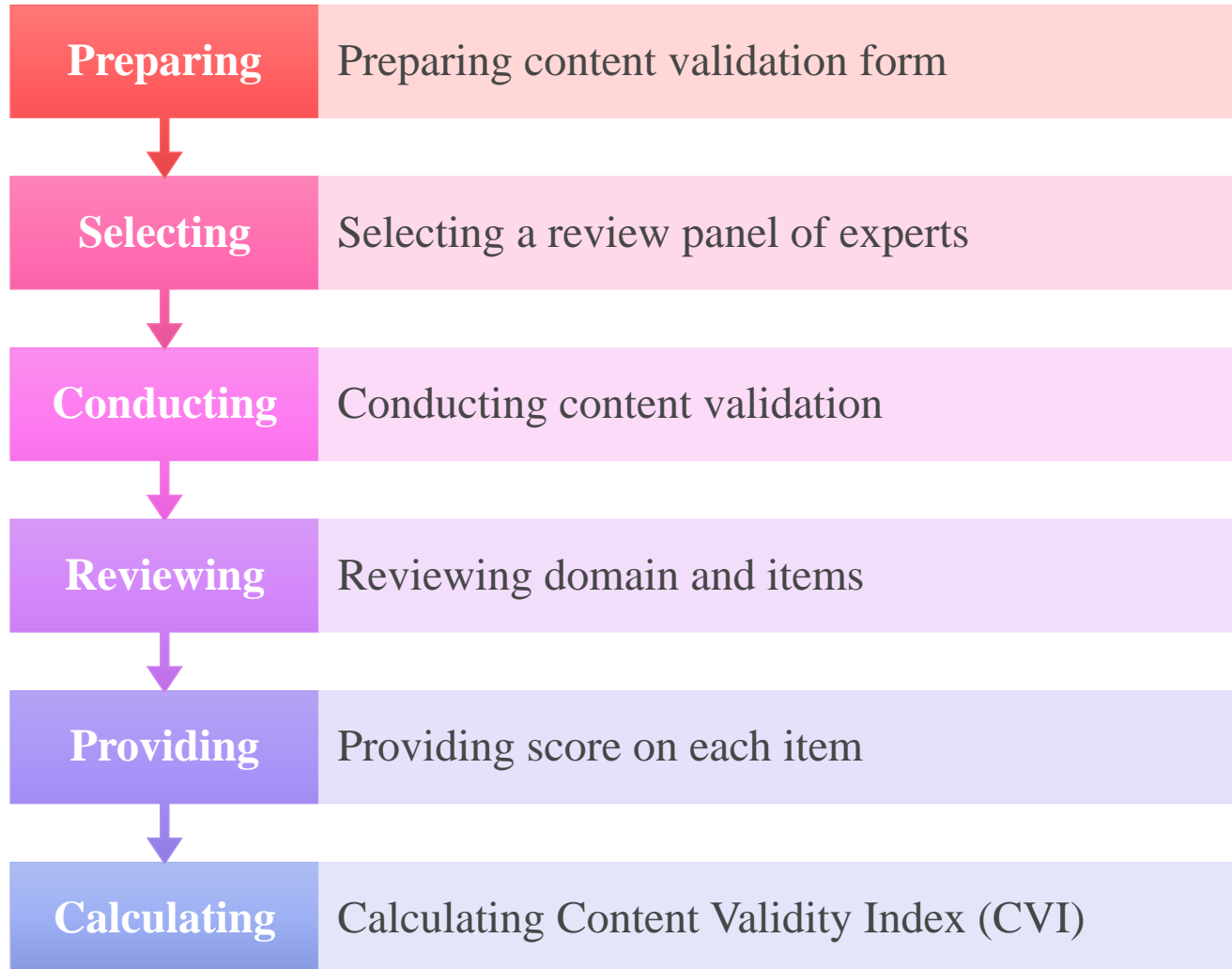
Developing and Validating Sense of Belongingness (SOB) Scale in Online Learning - Content Validity

66% complete

Page 3: Rating items for relevance

This part of the survey uses a table of questions, view as separate questions instead?

3. **Please rate the items for relevance in measuring sense of belongingness in postgraduate distance learning.**

	Rating				Any suggestions/comments
	Very Relevant (4)	Quite Relevant (3)	Somewhat Relevant (2)	Not Relevant (1)	
I have accessibility of IT support in this online program.	☐	☐	☐	☐	
I can easily use digital resources in online learning.	☐	☐	☐	☐	
I have been provided the orientation session for using digital resources	☐	☐	☐	☐	

Content Validity

Subject Experts (n=40)

Responded (n=32)

CVI for each item = 0.70 or above

I-CVI = 0.90

40 Items

Study 3

Psychometric Assessments

Exploratory Factor Analysis (EFA)

Exploratory Factor Analysis (EFA)

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.974
Bartlett's Test of Sphericity	Approx. Chi-Square	15230.512
	df	780
	Sig.	.000

The sample is considered adequate and factor analysis is appropriate if:
1) KMO value more than 0.5
2) Bartlett's test of sphericity less than 0.05

Communalities

	Initial	Extraction
1. I have access to digital resources (e-books, databases, e-journals, educational sites, e-lectures, audio/video recordings etc).	.401	.314
2. The Align to Left about using digital resources (e-books, databases, e-journals, educational sites, e-lectures, audio/video recordings etc) is communicated to me before commencement of this program.	.368	.266
3. Poor internet connectivity is an obstacle to my belongingness.	.205	.090
4. The online discussion forum(s) is user friendly.	.508	.509
5. The virtual learning environment (VLE)/Learning Management System (LMS) is user-friendly.	.494	.501
6. All the necessary information and resource materials have been provided me timely.	.504	.470
7. I find it easy to interact with facilitator(s)/tutor(s).	.577	.566
8. I can easily interact with my peers.	.562	.571
9. There are enough interaction platforms/forums available between facilitator(s)/tutor(s) and students.	.613	.601
10. I can easily contact facilitator(s)/tutor(s) through call, messages and/or email.	.557	.544
11. I can easily access professional services staff (IT staff) through call and/or email.	.643	.665
12. I can easily access professional services staff (Library staff) through call and/or email.	.603	.645
13. I can easily access administrative staff through call and/or email.	.557	.559
14. There are enough platforms/forums available for students-to-students interaction.	.531	.494
15. The facilitator(s)/tutor(s) provide timely response to my email or any query.	.510	.485
16. My facilitator(s)/tutor(s) provide timely feedback on my assignment.	.561	.486
17. Whenever I have any query or require any assistance from IT staff, they always solve my problem.	.601	.555
18. Whenever I have any query or require any assistance from Library staff, they always solve my problem.	.637	.594
19. My peers provide timely response to my email(s), social media groups, or other discussion groups, whenever I have any question(s) related to this program.	.529	.488
20. The delayed response on my assignment/query by my facilitator(s)/tutor(s) makes me feel less connected to this program.	.357	.232
21. I feel more connected when my facilitator(s)/tutor(s) addresses me by my name.	.404	.325
22. My facilitator(s)/tutor(s) praises me when I work well.	.587	.545
23. I can easily ask questions or share my ideas with the facilitator(s)/tutor(s).	.598	.520
24. My facilitator(s)/tutor(s) correct me in an encouraging way when I am wrong.	.660	.612

Removed

Total Items 35

Removed

Factors

Item	Factor 1	Factor 2	Factor 3	Factor 4
40. My sense of belongingness has increased over time.	.666			
31. I feel motivated.	.653			
26. I feel a strong sense of attachment to this program.	.641			
32. I receive frequent feedback from my facilitator(s)/tutor(s).	.636			
24. My facilitator(s)/tutor(s) correct me in an encouraging way when I am wrong.	.627			
28. The encouragement from my facilitator(s)/tutor(s) motivates me.	.624			
12. I can easily access professional services staff (Library staff) through call and/or email.		.708		
11. I can easily access professional services staff (IT staff) through call and/or email.		.687		
13. I can easily access administrative staff through call and/or email.		.639		
18. Whenever I have any query or require any assistance from Library staff, they always solve my problem.		.565		
17. Whenever I have any query or require any assistance from IT staff, they always solve my problem.		.547		
10. I can easily contact facilitator(s)/tutor(s) through call, messages and/or email.		.473	.424	
5. The virtual learning environment (VLE)/Learning Management System (LMS) is user-friendly.			.574	
4. The online discussion forum(s) is user friendly.			.566	
6. All the necessary information and resource materials have been provided me timely.			.557	
7. I find it easy to interact with facilitator(s)/tutor(s).			.552	
9. There are enough interaction platforms/forums available between facilitator(s)/tutor(s) and students.			.491	.419
15. The facilitator(s)/tutor(s) provide timely response to my email or any query.		.409	.420	
25. I feel psychologically safe (not punished or humiliated for sharing ideas, questions, concerns, or mistakes).	.506		.407	
37. My peers help me to get involved in group activities/online discussions.	.413			.680
27. My peers are very supportive to enhance my learning experiences.	.412			.559
8. I can easily interact with my peers.				.535
19. My peers provide timely response to my email(s), social media groups, or other discussion groups, whenever I have any question(s) related to this program.				.492
14. There are enough platforms/forums available for students-to-students interaction.				.435

e-immediacy

Communication

Usability

Support

Conclusion

A newly developed 35-items Sense of Belongingness scale was developed with some positive initial validity and reliability testing.

Further testing around generalisability would be advised to include diverse institutions and the variety of types of online programs that exist.

However, initial results show that this tool may be useful to educators to evaluate activities and changes to Programs that aim to improve belongingness in their postgraduate online distance learners.

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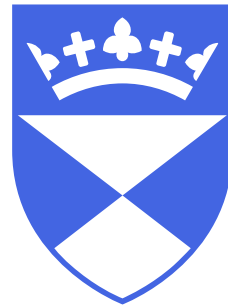
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THANK YOU