ASSESSING THE RELIABILITY AND VALIDITY OF THE NETWORK ENGAGEMENT QUESTIONNAIRE:

CAN ENGAGEMENT PREDICT KNOWLEDGE USE IN A COMMUNITY OF PRACTICE?

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AUTHOR'S DECLARATION

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

ABSTRACT

A disconnect exists between research and practice that is impeding the flow of knowledge between researchers, practitioners and decision makers. This obstruction of knowledge is acting as a barrier to the use of evidence in decisions and also as a barrier to informing research of important questions that need answering through scientific investigation. This divide between research and practice can be crossed by building a bridge between researchers and practitioners across which knowledge can be transmitted, translated and exchanged.

A possible mechanism to understand the key contributors to bridge building is by using Wenger's Community of Practice model as a framework upon which to understand the importance of and how to build connections between research, policy and practice. The defining characteristic of a Community of Practice is the interaction between members in order to jointly determine and embrace goals, eventually resulting in shared practices. Crucial to the success of a Community of Practice is the engagement between community members. Without engagement, a Community of Practice can not share knowledge and achieve its negotiated goals.

This thesis studied a Community of Practice that is being deliberately formed to facilitate the development of a pan-Canadian population health research network. This network, CANSPANN (Canadian School Physical Activity and Nutrition Network) aims to bring together researchers, practitioners, and decision makers to create research programs studying the social-environmental influence of schools on youth physical activity and healthy eating that address priorities for policy and practice.

This thesis assessed if a quantitative questionnaire tool could validly and reliably measure the level of engagement between CANSPANN members. The questionnaire also aimed to determine if engagement predicted knowledge use. Eighteen items in the NEQ validly measure engagement of CANSPANN members. Sufficient content validly was established for these items. Of these eighteen items, only four subscales significantly predicted knowledge use.

Through reliability testing with qualitative interviews it was determined that the Network Engagement Questionnaire reliably measures engagement for CANSPANN members who are centrally involved. It is far less able to reliably measure engagement for peripheral members. Further testing with the NEQ is necessary in order to increase its reliability.

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Knowledge is the distilled essence of our institutions, corroborated by experience.

~Elbert Hubbard

I would like to dedicate this thesis to the wonderful people that I am so lucky to call my family. Without each of you, our experiences as kids and the lessons we learned together I would not be the person I am and I certainly would not have made it this far on my journey. And while the journey was long and convoluted I am finally at the finish line. To Mom, Dad, Phil, Rose Marie, Gram & Papa, Gran, Kevin, Kate, Meg and Steve – I love you all. You mean the world to me, always have and always will.

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1. INTRODUCTION & OVERVIEW

1.1. The Gap between Research and Practice

There is a large disconnect between research, practice and policy. Knowledge being produced by researchers is not always the knowledge being used by practitioners[a]. This gap, across which few seem able to cross, prevents research results from being used effectively by practitioners[28;36;37;46;48;60;61]. Vice versa, typical research priority identification and planning processes do not incorporate practitioners' needs[59;68]. It is important for practitioners to be involved in the research process in order for research to be used in practice – without practitioner support research is not likely to be used. Potential support and buy-in from practitioners throughout the research project may be lost if these people are not involved from the beginning of the research project[9;23;25;68]. There are various explanations for this 'gap' between research and practice. Some feel it is a difference in 'language' spoken by these disparate groups[60;79]. Others believe it is a result of the different paradigms within which the disparate parties exist and function[75;79].

Various models and theories have been developed to explain this gap between research and practice[19;41;42;66;75]. One such model that can be applied to explain the gap, Wenger's Community of Practice (CoP) model postulates that learning and knowledge use result from the interaction of people and joint

[a] This defence uses the term "practitioner" to refer more broadly to practitioners, policy-makers and decision-makers.

development of objectives within the context of the community[75]. This model emphasises the notion of practice – that it is the 'how to' practice or learn and not simply the 'what' to practice or learn which is critical. Ideally, community members jointly determine the main goals of the community, since only they together can place their needs within their personal and organisational context. By engaging in efforts to build this type of community, researchers and practitioners can jointly determine research priorities and practice-focused goals and objectives, and by doing so work towards closing the gap that is separating them. We need a better understanding of the processes that facilitate and hinder development of such communities, and measures that can demonstrate progress in their development efforts.

This thesis set out to develop quantitative measures of Communities of Practice components. Specifically the Network Engagement Questionnaire was developed to assess the level of engagement between community members and how this engagement can facilitate knowledge use.

1.2. Building the Bridge

If bridges facilitating multi-way communication can be built to cross the gap between researchers and practitioners, the enhanced communication may lead to more effective and efficient use of knowledge by all parties. Before this can happen, there needs to be motivation on the part of both researchers and practitioners to want to inform practice and research, respectively.

The bridges built between research and practice can lead to knowledge exchange. "Knowledge" refers to information placed in the context of the person holding the knowledge. The Canadian Health Services Research Foundation defines knowledge exchange as "the collaborative problem-solving between researchers and decision makers that happens through linkage and exchange. Effective knowledge exchange involves interaction between decision makers and researchers and results in mutual learning through the process of planning, producing, disseminating, and applying existing or new research in decision-making"[22].Conditions required for knowledge exchange include interaction of sufficient intensity that leads all participants both to understanding and being understood. Parties involved must be 'ready' for exchange. Rogers' Theory of Diffusion of Innovations explains how both receivers and senders of information must be 'engaged' in the information exchange process[66]. Havelock speaks of a similar requirement of the sender and receiver both being in states of readiness for the information sending and receiving, respectively[41]. The receiver must be capable of receiving the information – there must be a 'spot' for it in their knowledge storage space. We can think of this 'storage space' metaphorically as the hard drive capacity in a computer. In humans, the 'storage space' is the brain. In addition to the space to store information at the receiving end, the sender must have a way to send the information. Therefore, the bridges that are built have to be specifically designed to achieve this. Concepts from Wenger's Communities of Practice model can guide "bridge construction" to meet the particular

specifications of researchers and practitioners involved in the exchange of knowledge[75]. These two parties can come together in a specific context to learn, to exchange and to create more knowledge.

1.3. Learning in a Social Context - Wenger's Community of Practice

Jean Lave and Etienne Wenger developed a model describing the concept of "legitimate peripheral participation" which sets learning a new skill or task within a social context. They posit that learning is a dimension of social practice which evolves and changes depending on the relations of the learner with others in their social context[53]. Lave and Wenger take this further by saying: "learning, thinking and knowing are relations among people in activity in, with, and arising from the socially and culturally structured world" (p. 51)[53]. This "social theory of learning" suggests that building relationships is core to the knowledge acquired by any individual. Knowledge is created through the interaction between two individuals. This foundational work gave rise to Wenger's Community of Practice Model. His model rests on the premise and research showing that learning is a social activity[53;75]. This model describes how individuals interact with one another to accomplish a task or enterprise[75]. In Wenger's model, ongoing interaction among community members is critical to developing new and effective practices [75]. Members of the community, in cooperation, build understanding and with this understanding are able to negotiate a purpose and goals. This mutual decision making, or jointly negotiated enterprise, is the basis for building and applying knowledge. Wenger states: "a Community of Practice is not just an aggregate of people

defined by some characteristic… membership is not just a matter of social category, declaring allegiance, belonging to an organization…or having personal relations with some people" (p. 74)[75]. Rather, membership is chosen. The defining characteristic of a Community of Practice is the interaction between members in order to jointly determine and embrace goals, eventually resulting in shared practices.

Most communities form organically or 'naturally' out of the need of community members to work together towards a mutual goal or objective. An organically formed community is not mandated to be formed. Little is known about deliberate attempts to create a Community of Practice[55]. The Community of Practice being studied here is a deliberately formed community (see Section 2.1).

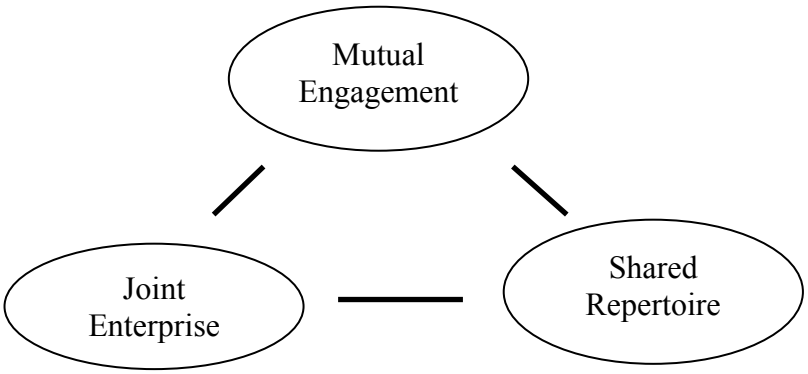
Studies of the development of CoP's have identified specific requirements necessary for the successful growth or evolution of a community – engagement, negotiation and consensus building of goals and objectives, and establishing relationships between community members that allow learning and practice to take place[17;39;75].

Communities of Practice have been studied in various settings and contexts including business, management and education [19;27;75]. In these fields, the Communities of Practice model is being applied to organizations as a way

of sharing knowledge and information between employees and as a means of increasing innovation in the organization[3]. While the Communities of Practice model has been used in these fields, health applications, especially those concerned with population health, are few. By expanding the understanding of Communities of Practice specifically to how health organizations deal with information and knowledge this concept can be applied in health fields such as chronic disease prevention and health promotion. These communities can help to create more effective public health programs. Creating more effective programs will ensure resources are allocated and used efficiently and will also extend the reach of programs to include under-privileged and under-serviced persons.

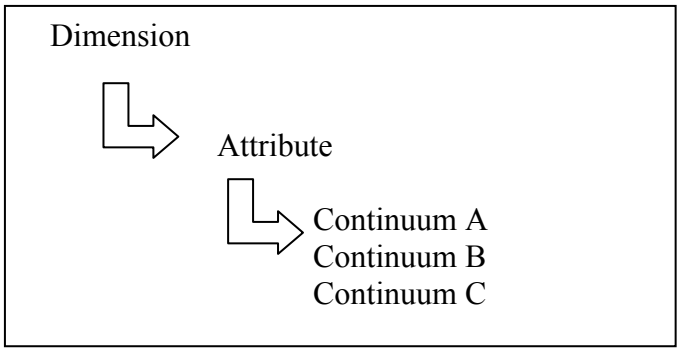
Wenger's Community of Practice model consists of three key dimensions: Mutual Engagement, Joint Enterprise, and Shared Repertoire. Figure 1.1 is a visual representation of Wenger's model.

Figure 1: Wenger's Communities of Practice Theoretical Model



Each dimension of the Community of Practice model consists of a series of attributes. These attributes help to describe the dimension in detail. To understand the make-up of attributes, each is further divided into a set of continua. These continua form the foundation upon which the model is built. Appendix 1 is a visual representation of relationships between the 'levels' of Wenger's model. Figure 2 shows a skeleton of these relationships.

Figure 2: A Skeleton Diagram of the Community of Practice Infrastructure



Recent work by Diemert[32] has aimed at expanding description and definition of these attributes and continua in order to set the CoP model within

a health research context. In a comprehensive way Diemert's work has identified which attributes are crucial to the engagement and enterprise of a Community of Practice and which attributes hinder this engagement and/or enterprise. While Diemert successfully identified key attributes of engagement, by doing so rich description of the Community of Practice was lost. In addition, Diemert was studying Communities of Practice within a particular context – provincial programs for the evaluation of tobacco control strategies. The attributes identified may be specific to this context and not necessarily generalizable to other contexts. However, Diemert and colleagues were mindful of identifying attributes that were not specific to tobacco control and instead influenced engagement and enterprise more broadly[32]. Diemert and colleagues lists of attributes can be found in Appendices 2 through 4. Diemert and colleagues attributes guided the development of the Network Engagement Questionnaire as well as the qualitative analysis in this thesis.

1.4. Dimensions of Wenger's Community of Practice

Mutual Engagement refers to the collaboration of community members in action towards accomplishing the goals and objectives of the community. The meanings of these actions are negotiated by all community members[75]. Mutual engagement is the foundational dimension of a Community of Practice. Without it Communities of Practice would not form. It could be that researchers and practitioners work within separate 'systems' that do not promote these dense relations of engagement and therefore neither group has the appropriate communication and dissemination tools to engage with the

other. This could lead to the failure of information and knowledge being exchanged between these two groups.

The second dimension of Communities of Practice, *Joint Enterprise*, refers to the negotiation of meaning as defined by the participants[75]. This enterprise results from a collective negotiation of meaning by the community's participants and is defined by the very process of pursuing this negotiation of meaning. The negotiation of community enterprise is not a static entity but an evolving product. It is especially crucial in a Community of Practice that goals and objectives are negotiated by all community members. If goals are 'handed down' to employees as a directive from a superior, the negotiation of such goals may fail. However, if these same employees take these goals and negotiate amongst themselves, thereby changing the goals to suit their needs while still satisfying their superior, the Community of Practice will be enabled and therefore much more likely to succeed.

The third and final dimension, *Shared Repertoire*, consists of the shared practices and resources developed by the community (i.e. practices, routines, rituals, artefacts, symbols, conventions, stories and histories), reflecting the history and tradition of the Community of Practice[75]. 'Water cooler talk' is an example of a shared resource. This 'talk' can contribute to the completion of community goals by allowing the community members to engage with each other and interact. These resources are shared in a dynamic and interactive way

between community members. As such, resources are free to change as the negotiated meaning and requirements of the Community of Practice change.

While Wenger has defined three dimensions, Mutual Engagement, Joint Enterprise and Shared Repertoire, a central concept runs through all three dimensions – Engagement. Without engagement a Community of Practice will cease to exist. Engagement is the sense of belonging to a community and affects all aspects of the community. Without engagement between community members, joint enterprise can not be negotiated and developed and shared repertoire will fail to be 'shared' between community members. If we want to further develop and refine measurement of Wenger's model, the logical place to start is engagement.

2. LITERATURE SUMMARY

An extensive literature search was undertaken to assess the use of Communities of Practice in research programs. Nine databases[b] were searched using the keywords *communit* of practice* and *knowledge.* Searches were restricted to peer-reviewed English language journals, years of publication between 1998 and July 2004. The search was restricted to the years 1998-2004 as 1998 was the year Wenger published his seminal work "Communities of Practice: Learning, Meaning & Identity". Before 1998, this concept was not defined or used as an explanation for learning and participation in the literature. The nine database searches identified 586 unique journal articles. The abstract of each article was then read to further restrict the literature review to those articles that specifically examined Communities of Practice as they relate to knowledge use. Just 35 articles met this more strict criterion[2;4-8;10-13;13;14;14-16;18;20;24;33;34;38;40;43-45;51;52;54;62;64;67;69;71-74;76-78]. In addition, the reference lists of these articles were searched for other references that could have been missed by the database searches. Many references were repeats of those already identified. Many more did not meet the criterion of examining Communities of Practice with respect to knowledge use. Refer to Appendix 5 for a graphical summary of these articles organized by sector, variables studied, methodology and procedures used in each study.

[b] ABI/Inform Global (Trade & Industry), General Science Abstracts & Applied Science and Social Science, CISTI Source, Science Citation / Web of Science, Sport Discus, ACM Digital Library, CSA – Environmental Science & Pollution Management, OSH Databases, PsycInfo

Given the nature of this topic and the critical statement that researchers and practitioners need to exchange more, the search also explored 'grey literature' that non-researchers might contribute to. CP^2 (www.cpsquare.com), a website dedicated to the study and understanding of Communities of Practice was the main source of grey literature on CoP's[1]. This website provides resources such as print material, online discussion groups and bulletins related to Communities of Practice. The website did not identify any further print/published resources but it did serve as a good learning tool to further understand Wenger's work and to understand how the model was being used in other communities. Lave & Wenger's text "Situated Learning"[53] and Wenger's text, "Communities of Practice"[75] were also used as sources of writing on the topic.

Fifteen of the 35 articles reviewed dealt with application of the CoP model in the business sector. Educational settings (6) and the health and social service settings (5) made up the remainder of the sectors studied[c]. The general logic of all articles, irrespective of sector (i.e. business, education or health) was that developing a Community of Practice leads to increased productivity and success. Most of the studies focused on indicators of knowledge use in the community, motivation and barriers to participation and community development and communication issues. Less frequently studies considered concepts such as leadership, trust, best practices and social capital.

[c] There were nine articles that did not study specific Communities of Practice. These articles were literature reviews, position papers or book reviews regarding Communities of Practice.

Literature was specifically searched for evidence that engagement, framed within a CoP model, can facilitate efficient and effective work amongst community members. No articles specifically examined the concept Engagement. Instead, articles focussed on the concepts of interaction, participation, collaboration, cooperation, and connectivity as well as the motivation and barriers to participation and community development and how these concepts influenced the success of the CoP.

A secondary purpose of this literature review was to learn from methods used in previous studies of Communities of Practice. Twenty of the articles reported using qualitative methods to study the Community of Practice. Only four research articles reported studying the Community of Practice quantitatively. Most often, the research was a case study with a minimum of one case and a maximum of nine cases. Methodologies of study included direct observation, interviews, focus groups, questionnaires and documentary analysis. Seventeen of the articles described a community at one time point while only six articles studied communities over time.

Qualitative study of the Community of Practice model can lend great depth of understanding to a research project. Studying a Community of Practice qualitatively acknowledges the complexity of a community as well as the processes of engagement that underlie the theoretical model. Furthermore, qualitative research takes into account community members' actions and

interpretations of reality and how these interpretations affect each member's actions. Most importantly, qualitative research considers people and their behaviours in context[29;30] - an issue fundamental to Wenger's model of knowledge and knowledge exchange.

While a great depth of knowledge can be gained by studying CoP's qualitatively, part of the goal of this thesis project was to develop a questionnaire tool that can be used by any Community of Practice throughout its development. While qualitative methods have added great depth and detail to Wenger's theoretical concept, this thesis built on the strength of such qualitative research to develop measurements of the Community of Practice model which may be easier to implement. A quantitative study will permit broader application of this concept across fields of study and also across organizational sectors (i.e. research and practice). Studying every Community of Practice qualitatively and evaluating its degree or level of engagement would not be efficient. Therefore, a quantitative tool will be useful across communities and may help expand Community of Practice research to studies that incorporate other research designs (e.g., more comparisons of multiple CoPs). A quantitative tool can help build on Wenger's model and add to the understanding of engagement and its importance to the success of Communities of Practice.

2.1. Overview of CANSPANN

CANSPANN stands for the Canadian School Physical Activity and Nutrition

Network. This network was created out of a need for a sustainable, pan-Canadian Community of Practice to enhance the capacity to produce and use impactful and transdisciplinary population intervention research for school-based youth physical activity and nutrition. Schools can be highly influential social and physical environments affecting a key population, youth, who should be a major focus of both prevention and health promotion programs[21].

CANSPANN members are researchers and practitioners (including policy makers) working in physical activity, nutrition or healthy eating research and practice from across Canada, across levels of population (i.e., individual, community, and population), and across organizational sectors (i.e., research, government, non-governmental organization in health and/or education). CANSPANN members have pooled financial and human resources as well as multi-disciplinary and cross-sectoral expertise in mutual support of each other. The key objective of CANSPANN is for network members to identify strategic research priorities related to social-environmental approaches that study youth physical activity and nutrition at the individual, community, environment and policy levels, and to act on these priorities.

Toward this end members of CANSPANN came together in January 2005 at a face to face workshop to identify these priorities and then in June 2005 submitted a proposal for funding to the Canadian Institutes for Health Research to act on these priorities. The proposal involved members from both

fields (physical activity, nutrition), and each organizational sector (research, practice). This funding proposal was for a program of study that would create an inventory of measurement tools across Canada used to measure physical activity and/or healthy eating in children and youth of school age. CANSPANN members formed Action teams for five content areas in the proposal including physical activity, nutrition, the school environment, readiness and access. Each Action team had between three and six members of CANSPANN involved. Teams were responsible for writing their 'section' of the proposal with central coordination and support.

2.2. Building a Community of Practice

CANSPANN faces several challenges as it tries to grow into a CoP. It is not an emergent community – meaning it has not naturally formed and grown of its own accord and evolved as such. Most Communities of Practice evolve naturally out of a shared need for mutual engagement and joint enterprise between community members[55]. This is not the case for CANSPANN – while the work has moved forward through joint enterprise, the initial development of CANSPANN was not an enterprise of all members. For some people, the time, effort and money required to start a CoP are within their priorities and abilities, as was the case with CANSPANN. It was within the means of the principal investigators to start the formation of the Community of Practice. For others, the start up would not be a priority. After forging a Community, the central members then invited others to join them. Because CANSPANN members are

willingly but perhaps not naturally engaging with each other, the amount of engagement and joint enterprise may be affected.

Geographic distance between participants may also impede engagement. Wenger suggests that engagement requires access to and interaction with other participants in the course of their own engagement (p. 184)[75] . Being physically separated may retard the evolution of this community.

Perhaps most importantly, participants are from different organizational sectors such as research, practice and policy. Individuals from different sectors use different words and phrases as well as employ sometimes different strategies and tactics to accomplish a task. If different 'languages' are spoken by participants from different sectors it could lead to a lack of communication and collaboration between community members. The development of this community may be obstructed because of the lack of communication and collaboration between these sometimes disparate sector groups who often have different priorities explaining their differences in action and lexicon.

3. STUDY QUESTION

Given the importance of the engagement construct to the Community of Practice model, this thesis project examined engagement, the legitimacy of studying it quantitatively, and its relationship to other Community of Practice dimensions. The research question was: ***What are valid and reliable quantitative measures of the construct 'engagement' framed within a Community of Practice model, as it specifically relates to a population health network (CANSPANN)?***

4. METHODS & PROCEDURES

The methods and procedures for this thesis followed a logical progression beginning with the development of an instrument to assess engagement and knowledge use in a Community of Practice. This instrument, the **Network Engagement Questionnaire (NEQ)** was specifically tailored to the CANSPANN context and grounded in evidence. The instrument was then given to the CANSPANN membership for completion. Partnered with the completion of this instrument CANSPANN members completed a semi-structured telephone interview in order to gather in-depth information from the member regarding their thoughts, feelings and opinions on the subject of CANSPANN and its development. Participants completed the NEQ and interview twice. The following sub-sections provide further detail about each phase of the research project and the steps that were followed.

4.1. Development of the Network Engagement Questionnaire (NEQ)

The independent variables relating to the engagement construct in Wenger's Community of Practice model were developed from personal knowledge of the CoP model, a comprehensive search of relevant research literature and from knowledge gained from Manske et al's evaluation of provincial tobacco control evaluation strategies[58]. These measures were compared to existing measures and theories in the group dynamics literature. Items were then created from this combined knowledge. Standard rules for item construction[31] guided refinement

of items. Items used in the Network Engagement Questionnaires at T1 & T2 can be found in Appendix 6.

Knowledge use serves as the dependent variable in the NEQ. Better use and exchange of knowledge between research and practice is the ultimate goal of developing the CANSPANN Community of Practice. I developed knowledge use measures based on scales used by Manske (Appendix 7) in his examination of knowledge utilisation in health promotion organizations[56]. The NEQ uses a modified version of Manske's "Likert-type self-report measures of knowledge use", an 8-point scale. This scale measure the range of knowledge use from non-use, conceptual use, instrumental use, effort to use knowledge, procedural use and structural use.

Non-use is the absence of use or awareness of knowledge by a community member. Conceptual use refers to the cognitive perspective of learning and acquiring knowledge. This occurs as small bits of knowledge are related to each other and formed into new patterns. Conceptual use would include reading, searching or finding information as well as sharing or circulating information to others[26;49].

Instrumental use refers to behaviour that can be measured as definable units of change[26;49]. Instrumental use can be further broken down into:

- Effort to Use – efforts to see if information /knowledge could solve a problem. This use implies some kind of action such as communication between people;
- Procedural Use – using knowledge to make policy changes or initiate meetings, etc. to make use of and/or try to implement information or knowledge; and,
- Structural Use – implementing what one has learned and making 'visual' changes.

4.2. Data Collection

Data collection followed two parallel paths: 1) quantitative evidence measurement via the Network Engagement Questionnaire assessing engagement in the CoP and knowledge use of CANSPANN members; and, 2) collection of qualitative evidence centred on engagement and knowledge use. The qualitative data was used to validate the Network Engagement Questionnaire.

Refinement of the NEQ began with item generation where all items were pooled and reviewed. Content validation for the instrument was then tested. Revision of actual instrument items was completed after the second administration time for reasons explained below. Both content and concurrent validity were tested for the instrument. Each step is outlined more completely here.

1) Item Generation

- Reviewed attributes key to engagement within a CoP established by Diemert et al[32]
- Identified from the CoP literature where an attribute has demonstrated a relationship to Community of Practice development
- Documented evidence and generated at least three items that reflect said attribute
- Refined items according to accepted guidelines for scale creation[31]
- Created and maintained a database of source of attribute and items selected to reflect continua of attribute

2) Content Validation

Three experts reviewed items for content validity. Content validity is defined as the extent to which specific items reflect a content domain[70]. The systematic examination of content helps to determine whether the instrument includes a representative sample of the behaviour domain to be measured. 'Expert' was defined as a researcher or practitioner intimate with Wenger's Community of Practice model. The expert must be familiar with this model and have used this model for measurement or practice.

Criteria to determine content validity[d]:

a) Items were reconsidered if they did not reflect the dimension of engagement

[d] The criteria to determine content validity being used were defined by Strauss & Corbin in their text "The Basics of Qualitative Research" [70]

targeted. Items mislabelled or inappropriately assigned to a category of engagement were moved into the more appropriate category.

b) If an item was ambiguous and rated as such by any of the three experts, it was reviewed and if needed revised or removed.

c) Any item that used complex terminology or jargon or was written poorly was removed or edited to be more appropriate.

Table 1 outlines the subscales that were identified and used in the NEQ at both T1 & T2.

Table 1: Subscales of the NEQ

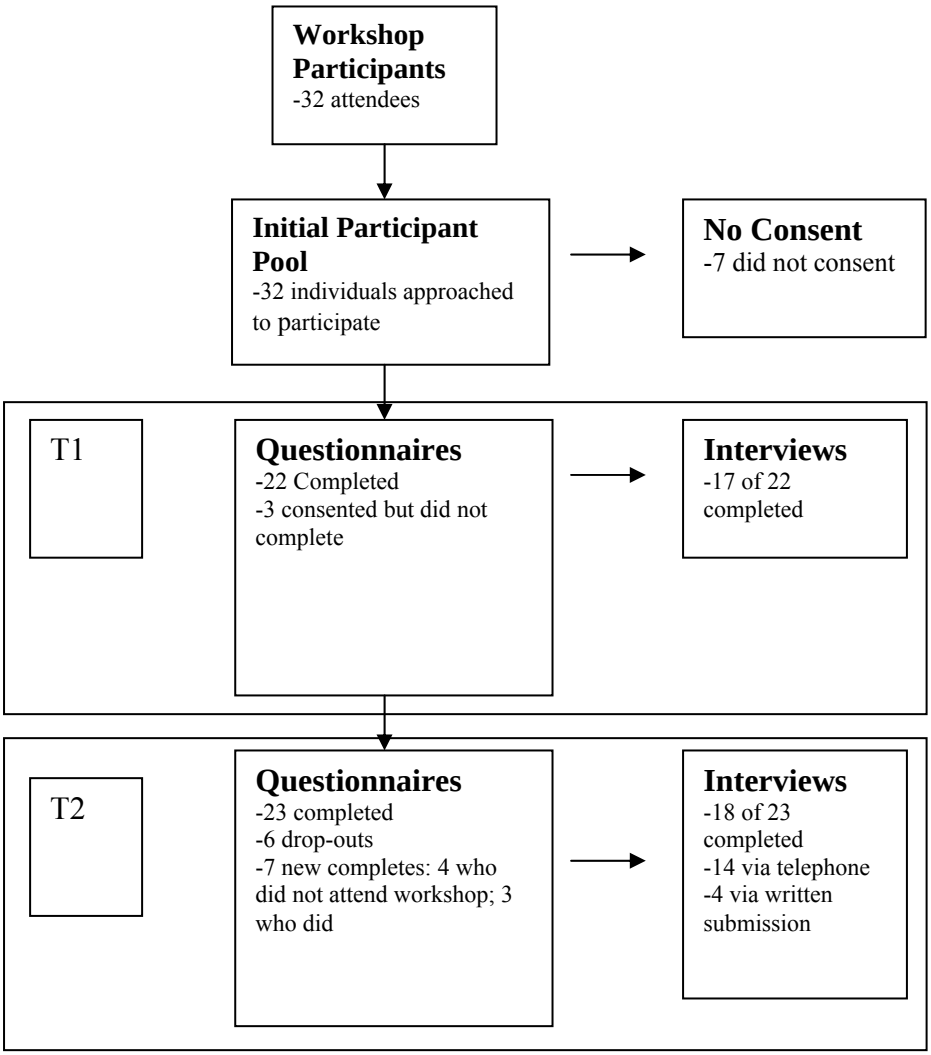
Degree of Centrality
Leadership & Influence
Extent of Diversity
Assigned or Assumed Roles
Level of Trust
Clarity of Issues & Degree of Alignment with Priorities
Commitment to & Recognition of Goals
Contextual Influences (Internal & External)
Mutual Accountability (Member level)
Mutual Accountability (Community level)
Use of Stories & lessons learned

Please refer to Appendix 8 for definitions of each attribute and subscale items.

3) Network Engagement Questionnaire Administration

Questionnaires were published on the web using the University of Waterloo's php Survey tool in April 2005, four months after the initial CANSPANN workshop held in January 2005. Figure 3 outlines the participation and attrition rates for the Network Engagement Questionnaire at T1 & T2.

Figure 3: Participation and Attrition Rates for the NEQ



Twenty-two CANSPANN members completed the questionnaire at T1 and returned it to the University of Waterloo either electronically or via surface mail. This is approximately 68.75% of the total sample, that being those members who participated in the CANSPANN workshop. Participants who did not complete and return the questionnaire within 2 weeks of receiving it were reminded to complete the questionnaire. If participants did not complete the

questionnaire within two months of receiving it, the participant was dropped from the T1 sample.

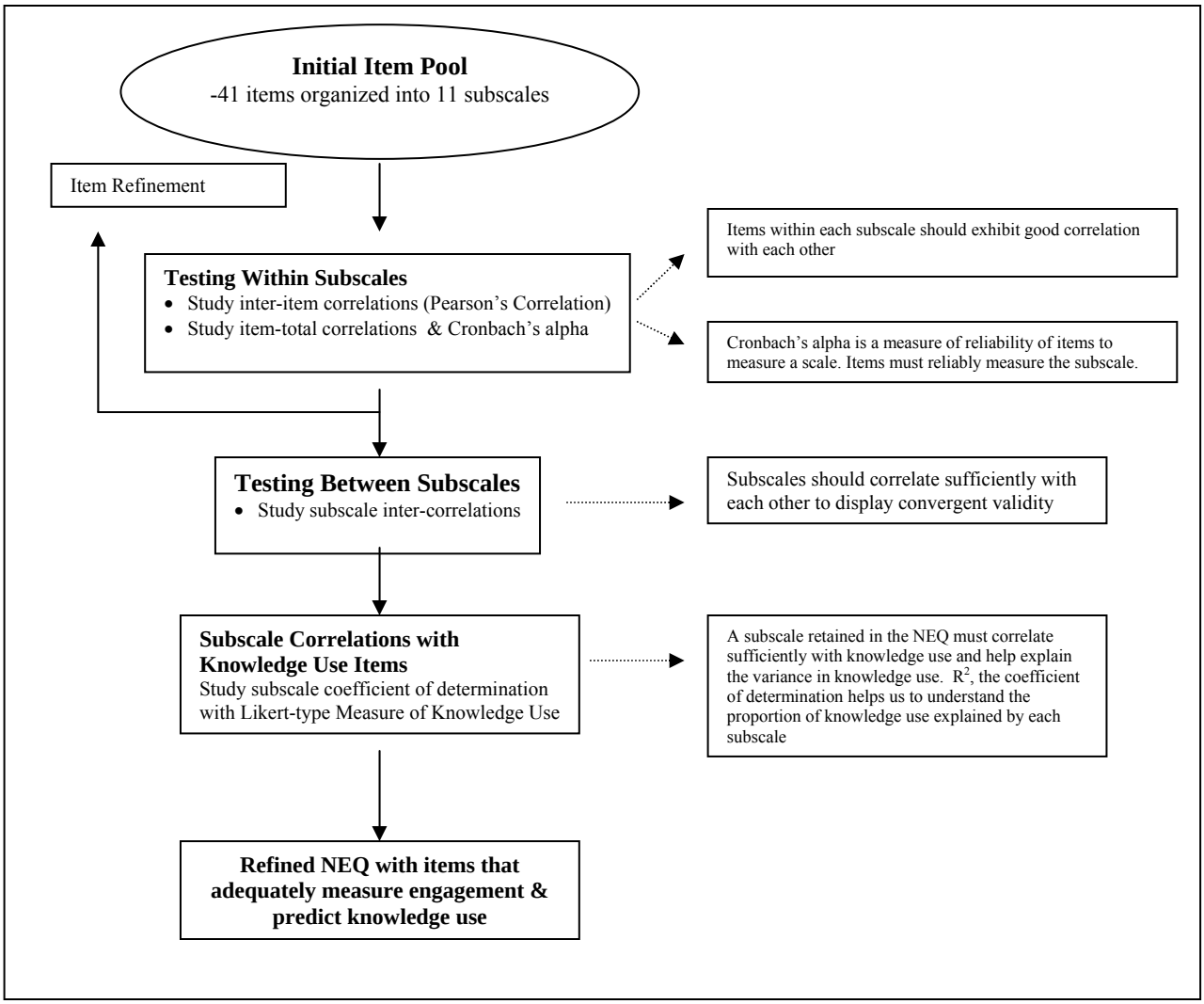
The second questionnaire was administered to the same sample of participants who returned the first questionnaire as well as those who consented to participate but did not complete the NEQ at T1. New members of CANSPANN who were actively involved at T2 were recruited to complete the questionnaire. The second NEQ was completed between September and October 2005, approximately six months after administration at T1. Twenty-three members (16 of 22 individuals who completed NEQ at T1, 3 who did not complete at T1 and 4 new members of CANSPANN; 76% of the total CANSPANN membership at T2) completed the questionnaire at T2 and returned it to the University of Waterloo either electronically or via surface mail. Six members of CANSPANN who completed the NEQ at T1 did not complete the NEQ at T2 and were removed from the sample.

Procedures for T2 questionnaire distribution and analysis paralleled those used at T1. However, the content of this questionnaire was a revised version of NEQ at T1 following the validation and refinement of scale items. Questionnaire refinement is dealt with in Section 5.2 and Appendix 6 outlines changes to the NEQ at T2.

4.3. Data Analyses

Figure 4 depicts the analysis plan that was followed for this thesis. Each box refers to a specific analysis that was undertaken. Explanations for each step in the analysis plan are briefly outlined to the right of each box and discussed more fully in this section.

Figure 4: Analysis Plan



4.4. Scale Testing

I undertook testing at T1 and T2 of each item to determine the insight the item contributed to the participants' perceptions of engagement. All statistical tests were performed using SAS (Version 9.1) statistical software. A PROC CORR command was used to calculate descriptive statistics, inter-item subscale correlations, item-subscale total correlations, Cronbach's alpha and Pearson's coefficient of determination between subscales and the Likert-type measure of knowledge use.

Descriptive Statistics

If the participants' responses on any particular item showed minimal or no variability or were highly skewed toward one end of the scale then an item was considered to provide minimal or confusing insights into the participants' perceptions of engagement. The item was either refined or removed.

Inter- item subscale correlations

Inter-item subscale correlations were examined to determine how well subscale items could be considered to be measuring a single construct (or 'attribute' as referred to by Wenger). If subscale items do not correlate sufficiently with each other (significance of $p \geq 0.05$ corresponding to $0.50 \leq r \geq 0.90$)[65] then this is an indication that the item(s) are not measuring the subscale that they are meant to. For example, if an item supposedly measuring Degree of Centrality does not correlate sufficiently with other items meant to measure this same attribute, the

item must be examined, re-written and/or removed for the subscale. It may be possible to move the item to a different scale if it correlates sufficiently with items from a different subscale and assuming face validity of the item.

Item-subscale Total Correlations & Cronbach's Alpha

Item-subscale total correlations were examined to determine the validity of subscale items measuring the latent construct engagement. Any item with an item-subscale total correlation that did not reach a significance value of at least $p \leq 0.05$ was flagged for revision or removal. It is important that subscale items correlate sufficiently with their subscale total in order to draw the conclusion that items are in fact measuring the subscale they are a part of. If items are not measuring the appropriate scale attribute then one's scale scores will be biased.

Cronbach's coefficient alpha is used as an estimation of the reliability of items to measure their subscale by determining the average correlation of items with the total. If Cronbach's alpha increases after the item is deleted from the subscale total then one assumes the item is not correlated with the subscale. If items do not correlate sufficiently with their subscale total then the items are removed from the questionnaire.

Subscale Inter-Correlations

Inter-subscale correlations were examined to determine the convergent validity of subscales that are theoretically related. It is important that subscales

correlate sufficiently with each other in order to have confidence that these subscales are in fact measuring the same theoretical construct, engagement. If subscales are not sufficiently correlated with each other, we can not have confidence that they are not measuring the relationship between theoretically related attributes of engagement.

Correlation Matrix

The correlation matrix was examined for inter-item correlations. Items that correlate highly with an item from a sub-scale other than its own were flagged. It is important that items only correlate within their own subscale so that we can draw the conclusion that the subscales are differentiated scales measuring specific aspects of the engagement construct. In factor analytic terms we are looking for 'simple structure' – that is strong correlation within a factor or subscale but some independence between factors.

Concurrent Validation

Concurrent validity was tested by examining the degree of association between the inventory of items and the qualitative assessment of engagement within the CoP. Qualitative data in the form of participant interviews were collected in order to assess concurrent validity of the Network Engagement Questionnaire measures.

The first round of participant interviews was conducted in April within three weeks of the participant completing and returning the NEQ. Seventeen of a possible 22 CANSPANN members who completed the NEQ at T1 completed the first interview. The second round of interviews was conducted in September and October 2005, again, within three weeks of completion of the NEQ at T2. Eighteen of a possible 23 members who completed the second NEQ completed the second interview. Four of these 18 members completed the interview via email to expedite the process of their responses and to ensure they could still be involved with this project. Please refer to Appendices 13 and 14 for the information letter, consent form and interview schedule used for these interviews.

Participant interviews were semi-structured with broad main themes identified for discussion. The aim was to gather in-depth information about the participant's interactions with other CANSPANN members as well as their involvement in CANSPANN activities. While these two main themes (interaction and involvement) guided the questions, the participant was free to discuss any aspect of their involvement with the CANSPANN community.

Verbatim transcripts in the form of rich text files (RTF) were imported into NVivo qualitative analysis software (NVivo 1.2) to facilitate the coding and analysis of information. Interviews were coded to identify a) instances of knowledge use, b) evidence of the engagement construct and c) evidence of the

attributes associated with engagement (i.e. degree of centrality, leadership, etc). This information was used to assess the extent to which the Network Engagement Questionnaire validly measured engagement and knowledge use. Intercoder reliability was established for coding at both T1 and T2. Two coders reached agreement in their coding of 'instances' of CoP attributes approximately 85% of the time.

Concurrent Criterion-related Validity

Pearson's coefficient of determination (R^2) was examined to establish the degree of variance of knowledge use (non-use – conceptual use – instrumental use) explained by members' levels of engagement. Values of Pearson's coefficients of determination were computed for the NEQ at T2 comparing CoP constructs and Manske's Likert-type Measure of Knowledge Use.

Table 2: Summary of Analyses to Determine Validity of NEQ

Type of Validity	**Method of Analysis**	**Outcome**
Content validity	Experts in CoP reviewed items	Refined items for further testing
Content validity (scale testing)	Inter-item correlation Item-scale subset correlation Item-Scale correlation	Sets of statistically valid scale items that describe the concept of engagement
Construct Validity	Subscale Inter-Correlations	Sets of subscales that indicate valid measurement of theoretically related constructs.
Concurrent validity	Comparison to qualitative assessments of the development of this CoP, and level of engagement of individual members of CoP	Validated NEQ tool that measures level of engagement of CoP members
Concurrent Criterion-related validity	Calculate Coefficient of Determination measuring the variance in knowledge use explained by engagement	Validated NEQ tool that predicts level of knowledge use based on engagement of CoP members

5. RESULTS

5.1. T1 Quantitative Findings

There is little learning that resulted from T1. Tests for subscale inter-item correlations, item-subscale total correlations were insignificant at T1. In brief, most correlations did not satisfy the criterion of an r value between 0.50 and 0.90 and there were many items that correlated with items from subscales other than their own. Values for Pearson's coefficient of determination were not computed for data at T1 because the NEQ items did not satisfy the first criterion of sufficiently valid inter-item subscale correlations and item-subscale total correlations. No items were removed from the NEQ after T1 results were analyzed. This matter will be discussed further in Section 6.1.

The Network Engagement Questionnaire may not be able to measure engagement with such a young community. Results at T1 are not inconsistent with T2 results, just not as powerful as T2 results. T2 results provide greater consistency in correlation data. As such, T1 data are provided in full in Appendix 9. Only T2 results will be presented here.

5.2. T2 Quantitative Findings

The same procedures were used for T2 results analysis and these are presented here.

Inter-item Subscale Correlations

The Network Engagement Questionnaire showed significant inter-item subscale correlations. Of the eleven subscales in the NEQ, six had items that correlated significantly with each other within the subscale. Subscales that had significant inter-item correlations were retained for the next step of analysis – the testing of item-subscale total correlations. The six subscales that showed significant inter-item subscale correlations are listed below in Tables 3 through 8 with the significant inter-item subscale correlations shown. Significance values (p values) are shown as the second value in each cell. Correlations that were not significant ($p \geq 0.05$) have been removed from each table for ease of reading. All inter-item subscale correlations are displayed in Appendix 10.

Table 3: Degree of Centrality Subscale – Significant Inter-Item Correlations

Item	1	7	9	12	19	21
1		0.787 0.0002	0.802 0.0001		0.739 0.0007	
7			0.646 0.0051		0.663 0.0037	
9					0.852 <0.0001	
12						0.604 0.0102
19						
21						

Table 4: Leadership & Influence Subscale – Significant Inter-Item Correlations

Item	2	11	14	16	19	26	33
2			0.522 0.0263		0.793 <0.0001		0.489 0.0395
11							
14					0.563 0.0150		0.480 0.0436
16							
19							0.721 0.0007
26							0.667 0.0025
33							

Table 5: Extent of Diversity Subscale – Significant Inter-Item Correlations

Item	5	10	13	27	35
5				0.479 0.0378	
10					0.574 0.0102
13					
27					0.568 0.0112
35					

Table 6: Level of Trust Subscale – Significant Inter-Item Correlations

Item	17	18
17		0.714 0.0006
18		

Table 7: Mutual Accountability (Community Level) Subscale – Significant Inter-Item Correlations

Item	22	32	34	38
22		0.516 0.0238	0.465 0.0448	
32				
34				
38				

Table 8: Use of Stories & Lessons Learned Subscale – Significant Inter-Item Correlations

Item	8	40	41
8		0.601 0.0065	
40			0.480 0.0373
41			

Subscales that did not exhibit significant inter-item correlations were removed from the analysis. Given these criteria the following subscales and items were retained:

Table 9: Items Retained after Inter-Item Subscale Correlations

Subscale	Items Retained
Degree of Centrality	1, 7, 9, 19
Leadership & Influence	2, 14, 19, 33
Extent of Diversity	5, 27, 35
Level of Trust	17, 18
Mutual Accountability (Community Level)	22, 32, 34
Use of Stories & Lessons Learned	8, 40, 41

Correlation Matrix

A listing of all items that correlated highly with items from subscales other than their own completes Appendix 10. In brief, there were many items of the 41 likert items measuring engagement that correlated with subscales other than their own. Many of these items were those that were considered for elimination.

Item-Subscale Total Correlations

Items that exhibited significant inter-item subscale correlations were then compared to their subscale total for correlation. All six subscales that had significant inter-item subscale correlations also exhibited significant item-subscale total correlations. This is expected: that items that correlated within their subscale should also correlate with the subscale total. It makes sense theoretically that items that correlate well between themselves will also correlate with the subscale total which is a measure of correlation based on all

subscale items. Tables 10-15 list the item-subscale total correlations for each subscales.

Table 10: Degree of Centrality Item-Subscale Total Correlations & Cronbach's Alpha

Cronbach's Coefficient Alpha = 0.826067

Deleted Variable	Correlation with Total	Alpha
1	0.772998	0.758838
7	0.770920	0.785731
9	0.797884	0.751210
19	0.840102	0.738531

Table 11: Leadership & Influence Item-Subscale Total Correlations & Cronbach's Alpha

Cronbach's Coefficient Alpha = 0.808001

Deleted Variable	Correlation with Total	Alpha
2	0.643101	0.772202
14	0.547909	0.786431
19	0.798221	0.726749
33	0.752618	0.761461

Table 12: Extent of Diversity Item-Subscale Total Correlations & Cronbach's Alpha

Cronbach's Coefficient Alpha = 0.735472

Deleted Variable	Correlation with Total	Alpha
5	0.522934	0.681635
27	0.602236	0.650706
35	0.668561	0.615170

Table 13: Level of Trust Item-Subscale Total Correlations & Cronbach's Alpha

Cronbach's Coefficient Alpha does not exist in this subscale as there are only 2 variables and therefore when deleting one variable, there is only one variable left.

Table 14: Mutual Accountability Item-Subscale Total Correlations & Cronbach's Alpha

Cronbach's Coefficient Alpha = 0.609865

Deleted Variable	Correlation with Total	Alpha
22	0.491213	0.483108
32	0.541999	0.402556
34	0.449195	0.501152

Table 15: Use of Stories & Lessons Learned Item-Subscale Total Correlations & Cronbach's Alpha

Cronbach's Coefficient Alpha = 0.709517

Deleted Variable	Correlation with Total	Alpha
8	0.557006	0.643326
40	0.642184	0.478088
41	0.473844	0.686649

Table 16 displays items that are retained after computing the item-subscale total correlations. These items moved on to the third step of the analysis plan, where subscales were compared to knowledge items to determine the percentage variance of knowledge explained by the subscales.

Table 16: Items retained after item-subscale total correlations

Subscale	Variables used to create Subscale Variable
Degree of Centrality	1, 7, 9, 19
Leadership & Influence	2, 14, 19, 33
Extent of Diversity	5, 27, 35
Level of Trust	17, 18
Mutual Accountability (Community Level)	22, 32, 34
Use of Stories & Lessons Learned	8, 40, 41

Subscale Inter- Correlations

Subscales were compared to each other to test construct validity. Subscales that correlate sufficiently with each other display convergent validity. It is necessary that subscales have construct validity. Table 17 shows the inter-subscale correlations for all eleven subscales.

Table 17: Inter-subscale correlations

Item[e]	1	2	3	4	5	6	7	8	9	10	11
1	1.00	0.91 <.0001	0.69 0.0016	0.76 0.0003	0.52 0.027	0.60 0.0078		0.61 0.0071	0.60 0.0087		0.62 0.0056
2		1.00	0.73 0.0006	0.73 0.0006	0.61 0.0070	0.72 0.0007	0.52 0.0261	0.49 0.0372	0.56 0.0162		0.58 0.0111
3			1.00	0.68 0.0020	0.48 0.0452	0.62 0.0058		0.64 0.0045	0.63 0.0051		0.62 0.0055
4				1.00				0.65 0.0206	0.70 0.0012		0.60 0.0080
5					1.00	0.61 0.0071				-0.49 0.0367	0.49 0.0374
6						1.00	0.64 0.0041				0.62 0.0056
7							1.00				
8								1.00	0.67 0.0021		
9									1.00		
10										1.00	-0.51 0.0295
11											1.00

[e] 1=Degree of Centrality, 2=Leadership, 3=Extent of Diversity, 4=Level of Trust, 5=Clarity of Issues Discussed, 6=Commitment to Goals, 7=Contextual Influences, 8=Mutual Accountability – Community, 9=Mutual Accountability – member, 10=Assigned or Assumed Roles, 11=Use of Stories & Lessons Learned

We see from Table 17 that the subscales Degree of Centrality, Leadership & Influence, Extent of Diversity, Level of Trust, Clarity of Issues Discussed, Commitment to Goals, Mutual Accountability – Community, Mutual Accountability – member, and Use of Stories & Lessons Learned correlate sufficiently with each other. We can have confidence that they are in fact properly measuring these theoretically related attributes and ultimately engagement.

Coefficient of Determination

Subscale items retained after studying item-subscale total correlations were used to create six new variables representing the six subscales being retained. These subscales are:

- Degree of Centrality
- Leadership & Influence
- Extent of Diversity
- Level of Trust
- Mutual Accountability (Community Level)
- Use of Stories & Lessons Learned

Table 18 outlines the subscales that showed promising coefficients of determination.

Table 18: Variance in knowledge use explained by NEQ Subscales

Subscale	Knowledge Use Variables										
	q49	q50	q51	q52	q53	q54	q55	q56	q57	q58	q59
Degree of Centrality						0.2068 p=0.040	0.2616 0.0212	0.2074 0.0438	0.3064 0.0113	0.2672 0.0077	0.1680 0.0727
Leadership & Influence									0.1975 0.0496		
Extent of Diversity											
Level of Trust					0.2280 0.0333	0.2520 0.0241	0.2223 0.0358				
Mutual Accountability (Community Level)			0.2380 0.0291								
Use of Stories & Lessons Learned							0.1966 0.0502		0.2602 0.0216	0.2757 0.0174	

From Table 18 we see that five of the six subscales predicted knowledge use to some extent. I can be confident to a certain degree that engagement does predict knowledge use.

5.3. Qualitative Findings

Within one month of CoP members completing the NEQ, they also participated in a semi-structured interview, the results of which were analyzed to assess consistency of responses with the NEQ. A method of triangulation as outlined by Farmer et. al.[35] was used to assess the level of concurrent validity between the NEQ at T1 with the qualitative interview findings at these time points. For each subscale, participants were ranked based on their NEQ score. Participants were ranked by score into the top, middle, and bottom third of scores. Tertiles were calculated based on the total potential score for each subscale. These rankings were then compared with the participants' qualitative interviews for each subscale. A range of 1-3 was used for each subscale based on subscales created by Diemert and Manske in their examination of dissemination within

tobacco control Communities of Practice[32]. If ranges did not exist for subscales used in the NEQ, they were created. Following Farmer et. al.'s protocol, a participant's score on the NEQ and their interview "match" if an equal ranking (or agreement) is given for each data source. For example, a high ranking on the NEQ for the subscale 'Degree of Centrality' (ranked in the top third) would match with a qualitative code of 'central member' in the participant's qualitative interview. The participant's scores 'mismatch' (or are in disagreement) if the ranking for the NEQ is different from that of the interview. A third category reports "silence". Silence is defined as a lack of subscale coding in the participant's interview. And finally, the agreement between a participant's NEQ rank and their qualitative interview is inconclusive if there is no conclusive range score for their qualitative interview.

Table 19 depicts the number of matches, mismatches and instances of silence and inconclusiveness for each subscale of the NEQ. Similar charts can be found in Appendix 11 for each subscale outlining the participants' interview responses. An individual's range score on any given NEQ subscale was compared with their qualitative interview 'range' for said subscale. The interview range can be thought to go from 'low'-'mid'-'high' instances of a subscale. In the case of Degree of Centrality the interview range would be 'peripheral (low) – mid central (mid) – central (high). A match existed if the NEQ subscale score was equal to the range category most coded. For example, a score of 0-1-3 on the qualitative interview would satisfy a NEQ rank of 1

(highest tertile score) given that the highest score in the qualitative range was in the third column or the 'highest' score. A score of 1-2-0 would satisfy an NEQ rank of 2 given that the highest range score is in the second category (score of 2). A comparison is said to be inconclusive if there is no distinct pattern in the interview range numbers. For example, a score of 0-1-1 is inconclusive for a NEQ rank of 1 given that the second and third category scores are the same. A comparison is silent if there is no range coded in the participant's interview.

Table 19: Test of Concurrent Validity for Subscales by Participant

Theme	**# of matches between NEQ score & Qualitative Interviews**			
	Match	*Mismatch*	*Silent*	*Inconclusive*
Degree of Centrality	7	6	0	2
Leadership & Influence	5	6	0	3
Extent of Diversity	6	6	1	1
Assigned or Assumed Roles	5	8	0	1
Level of Trust	7	4	3	0
Clarity of Issues Discussed	5	9	0	0
Recognition and Commitment to Goals	4	7	1	1
Mutual Accountability – member level	6	8	0	0
Mutual Accountability – Community level	2	10	2	0
Use of Stories & Lessons Learned	1	3	9	0

At first glance, the NEQ does not seem to reliably measure level of engagement of CANSPANN participants. However, as Table 20 outlines, the percentage of agreement between the NEQ and qualitative interview differs when results are examined by tertile.

Table 20: Percentage of Agreement by Subscale Ranges

Theme	**% Agreement within Range**		
	High	**Mid**	**Low***
Degree of Centrality	29	67	
Leadership & Influence	75	0	
Extent of Diversity	87	0	
Assigned or Assumed Roles	70	0	
Level of Trust	82	0	
Clarity of Issues Discussed	22	88	
Recognition and Commitment to Goals	70	20	
Mutual Accountability – member level	50	0	0
Mutual Accountability – Community level	86	25	0
Use of Stories & Lessons Learned	50	100	0

*The first seven subscales did not have scores in the lowest third of NEQ scores and therefore do not report a value in these cells.

With three exceptions, the NEQ is better at measuring engagement for CANSPANN members who achieve higher scores in a subscale. That is, the NEQ is better at measuring engagement for members who are more engaged. The questionnaire is less able to reliably measure engagement for mid to low range scores on subscales.

Three subscales did not follow this trend: Degree of Centrality, Clarity of Issues Discussed and Use of Stories & Lessons Learned. In these three subscales, the NEQ more reliably measured scores for individuals who scored in the mid range for each subscale. Potential reasons for these findings are discussed in Section 6.2.

6. DISCUSSION & RECOMMENDATIONS

6.1. Quantitative Data

From the results shown in Sections 5.1 and 5.2, we can conclude that a revised version of the Network Engagement Questionnaire could be very useful to a Community of Practice interested in measuring its members' levels of engagement and how this engagement predicts knowledge use. There are eighteen items that will be retained in the NEQ for future study.

Table 21: Retained Items in the NEQ

Subscale	**Retained Variables**
Degree of Centrality	1, 7, 9, 19
Leadership & Influence	2, 14, 19, 33
Extent of Diversity	5, 27, 35
Level of Trust	17, 18
Mutual Accountability (Community Level)	22, 32, 34
Use of Stories & Lessons Learned	8, 40, 41

Appendix 12 outlines the NEQ in its revised form with the eighteen remaining items as well as Manske's Likert-type measure of Knowledge Use.

We see from the results above that there is representation of items from each of the three dimensions of the Community of Practice model. Nine items represent the dimension Mutual Engagement (from the subscales Degree of Centrality, Member Leadership & Influence, and Level of Trust). Six items represent the dimension Joint Enterprise (from the subscales Extent of Diversity & Mutual Accountability) and three items represent the dimension Shared Repertoire (from the subscale Use of Stories & Lessons Learned).

The majority of items remaining in the revised NEQ come from the Mutual Engagement Dimension. A member's degree of centrality, their level of leadership and their level of trust in other network members all seem to be important to the member's level of engagement. While these results make intuitive sense, they are also somewhat surprising. I would have expected that Recognition and Commitment to Goals would be critical to a member's engagement as well as mutual accountability at the member level. It may be that feeling personally accountable to the network is necessary but knowing that the community itself is accountable is more important.

The extent of diversity of the community also seems to be important to CANSPANN. A fine balance exists between members approaching and dealing with community issues through distinct lenses of expertise and the amount of overlap or agreement between these areas. There are two major areas of research and practice represented in this community: physical activity and healthy eating/nutrition. Given the results of the NEQ, members must recognize that these disciplines approach the issue of health with somewhat different foci. However, the network members also seem to be able to work with each other, regardless of discipline, and engage with each other. In a similar way, different sectors are represented in CANSPANN: research, policy and practice. A similar level of understanding and working with others from different sectors seems to have enabled CANSPANN members to engage and work towards their goals and objectives.

Items measuring CANSPANN member's recognition and commitment to goals may have been premature for this Community of Practice. CANSPANN is in an interesting position right now as they have not received funding for over a year and are in the initial phases of applying for further grants. Being in limbo like this may explain why Commitment to & Recognition of Goals did not register as an important measure of engagement for members of the Community. If the NEQ is used for assessment of more developed communities a measure of commitment to goals may need to be added. With this in mind, the items related to goals will be appended to the NEQ and recommended for use with more established communities. Before widespread use of these questions takes place, further validity testing of these measures must take place.

While the NEQ as administered at T2 does elicit more satisfactory results than T1, there is still much work to be done before the NEQ is a tool that will be useful for many Communities of Practice. Given the difficulty of contacting and enlisting participation from all CANSPANN members, the participation rates in both the NEQ and participant interview are less than expected. The actual engagement of community members may be different than that captured by the NEQ and participant interviews. Tables 22 and 23 outline the percentage of CANSPANN members by sector that completed the NEQ.

Table 22: CANSPANN members completing the NEQ at T1

Member Type	# Represented in Study	% of total CANSPANN members of same type
Researcher	13	66%
Practitioner	8	50%

At T1, 66% of members who were researchers completed the NEQ. Only 50% of practitioners completed the questionnaire. The other 34% of researchers and 50% of practitioners who did not complete the NEQ may feel very different about the CANSPANN CoP. If these members were part of the study population the results may have been different.

Table 23: CANSPANN members completing the NEQ at T2

Member Type	# Represented in Study	% of total CANSPANN members of same type
Researcher	16	76%
Practitioner	7	46%

At T2, a more satisfactory number of researchers completed the NEQ. It can be assumed that the majority of researcher feelings about engagement are represented in this sample of fourteen researchers. Unfortunately only seven of a possible 15 practitioners completed the NEQ at T2. There were extenuating circumstances that did not allow three practitioners to complete the survey. In one instance, one of the CANSPANN members left their organization and a new individual took this person's place in CANSPANN. Due to time constraints and transitioning into a new position this practitioner did not complete the NEQ at T2. In another instance, personal reasons did not allow one of the CANSPANN members to complete the survey.

A drop off in participation may reflect the "hiatus" that CANSPANN is under – a key staff person left in the 2 months prior to completion of T2 questionnaires and interviews, and no "real" activity had occurred over the summer.

It is possible that other factors or attributes of engagement are affecting the engagement of community members differently. Those who completed the NEQ and participant interviews may be more engaged in general than those who did not take part. The fact that members who completed the NEQ were more likely to be members of Action teams and more likely to be involved with the CANSPANN grant proposal may indicate their investment in the community and their feelings of responsibility towards the community. Given that Communities of Practice are formed around the negotiated meaning and practice of their members, it makes sense that responses are more likely to be from active members rather than inactive members. Those who do not participate may have been interested in CANSPANN when it first formed but then in time have realized that their individual goals and priorities do not align with those of the network. The person may therefore discontinue their participation in the community. It would be expected then that people who report lower levels of knowledge use also have correspondingly lower levels of engagement. This does not mean that the NEQ is not measuring engagement properly, but merely that the CANSPANN community is in a state of growth where the membership is fluid and frequently changing with varying degrees of

engagement in members. If the community was more stable and in a later stage of development we may find that levels of engagement do predict knowledge use to a greater extent.

While I have been able to develop a revised NEQ, the items that remain on the NEQ do not adequately predict knowledge use. Approximately 20% of the variance in knowledge use is explained by engagement. Only five of the six engagement subscales predict knowledge use and only some of the knowledge use items are predicted. Again, it can be argued that the lack of prediction of knowledge use relates more to the stage of development of this community rather than the predictiveness of the questionnaire tool.

The Likert-type Self-report measure of Knowledge Use may also be insensitive in its current form because questions were not specific enough for CANSPANN participants. In Manske's original study [56] the knowledge use measure asked about specific activities that participants took part in such as a workshop or training meeting. In the case of this research, the knowledge use questions did not ask about knowledge use in relation to specific events such as the CANSPANN workshop, teleconferences or action team meetings. More specific questions may have helped people report knowledge use by placing the knowledge in the context in which it was learned, used or shared. Future uses of the NEQ should include the likert-type measure of knowledge use inquiring about specific instances of knowledge use.

Another possible explanation for the lack of predictiveness of engagement relates to Manske's Knowledge Exchange model (Appendix 13) where Communities of Practice and the interactive processes only represent a small portion of the model. Other aspects of Manske's model (i.e. content, information source and context) were not explored in this thesis project but could help explain knowledge use and help us understand how knowledge use is affected by context, the source of information and the content of the message. The NEQ can still be useful to help understand engagement within a Community of Practice in the context of the community and the additional factors of Manske's model. It will be useful to study other Communities of Practice using the NEQ in order to further understand how predictive engagement is of knowledge use and how this questionnaire can be incorporated into a broader study of knowledge exchange in a Community of Practice or network.

6.2. Qualitative Data

There could be multiple explanations for the incongruence between the quantitative NEQ scores and qualitative semi-structured interviews. The differences in these data sets in regards to their purpose and focus may have caused the content to vary. The NEQ asks participants about eleven specific subscales that are attributes in the Community of Practice model. The purpose was to have both a big-picture understanding of the state of the Community of Practice and how members are engaging as well as a more participant-focused perspective of how individual members were engaging in the community. The

focus of the interview however provided a much more person-focused perspective specifically from the eyes of the individual member. Given this difference in perspective the results of these two instruments may be quite different. A participant can speak strongly about their own experiences and when asked in an interview may focus more on these personal experiences as opposed to the state of the community in general. For at least some participants, CANSPANN is not the only point of contact. The physical activity and health eating communities in Canada are rather small, so there had been relationships developed previously that were continued, irrespective of CANSPANN. These previous relationships may have been reported in one of the measurement tools but not the other.

The type of measurement used in the NEQ and interviews may also explain the inconsistencies. The NEQ is a likert-type questionnaire that only allows participants to answer on a scale of one to five. The participant is constrained by the scale in how they answer. However, the open-ended nature of the qualitative interview meant a participant 'shaped' the interview and therefore some themes may have gained greater strength and visibility during the interview. This shaping would affect the outcome of the interview with some themes being discussed while others may be completely ignored.

What explains the dissonant results? It is not necessarily a bad thing that the NEQ and qualitative interviews do not always agree. As we saw in section 5.3 the NEQ appears to be a satisfactory measure of engagement for

participants who are more engaged. When a participant is only peripherally engaged the NEQ has trouble. More work will need to be done to fine tune the NEQ in order that it can validly record the level of engagement of peripheral members.

Using these two data collection methods has provided a very broad perspective of CANSPANN and the levels of engagement of community members. This has allowed a great learning opportunity. The differences between measurement tools for each subscale will be examined to determine if the differences relate to the nature of the tools used or if there is a legitimate difference in findings. This aspect of the research will serve as the next steps for refinement of the NEQ and will allow it to be used with other communities and with greater faith in the results.

6.3. Additional scale development

While this thesis research has been useful in further understanding Wenger's Community of Practice model, this was only a pilot study of the Network Engagement Questionnaire. Campbell & Fiske developed the multitrait-multimethod matrix outlining the types of validity needed in order to have full confidence in a scale. The multitrait-multimethod matrix states that a scale must have construct validity as well as two subcategories convergent and discriminant validity of its items.

Convergent validity is the degree to which concepts that should be related theoretically are interrelated in reality. **Discriminant validity** is the

degree to which concepts that should *not* be related theoretically are, in fact, *not* interrelated in reality. You can assess both convergent and discriminant validity using the MTMM. In order to be able to claim that your measures have construct validity, you have to demonstrate both convergence and discrimination.

If the NEQ is to be used in the future as a tool to measure engagement in a Community of Practice, the multitrait-multimethod matrix could be used as guidance for full scale development. The different forms of construct validity, including both convergent and discriminative validity should be incorporated into the validation of the NEQ.

6.4. Reliability Testing

Following from section 6.3, further reliability testing should be undertaken with the NEQ. Test-retest reliability should be studied with the NEQ. Communities of Practice are dynamic entities and the NEQ would be a much stronger instrument if it could measure real change that is occurring over time.

6.5. Extraneous Factors

There are a few factors worth mentioning that could have affected the results of either the Network Engagement Questionnaire or the qualitative interviews.

Pre-existing Relationships:

The majority of CANSPANN's membership was identified because they are experts in their field and study physical activity and/or healthy eating at the

population level. Because the number of individuals working in the fields of physical activity and healthy eating are relatively small in Canada, many of CANSPANN's members were well connected with one another before CANSPANN's existence. Many members had worked together in the past on different research projects or intervention programs. Given that members had pre-existing relationships it is hard to determine how much interaction happened as a result of CANSPANN and how much would have happened regardless of CANSPANN. However, as one member relates, the CANSPANN network may be seen as a beneficial connection to make:

> *"I think that the potential for CANSPANN to be a valuable network for me to be a part of is [there]… my work has been fairly independent and I would continue to have gone forward with and in collaboration because nutrition in Canada is small. I've been around for a while so I know the key people in nutrition and those are the people that I mainly interact with. But I think that my work will be facilitated by being part of a network because if it's possible for funds to be directed through a network, then it puts my work into a bigger framework instead of being the little investigator working by themselves, it puts it into a larger framework, it may be a very valuable way for attracting money" (CANSPANN Participant, Personal Communication).*

And again, a different member raised the topic of relationships:

> *"there are people that I met and have connected with - some that would not have happened unless I had been at CANSPANN" (CANSPANN Participant, Personal Communication).*

While many members knew each other before CANSPANN was created, the fact that members could come together and share their ideas, priorities and objectives for research and practice facilitated their shared understanding and negotiated meaning of the issues of school-based physical

activity and healthy eating in Canada. The CANSPANN workshop and subsequent activities have allowed CANSPANN's membership to build a network of partners that can come together in the joint enterprise of leading the research and practice of physical activity and healthy eating promotion.

Sample Size:

The first opportunity for CANSPANN members to meet in January 2005, included 40 people. At T1, 22 CANSPANN members took part in the NEQ and 17 members took part in the qualitative interviews. At T2, 23 members took part in the NEQ and 18 completed the qualitative interview. Of these 18, four members completed these questions via an electronic written submission due to time constraints. Results from both the NEQ and qualitative interviews will be affected by the fact that only half of all potential CANSPANN members participated in this research. It is possible that the other members of CANSPANN who did not participate would have completed the questionnaire differently, thereby changing the results of the NEQ. It is also possible that these members would have answered the qualitative interview questions differently, thereby affecting the concurrent validation of the NEQ.

Every effort was made by the author and the CANSPANN leadership to include all CANSPANN members in the NEQ and qualitative interviews. If the NEQ is used to gauge CANSPANN's levels of engagement in the future, it may be necessary to have participants complete the NEQ at a CANSPANN

meeting. If there is an opportunity for all members to reconvene face to face it would be a much easier and faster way to obtain responses from all participants.

Item Placement in the NEQ:

When the NEQ was published on the web for CANSPANN members to complete at T1 the three groups of questions relating to knowledge use (Manske's Hierarchical Measure of Knowledge Use, the Likert-type Measure of Knowledge Use and the Actions Attributable to CANSPANN) were placed at the end of the questionnaire. This placed these questions after forty-one likert-type items. It is possible that responses to these items were so poor because the questions were at the very end of a long questionnaire. Because of this, the knowledge use questions were moved to the beginning of the NEQ at T2. Response rates were much better.

Even completion of the likert items may have been affected by the shear number of questions that participants were asked to complete. In its revised format the NEQ is a much better instrument that is more conducive to participants completing in a suitable time frame.

6.6. Can the NEQ be used for other Communities of Practice?

After two measurements using the Network Engagement Questionnaire evidence supports its utility as a tool to measure engagement and knowledge use within Communities of Practice. The tool will be very useful to measure engagement in the CANSPANN community at future time points and upon

further validation can be used with other Communities of Practice wishing to evaluate their engagement and knowledge use.

Results from this research should not be used as a judgement of this community. The CANSPANN Community of Practice is in the early stages of emergence and this is likely why the NEQ scores are so low. It is not that the questionnaire does not effectively measure engagement of this Community of Practice but that the community is young and therefore not engaging around CANSPANN matters yet and sharing and/or using knowledge.

7. CONCLUSIONS

This research project set out to establish a valid set of items that would measure the engagement of members of a Community of Practice. The Network Engagement Questionnaire was used at two separate time points to measure the level of engagement of members of the Canadian School Physical Activity and Nutrition network. After tests of content, concurrent criterion-related and concurrent validity eighteen items remain that will make up the NEQ.

At this time the NEQ does not reliably predict knowledge use. However, the ability of the NEQ to predict knowledge use based on level of engagement may be more dependent on the state of being or "maturity" of a Community of Practice than originally imagined. Further study is warranted to test the concurrent criterion-related validity of the NEQ.

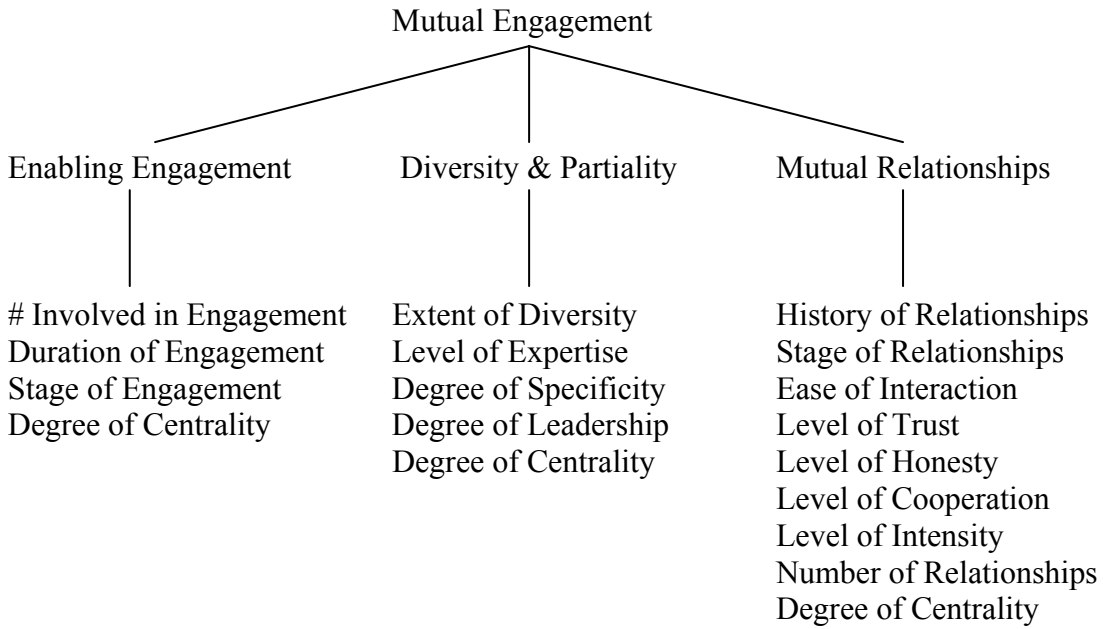
In addition to the usefulness of such a scale this research has also established the utility of the Community of Practice model within a health research context. The CANSPANN community, fostered out of a need for coordinated school-based research and practice of physical activity and healthy eating in youth, and nurtured as a deliberately-formed but emerging Community of Practice has helped to add power to the concept of Communities of Practice as a useful theory and model applicable to the health sector.

Appendix 1: Depiction of Wenger's Community of Practice[f]

***Dimensions*:** Essential factors that describe CoP

***Attributes*:** Components for each dimension of CoP

Continua:
Components that aid measurement and understanding of attributes



[f] Please note that only one dimension is depicted in this appendix. The dimensions 'Joint Enterprise' & 'Shared Repertoire' also have attributes and continua supporting them both. Neither of these dimensions is depicted here.

Appendix 2: Matrix of the Mutual Engagement Dimension

The matrices are taken from work by Diemert et al in their evaluation of provincial tobacco control strategies as developing communities of practice[32]

Enabling Engagement[g]

Continua	Definition	Points on the Continuum
Number Involved in Engagement	The estimated proportion of "community" members that are facilitating or being a part of activities and ideas that matter and/or contribute to the "community"	Few – Many
Duration of Engagement	The length of time that members engage on a specific project, topic, etc.	Short-term – Long-term
Stage of Engagement	The point to which the indicated engagement has progressed (for example, is this the first tie members have engaged on this issue?)	Initial – Re-engaging – Terminal
Degree of Centrality	The extent to which members are involved with the "community"	

Diversity & Partiality[h]

Continua	Definition	Points on the Continuum
Extent of Diversity	The amount of differences between "community" members with respect to skills, characteristics, competencies, etc.	Minimal - Extensive
Level of Expertise	The degree of knowledge and skills among "community" members	Novice – Expert
Degree of Specificity (Partiality)	The extent to which members hold specific positions within the "community"	General – Specific
Degree of Leadership (Partiality)	The amount of leadership on any given topic or issue identified by "community" members	High – Low
Degree of Centrality	The extent to which members are involved with the "community"	Central - Peripheral

[g] *Enabling Engagement* is defined as facilitating or being a part of activities and ideas that matter or contribute to the "community"[75].

[h] *Diversity* is member differences in personal characteristics and competencies; *Partiality* is the unique place or identity members hold within a CoP[75].

Mutual Relationships[i]

Continua	Definition	Points on the Continuum
History of Relationships	The amount of past events shared between "community" members with respect to skills, characteristics, competencies, etc.	Minimal – Extensive
Stage of Relationship	The point to which the indicated relationship has progressed	Initial – Developing – Maintenance – Terminal
Ease of Interaction	How easy or difficult it is for members to contact and communicate with other "community" members	Easy – Difficult
Levels of Trust	The extent to which members perceive they can rely on the character, ability, strength, or truth of "community" members	Trust – Suspicion
Level of Honesty	The extent to which members are fair and straightforward with other "community" members	Honest – Dishonest – Deceit
Level of Cooperation	The willingness of members to act, work, or associate with others for mutual benefit	Alliance – Competition
Level of Intensity	The frequency of interactions for mutual relations	High – Low
Number of Relationships	The proportion of "community" members that individuals appear to have mutual relationships with	Few – Many
Degree of Centrality	The extent to which members are involved with the "community"	Central - Peripheral

[i] *Mutual Relationships* are defined as the development or existence of strong interpersonal relationships[75].

Appendix 3: Matrix of the Negotiated Enterprise Attribute

Continua	Definition	Points on the Continuum
Communication	Extent to which members of the CoP are communicating effectively about the "big picture"; includes clarity of the interaction and whether or not clear plans for communication are in place	Unclear – Clear
Degree of Centrality	Extent to which a "community" member is involved with the negotiation process of the CoP	Peripheral - Central
Comprehensiveness	Range of coverage of the community	Narrow – Broad
Duration of Relationships	Length of time of engagement between "community" members	Short-term – Long-term
Partnership	The connectedness of members	Established – New Internal – External
Range of Representation	Scope of membership in the community	Narrow – Broad
Opportunities for Collaboration	The degree of formality with which community members are facilitated to meet to set agendas, develop plans, set goals and objectives, and to come together to form a shared mission	Informal – Formal
Information Sharing	Reflection of whether community members actively share information with the community or with other community members	No – Yes
Receptiveness to Change	Willingness to accept feedback, innovations, and new ideas	Closed – Open Internal – External
Priorities	Range of interest where members of the community may focus their attention; areas of importance of a given community member	Low – High

Continua	Definition	Points on the Continuum
Working Relationships	The extent to which community members are able to successfully work together	Negative – Positive
Use of Information / Evidence	The ability and desire to ensure evidence-based practice, attention to proven strategies in other communities	Inconsistent – Consistent
Leadership	Individuals or groups who serve as the leaders of facilitators	Indirect – Direct
Level of Expertise	The diversity of knowledge and skills among members	General – Specific
Decision Making Processes	The manner by which the community works to arrive at decisions	Autocratic – Democratic – Consensus
Information Gathering	A reflection of whether members actively gather or seek out information beyond the community	No - Yes

Appendix 4: Matrix of the Natural/Local Response Attribute

Continua	Definition	Points on the Continuum
Development of Relationships	The level of collaboration fostered between community members towards joint enterprise	Zero Collaboration – Mid-Collaboration – Full Collaboration
Actions of Relationships	The degree of inclusive practice between community members	Exclusive practice – Inclusive practice
Commitment to Goals/Objectives	Community commitment and recognition of community negotiated goals & objectives	No commitment or Recognition – Partial – Full Commitment & Recognition
Prioritization of Goals/Objectives	The amount of prioritization of goals / objectives by community members	None – Partial – Complete
Level of Definition of Role	The level of definition of an individual community member's 'job'	Clearly defined – Drifting from role – Multiple roles
Type of Community Member	Reaction of community member to joint enterprise and also to other community members	Reactive – Proactive
Funding Constraints on Community	The "fit" of a community with potential funding sources	No fit – Changing to Fit – Complete Fit
Evidence-based Practice	The amount of evidence used in the communities joint enterprise	No use of evidence – Full use of evidence

Appendix 5: Graphical Summary of Literature Review

Article	Setting	Organic / Deliberate Development of CoP	Dimension Examined	Quantitative / Qualitative	Design	Methodology	# Cases – Time Frame
Adams, E.C. (2000) CoP: bridging technology and knowledge assessment. [2]	Education	deliberate	implementation of group memory to cultivate CoP; assess indicators (access, generating, embedding, transferring k/)	quantitative	case study	track usage patterns, survey (attitude, usage)	1 case; longitudinal (pre & 3 mo), ongoing
Ardichvili, A. (2003) Motivation and barriers to participation in virtual knowledge-sharing CoP. [4]	Business-virtual	deliberate	motivation & barriers to participation in knowledge sharing	qualitative	case-study	semi-structured interviews company document review, site visits, intranet visits	1 case; 3 CoP's
Ashkanasy, N.M. (2002) Book Review [5]	n/a	n/a	n/a	n/a	book review	n/a	n/a

Barab, S.A. (2003) Designing System Dualities.[6]	Education - online	deliberate	designed/emergent; participation/reification; local/global; identification/negotiability; online/face-to-face; diversity/coherence	qualitative	Participatory case-study	interview focus group	1
Bate, S.P. (2002) Knowledge management and CoP in the private sector.[7]	Health	deliberate	how private sector KM concepts and practices might contribute to further development of public sector quality improvement	qualitative / quantitative	case study	lit review, interviews, focus groups, observation, documentary analysis, patient-level data analysis, questionnaires	3 cases, longitudinal (2 year study)
Bechky, B.A. (2003) Sharing meaning across organizational communities[8]	Business - industrial	unknown	communication	qualitative	case-study	unknown	1
Bogenrieder, I. (2004) Learning groups: What types are there?[10]	Business - consultancy	organic	possibilities & conditions for sharing and joint development of k/	qualitative	exploratory empirical study	interviews	1 company, 4 cases longitudinal
Braun, P. (2002) Digital knowledge networks[11]	Business	n/a	connectivity, cooperation, trust, k/ diffusion	n/a	literature review	n/a	n/a

Bresnen, M. (2003) Social practices and the management of knowledge in project environments[13;13]	Business – industrial	deliberate reorganisation (not a CoP)	influence of social factors on diffusion and KT and learning	qualitative	case study	Semi-structured interview ; organisational / project archives	1
Breu, K. (2002) Collaborative processes and knowledge creation in CoPs[15]	Business – commercial	organic	motivations for participation, conditions & resources for communities	qualitative	case study	semi-structured individual & focus group interviews	1
Buysse, V. (2003) CoP: Connecting what we know with what we do. [20]	Education	organic	diverse membership, goals, participatory framework	n/a	literature review	n/a	n/a
Contu, A. (2003) Re-embedding situatedness[24]	n/a	n/a	situated learning theory, power relations	n/a	lit review	n/a	n/a
Driver, M. (2002) Learning and leadership in organizations[33]	Business – manufacturing	unknown	leader – member exchanges, learning, power	quantitative	case study	close-ended questionnaire	1, 151 middle & upper-level managers
Ensor, J. (2001) Fostering knowledge management through the creative work environment[34]	Business – advertising	unknown	positive & negative factors that foster / hinder social work environment	qualitative	case study	interviews	6 cases
Gabbay, J. (2003) A case study of knowledge management in multi-agency consumer-informed CoPs[38]	Health & social services	deliberate	how k/ becomes privileged, KT, processing k/, roles and power-relations	qualitative	case study	observation, interview, document review	2 cases - multi-agency CoPs

Graham, W. (1998) A real-life CoP[40]	Education	deliberate	learning, collaboration, facilitators of CoP development	qualitative	case study	focus groups	1 case
Heaton, L. (2002) Knowledge management and professional work[43]	Education	organic	characteristics of communities that facilitate and impede knowledge production	qualitative	case study	observation	2 cases – univ. in Denmark and Japan
Hildreth, P.M. (2002) The duality of knowledge[44]	n/a	n/a	n/a	n/a	literature review	n/a	n/a
Iverson, J.O. (2002) Knowledge management in CoPs[47]	n/a	n/a	CoP as a theory to understand interaction and KM between people	n/a	literature review	n/a	n/a
Kwok, J.S.H. (2004) Knowledge sharing community in P2P network[51]	n/a	n/a	use of decentralized P2P virtual community for knowledge sharing	n/a	position paper	n/a	n/a
Lathlean, J. (2002) CoP: An opportunity for interagency working[52]	Health	deliberate	facilitating features; challenges and potential for working in this way	qualitative	case study	?	2
Lesser, E.L. (2001) CoP and organizational performance[54]	Business	unknown	dimensions of social capital (structural, relational, cognitive)	qualitative	case study	interviews	7 cases crossing industry, scope and stage of development
Millen, D.R. (2002) Understanding the benefit and costs of CoPs[63]	Business	unknown	benefits and costs of CoP and challenges inherent in justifying corporate investment	qualitative	case study	semi-structured interviews	9 CoP, 7 firms

Moreno, A. (2001) Enhancing knowledge exchange through CoP at the Inter-American Development Bank[64]	Business – bank	organic	nature, structure and activities carried out by this CoP	qualitative	case study	questionnaire, semi-structured interviews, meetings, focus groups	1 case - longitudinal
Santoro, M.D. (2003) The firm's trust in its university partner as a key mediator in advancing knowledge and new technologies[67]	Education	organic	DV: tangible outcomes IV: communication of status and results of activities, freq., personalness MV: trust CV: organization size, length of relationship, geographic proximity	quantitative	case study	survey questionnaire data	multiple cases across university research centres
Schwen, T.M. (2003) CoP: A metaphor for online design?[69]	Business – consulting, legal firms	Case 1: o Case 2: d Case 3: o Case 4: o	1: communication technology affecting CoP 2: evolution of a designed CoP 3: nature of learning processes 4: k/ sharing behaviour	qualitative	cross-case analysis	Case 1-4: observation Case 3: interviews	4 cases
Seely-Brown, J. (2000) Balancing act: How to capture knowledge without killing it[16]	Business-industry	organic	best practices of a CoP (storytelling, improvisation) and dissemination	qualitative	case study	observation	1 case

Seely-Brown, J. (2001) Knowledge and organization: A social-practice perspective[18]	Business	n/a	-contrasting views of knowledge (sticky vs. leaky) -resolve with perspective of practice (i.e. context)	n/a	review	n/a	n/a
Swan, J. (2002) The construction of CoPs in the management of innovation[71]	Health	deliberate	role of managers in development of CoPs	qualitative	case study	semi-structured interview, company documents, observation	1 case; 1 year following
Tsoukas, H. (2002) Knowledge-based perspectives on organizations[72]	n/a	n/a	knowledge as the focus of organizations; knowledge flow in organizations	n/a	review / journal introduction	n/a	n/a
van Zolingen, S.J. (2001) Problems in knowledge management[73]	business	?	phases of KM (acquiring, codifying, disseminating, developing, & applying)	mixed	case study	questionnaire & interview	3 cases
Vingilis, E. (2003) Integrating knowledge generation with knowledge diffusion and utilization[74]	Health	deliberate	strategies and outcomes of integrating generation with knowledge diffusion and utilization, based on KDU theories	qualitative	case study	direct observation, proposals, meeting minutes, presentations, publications, reports, CV's	1 case; longitudinal (3 years)
Wenger, E. (2000) CoP: The organizational frontier[77]	Business	organic & deliberate	development of CoP	qualitative	review	observation, anecdotal	many cases
Wenger, E. (2000) Communities of practice and social learning systems [76]	n/a	n/a	success of organization depends on ability to design themselves as social learning systems	n/a	essay	n/a	n/a
Wenger, E. (2004) Knowledge management as a doughnut[78]	n/a	organic	knowledge use in CoPs	n/a	position paper	n/a	n/a

Appendix 6: Network Engagement Questionnaire at T1 & T2

This survey seeks to better understand your involvement in CANSPANN, how this group functions and the nature of the interactions that take place between members of CANSPANN. Please note that you may decline to answer any questions that you do not wish to answer.

Name: _____

Below is a list of CANSPANN participants. If it applies, please check off on the list below if you have interacted with this person since the CANSPANN workshop.

CANSPANN Workshop Participants	If you have interacted with this person ***since the CANSPANN workshop.***
CANSPANN member	
CANSPANN member	
CANSPANN member, etc.	

Thinking about ways you use actions of, and skills and information from CANSPANN, please **choose one (1)** of the following nine statements that best describes your use of these skills and information.

1. I am not aware of the CANSPANN network.
2. I am aware of CANSPANN, but was not exposed to it (e.g., did not read about it or attend a workshop or consultation).
3. I was exposed to the CANSPANN network (e.g., read about it, attended workshop, attended a teleconference) but subsequently have not done anything about it (e.g., no action, no discussion with colleagues / peers)
4. I was exposed to the CANSPANN network (e.g., read about it, attended workshop, attended teleconference) but to date, I have not had the opportunity to utilise this information
5. Information from this network (and its members) is currently being considered by me and my colleagues
6. Based on information from this network (and its members) I have taken steps toward action (e.g., decision to use this information, plans being made)
7. I am making partial use of information from CANSPANN (members). Actions have been taken on some features of the information, but others have been disregarded
8. I am making full use of information from the CANSPANN network (members) in the form in which it was presented
9. I am making full use of information from CANSPANN (members) in a form

modified to fit my needs.			
What actions did you take or plan to take that are attributable to the CANSPANN network and/or its members? For the following list, please indicate "Yes", "Plan to" or "No".			
I used information and actions from the network (members) to plan programs or policies	Yes	Plan to	No
I used information and actions from the network (members) to contribute to resource development	Yes	Plan to	No
I identified the needs of other groups	Yes	Plan to	No
I identified supports available in the community	Yes	Plan to	No
I passed on information and actions from the CANSPANN network to others	Yes	Plan to	No
I facilitated implementation of activities consistent with CANSPANN but beyond the network	Yes	Plan to	No

Please rate your agreement or disagreement with **each** of the following statements regarding CANSPANN. Possible responses range from the "Strongly disagree" to "Strongly agree". Please choose the response that best applies to you.

	Strongly Disagree	*Disagree*	*Neutral*	*Agree*	*Strongly Agree*
I have learned a great deal as a result of CANSPANN	1	2	3	4	5
I have changed my thinking as a result of CANSPANN and/or one of its members	1	2	3	4	5
I have changed my performance in my present role as a result of CANSPANN	1	2	3	4	5
I have based significant decisions on information and skills acquired from CANSPANN	1	2	3	4	5
CANSPANN has had a considerable positive influence on my work	1	2	3	4	5
I have a better understanding of the issues of physical activity &/or nutrition as a result of CANSPANN	1	2	3	4	5
I have a better understanding of the intervention strategies for	1	2	3	4	5

physical activity and/or nutrition as a result of CANSPANN					
I can communicate with colleagues better as a result of CANSPANN	1	2	3	4	5
Generally, CANSPANN has improved my ability to plan interventions	1	2	3	4	5
Generally, CANSPANN has improved my ability to implement interventions	1	2	3	4	5
Generally, CANSPANN has improved my ability to use interventions	1	2	3	4	5

Please rate your agreement or disagreement with each of the following statements regarding your involvement in CANSPANN by circling the number that best applies.

		Strongly Disagree	Disagree	Neutral / I don't know	Agree	Strongly Agree
1	I feel connected to many of the activities of CANSPANN	1	2	3	4	5
2	I play a leadership role in CANSPANN	1	2	3	4	5
3	I promote CANSPANN to others outside the network[j]	1	2	3	4	5
4	Communication helps CANSPANN members clarify and understand CANSPANN's purpose	1	2	3	4	5
5	Members approach an activity from different perspectives	1	2	3	4	5
6	CANSPANN members have different roles and responsibilities in the network from one another	1	2	3	4	5
7	The leaders in CANSPANN are engaged in many CANSPANN activities	1	2	3	4	5
8	Members share stories/experiences with one another that help us complete a task	1	2	3	4	5
9	I am involved in a large number of CANSPANN activities (e.g. Core group member, Action team member, participant, etc.)	1	2	3	4	5
10	CANSPANN is made up of diverse groups	1	2	3	4	5
11	Members take on leadership roles within CANSPANN	1	2	3	4	5

[j] This item only appeared in the NEQ at T2. It was added for T2 to the subscale Assigned or Assumed Roles.

		Strongly Disagree	Disagree	Neutral / I don't know	Agree	Strongly Agree
12	Some CANSPANN members take on more activities than others	1	2	3	4	5
13	When possible, CANSPANN members help each other recognize that differences between members are not that large	1	2	3	4	5
14	An activity or project is more likely to be successful if a CANSPANN leader is involved	1	2	3	4	5
15	There is little overlap of members' roles in CANSPANN (i.e., there is an overall group leader, subgroup leaders, and participants)	1	2	3	4	5
16	CANSPANN has a clear leader(s)	1	2	3	4	5
17	Network members are approachable and friendly	1	2	3	4	5
18	CANSPANN members collaborate and/or cooperate on projects and activities	1	2	3	4	5
19	I help shape much of what goes on in CANSPANN	1	2	3	4	5
20	All members of the network share a common understanding of the network's priorities	1	2	3	4	5
21	It seems that some members have stronger relationships within CANSPANN than others	1	2	3	4	5
22	The network meets with stakeholders to discuss future directions	1	2	3	4	5
23	CANSPANN's goals and activities align well with my priorities	1	2	3	4	5
24	Members range in their commitment to the network's goals	1	2	3	4	5
25	My involvement in working toward CANSPANN's success has sometimes required that I give up personal success	1	2	3	4	5
26	An activity or project is more likely to be successful if specific members are involved	1	2	3	4	5
27	CANSPANN members bring a range of different skill sets (or work experiences; perspectives) to the table	1	2	3	4	5
28	CANSPANN gives public credit or recognition to its members for the work done on the network	1	2	3	4	5
29	Our membership comes to a consensus regarding the priorities of the network	1	2	3	4	5

		Strongly Disagree	Disagree	Neutral / I don't know	Agree	Strongly Agree
30	Members range in their commitment to participate in the network's projects and/or activities	1	2	3	4	5
31	I trust that fellow network members will get their CANSPANN jobs done	1	2	3	4	5
32	The network produces information materials that keep members up to date and involved	1	2	3	4	5
33	The leaders in CANSPANN have been engaged for longer periods of time than other members	1	2	3	4	5
34	The network meets with stakeholders to discuss our progress	1	2	3	4	5
35	The diverse perspectives of CANSPANN members facilitate our ability to achieve our goals & objectives	1	2	3	4	5
36	The network has periodic meetings where all members are expected to contribute in order to meet our objectives	1	2	3	4	5
37	All members are aware of the network's goals	1	2	3	4	5
38	The network has clearly articulated protocols and ways of doing things to get our work done	1	2	3	4	5
39	Our network has clearly defined goals and objectives that we work towards	1	2	3	4	5
40	I share stories of my experiences/lessons learned with other CANSPANN members that help us complete a task	1	2	3	4	5
41	Members have an opportunity to engage in non-work related conversation / discussion	1	2	3	4	5

Thank you for taking time to complete this questionnaire.

Appendix 7: Knowledge Use Items in the NEQ

These items are taken from knowledge use scales developed by Manske in his study of public health organizations and program delivery[56]

Thinking about ways you could use skills and information from CANSPANN; choose the statement that best describes your use of the skills and information.

10. I am not aware of the CANSPANN network.
11. I am aware of CANSPANN, but was not exposed to it (e.g., did not read about it or attend a workshop or consultation).
12. I was exposed to the CANSPANN network (e.g., read about it, attended workshop or consultation) but subsequently have done nothing about it (e.g., no action, no discussion with colleagues / peers)
13. I am currently considering information from this network (e.g., being discussed or reviewed with peers / colleagues).
14. Based on information from this network I have taken steps toward action (e.g., decision to use, plans being made).
15. I am making partial use of information from CANSPANN. Actions have been taken on some features of the information, but others have been disregarded.
16. I am making full use of information from the CANSPANN network in the form in which it was presented.
17. I am making full use of information from CANSPANN in a form modified to fit my needs.

What actions did you take or plan that the CANSPANN network contributed to? For the following list, indicate “Yes”, “Plan to” or “No”.

Used information and skills to plan programs or policies	Yes	Plan to	No
Used information and skills to contribute to development of a resource	Yes	Plan to	No
Identified needs of other groups	Yes	Plan to	No
Identified supports available in the community	Yes	Plan to	No

Facilitated implementation of the information and skills from the CANSPANN network	Yes	Plan to	No
Facilitated implementation of support activities	Yes	Plan to	No

Please rate your agreement or disagreement with each of the following statements regarding CANSPANN. Responses range from the lowest number (1) corresponding to "Strongly disagree" through to the highest number (5) corresponding to "Strongly agree".

	Strongly Disagree				*Strongly Agree*
I have learned a great deal as a result of CANSPANN	1	2	3	4	5
I have changed my thinking as a result of CANSPANN.	1	2	3	4	5
I have changed my performance in my present role as a result of CANSPANN.	1	2	3	4	5
I have based significant decisions on information and skills from CANSPANN.	1	2	3	4	5
CANSPANN has had a considerable influence on my work.	1	2	3	4	5
I have a better understanding of _____ (topic of PA/N/O) as a result of CANSPANN.	1	2	3	4	5
I have greater depth of understanding of physical activity and/or nutrition strategies as a result of CANSPANN.	1	2	3	4	5
I can communicate with colleagues better as a result of CANSPANN.	1	2	3	4	5
CANSPANN has improved my ability to plan interventions generally.	1	2	3	4	5
CANSPANN has improved my ability to implement interventions generally.	1	2	3	4	5
CANSPANN has improved my ability to interventions generally.	1	2	3	4	5

Appendix 8: Attribute Definitions

Node	Description
Knowledge Use	Any reference to use of information / knowledge / research
Non-use	Not making use of the information / research / knowledge
Conceptual Knowledge Use	Refers to the more cognitive perspective that learning and acquiring knowledge occurs as small bits of knowledge are related to each other, forming new patterns. These can most easily be noted in changes in language use (Kramer & Cole, 2001)[50]
Effort to Use Knowledge	References to efforts to see whether the information/ research could solve a problem or making attempts to use research/information. It implies some kind of action such as, but not limited to, communication between people. Discussing something.
Procedural Knowledge Use	Making policy changes or initiating meetings, etc. to make use/try and implement the research/information. Making a decision.
Structural Knowledge Use	Implementing what one has learned and making noticeable changes. Implementing something.
Knowledge Exchange	Distribution, uptake and response. Knowledge exchange is an exchange of information which enhances practice. A knowledge marketplace or the transfer of tacit knowledge – the reciprocal distribution of knowledge involving both push and pull elements, but centered into a defined transaction.
Information Use	
Information Sharing	Reflection of whether community members actively share information with the community or with other community members.

Communication	A process in which participants create and share information with one another in order to reach a mutual understanding. Communication is a process of convergence as two or more individuals exchange information in order to move toward each other in the meaning s that they give to certain events. The extent to which members of the CoP are communicating effectively about the 'big pictures' includes clarity of the interaction and whether or not clear plans for communication are in place.
Information Needs	Gaps in personal knowledge and expertise perceived by intended audience[26]
Differing Strength of Relationships	Strength of relationship with another network member Weak – Moderate – Strong Relationship New – Pre-existing relationship
Joint Enterprise	The collective process of negotiation as defined by the participants creating a sense of mutual accountability.[75] Negotiated enterprise: individuals developing collective understanding of what their community entails, as well as developing shared goals & interpretations of events.[32;57]
Mutual Accountability – community	Members (and external entities i.e. funding source, advisory board) hold the community accountable for the negotiated meaning of the community and the actions/deliverables of the community.
Mutual Accountability – Member	Members hold each other accountable for the negotiated meaning of their community and members understand the enterprise enough to contribute to it.

Internal Contextual Influences External Contextual Influences	CoPs are not self-contained entities. They develop in larger contexts – historical, social, cultural, and institutional – with specific resources and constraints. Some of these conditions and requirements are explicitly articulated. Some are implicit but are no less binding.[75] Natural or local response refers to the position, influences and/or constraints on the community of practice because of the broader context.[57]
Credibility	Perceived believability and validity of source of help, and those responsible for dissemination (e.g., track record, expertise) [26]
Degree of Alignment with Priorities	
Commitment to Goals/Objectives	Community commitment and recognition of community negotiated goals & objectives
Prioritization of Goals/Objectives	The amount of prioritization of goals/objectives by community members.
Level of Cooperation	The willingness of members to act, work, or associate with others for mutual benefit.
Clarity of Issues Discussed	
Assigned or Assumed Roles	
Mutual Engagement	The collaboration of community members in action towards accomplishing the goals and objectives of the community. The meanings of these actions are negotiated by all community members.[75]
Mutual Relationships	Development/existence of strong interpersonal relationsh8ips
History of Relationships	The amount of past events shared between 'community' members with respect to skills, characteristics, competencies, etc.

Quality of interaction	Likelihood of interaction leading to learning (unidirectional – multidirectional; duration of relationship; reaction)
Interaction differences	Differences in interaction with community members compared to each other (friendly – formal)
Interaction plans	Future plans for interaction with specific community members
Frequency of interaction	Frequency of interaction with specific community members.
Type of interaction	Formal – informal Structural – casual
Degree of Centrality	The extent to which members are involved with the community (Central – Peripheral)[75]
Extent of Diversity	The amount of differences between community members with respect to skills, characteristics, competencies, etc. Minimal to extensive differences. Minimal differences imperative in order to have common issue for engagement. Extensive diversity is essential to facilitate engagement.[75]
Range of representation	Scope of membership in the community
Level of Expertise	The diversity of knowledge and skills among members
Partiality	Unique place/identity that a member holds
Member Leadership & Influence	The amount of leadership on any given topic or issue identified by community members.
Enabling Engagement	Individuals or individuals facilitating or being a part of activities and ideas that matter and/or contributed to the community[32;75]
Inclusiveness of Community	The level of inclusiveness of the community (exclusive – inclusive)

Mutual Relationships	References to the development of and/or having strong interpersonal relationships. Can include a range of references that reflect the development and/or maintenance of the mutual relationships (Trust/Suspicion, Success/Failure, Anger/Tenderness, Friendship/Hatred)[75]
Level of Trust	The extent to which members perceive they can rely on the character, ability, strength, or truth of community members.
Shared Repertoire	Resources created by the community used for negotiating meaning. Elements/resources gain their coherence not in and of themselves as specific activities, symbols, or artefacts, but from the fact that they belong to the practice of a community pursuing an enterprise. Repertoire includes routines, words, tools, ways of doing things, stories, gestures, symbols, genres, actions, or concepts that the community has produced or adopted in the course of its existence, and which have become part of its practice.[75]
Use of Stories, Themes & Lessons Learned	Members sharing experiences to inform practices of the community[75]
Why CANSPANN is Important	(Only used at T2) Refers to what 'aspect' of the community is most important to the member and how this aspect is keeping them involved – maintaining their interest in the community and therefore membership.

Appendix 9: Quantitative Findings - T1

Inter-item subscale Correlations[k]

Degree of Centrality

	1	2	3	4	5	8
1	1.00	.90008^	.82256 ^	.61385 *	.54410 *	.59810 *
2		1.00	.78086 ^	.53464	.317	.59559 *
3			1.00	.53812 *	.52287	.44554
4				1.00	.57506	.41484
5					1.00	.21178
8						1.00

Leadership & Influence

	2	14	15	16	17	18	19
2	1.00	.21175	.04182	.01027	.83292 ^	.33979	-.00233
14		1.00	-0.5227	.03215	.28926	.12722	.06565
15			1.00	.77083 ^	.08911	.21483	.36339
16				1.00	.02533	.05543	.29041
17					1.00	.34120	.13345
18						1.00	.35375
19							1.00

Extent of Diversity

	6	7	9	10	11
6	1.00	.21586	-.04322	-.18134	0.34576
7		1.00	.05234	.21602	.23554
9			1.00	.20810	-.05479
10				1.00	.25509
11					1.00

Assigned or Assumed Roles

	12	13
12	1.00	.02345
13		1.00

[k] Please note for all tables: * = $p \leq 0.01$; ^ = $p \leq 0.001$

Level of Trust

	20	21
20	1.00	.16090
21		1.00

Clarity of Issues Discussed

	22	23	25
22	1.00	.56401 *	.52350
23		1.00	.19892
25			1.00

Commitment to and Recognition of Goals

	24	26	27	28	29	30
24	1.00	.63343 *	.28158	.63215 *	.09071	.46903
26		1.00	.21880	.47540	.13648	.35078
27			1.00	.08010	-.09062	.07083
28				1.00	.19319	.32683
29					1.00	.12793
30						1.00

Mutual Accountability – Member Level

	32	33
32	1.00	.05970
33		1.00

Mutual Accountability – Community Level

	34	35	36	37
34	1.00	.36199	.21329	.25529
35		1.00	.84173 ^	.23452
36			1.00	0.00
37				1.00

Use of Stories & Lessons Learned

	38	39	40
38	1.00	.72210 ^	.46428
39		1.00	.62405
40			1.00

Item-Subscale Total Correlations

Degree of Centrality

Cronbach Coefficient Alpha	
Variables	**Alpha**
Raw	0.882442

Cronbach Coefficient Alpha with Deleted Variable		
	Raw Variables	
Deleted Variable	**Correlation with Total**	**Alpha**
q1	0.930471	0.820822
q2	0.832232	0.839138
q3	0.799695	0.845399
q4	0.630658	0.872314
q5	0.511664	0.893596
q8	0.569935	0.880703

Leadership & Influence

Cronbach Coefficient Alpha	
Variables	**Alpha**
Raw	0.657084

Cronbach Coefficient Alpha with Deleted Variable		
	Raw Variables	
Deleted Variable	**Correlation with Total**	**Alpha**
q2	0.515193	0.568047
q14	0.178646	0.666198
q15	0.336693	0.629787
q16	0.294924	0.640518
q17	0.581226	0.538702
q18	0.418759	0.614746
q19	0.257521	0.648903

Extent of Diversity

Cronbach Coefficient Alpha	
Variables	**Alpha**
Raw	0.232274

Cronbach Coefficient Alpha with Deleted Variable		
	Raw Variables	
Deleted Variable	**Correlation with Total**	**Alpha**
q6	-.131740	0.408658
q7	0.421078	-.083641
q9	0.076079	0.225772
q10	0.243562	0.035354
q11	0.029126	0.273191

Assigned or Assumed Roles

Cronbach Coefficient Alpha	
Variables	**Alpha**
Raw	0.045802

Cronbach Coefficient Alpha with Deleted Variable		
	Raw Variables	
Deleted Variable	**Correlation with Total**	**Alpha**
q12	0.023449	.
q13	0.023449	.

Level of Trust

Cronbach Coefficient Alpha	
Variables	**Alpha**
Raw	0.265193

Cronbach Coefficient Alpha with Deleted Variable		
	Raw Variables	
Deleted Variable	Correlation with Total	Alpha
q20	0.160904	.
q21	0.160904	.

Clarity of Issues Discussed

Cronbach Coefficient Alpha	
Variables	**Alpha**
Raw	0.642483

Cronbach Coefficient Alpha with Deleted Variable		
	Raw Variables	
Deleted Variable	Correlation with Total	Alpha
q22	0.677168	0.318182
q23	0.389543	0.625181
q25	0.384821	0.716904

Commitment to and Recognition of Goals

Cronbach Coefficient Alpha	
Variables	**Alpha**
Raw	0.681283

Cronbach Coefficient Alpha with Deleted Variable		
	Raw Variables	
Deleted Variable	Correlation with Total	Alpha
q24	0.683448	0.532443
q26	0.586555	0.572616
q27	0.158539	0.702552
q28	0.571782	0.586564

Cronbach Coefficient Alpha with Deleted Variable		
	Raw Variables	
Deleted Variable	Correlation with Total	Alpha
q29	0.142874	0.753762
q30	0.428057	0.638921

Mutual Accountability – Member Level

Cronbach Coefficient Alpha	
Variables	Alpha
Raw	0.105541

Cronbach Coefficient Alpha with Deleted Variable		
	Raw Variables	
Deleted Variable	Correlation with Total	Alpha
q32	0.059698	.
q33	0.059698	.

Mutual Accountability – Community Level

Cronbach Coefficient Alpha	
Variables	Alpha
Raw	0.626853

Cronbach Coefficient Alpha with Deleted Variable		
	Raw Variables	
Deleted Variable	Correlation with Total	Alpha
q34	0.366367	0.601322
q35	0.695238	0.370861
q36	0.439954	0.535503
q37	0.213293	0.688908

Use of Stories & Lessons Learned

Cronbach Coefficient Alpha	
Variables	**Alpha**
Raw	0.801670

Cronbach Coefficient Alpha with Deleted Variable		
	Raw Variables	
Deleted Variable	**Correlation with Total**	**Alpha**
q38	0.635066	0.747153
q39	0.786035	0.634051
q40	0.573389	0.819383

Correlations between Subscales

Item (& Subscale)	Correlates with	Subscale Item is from
1 – Degree of Centrality	9 * 17 ^ 22 * 26 ^ 38 *	Extent of Diversity Member Leadership & Influence Clarity of Issues Discussed Commitment to & Recognition of Goals Use of Stories & Lessons Learned
2 – Degree of Centrality	9 * 17 ^ 26 ^ 38 *	Extent of Diversity Member Leadership & Influence Commitment to & Recognition of Goals Use of Stories & Lessons Learned
3 – Degree of Centrality	9 * 17 ^ 26 * 30 *	Extent of Diversity Member Leadership & Influence Commitment to & Recognition of Goals Commitment to & Recognition of Goals
4 – Degree of Centrality	9 * 21 * 22 ^	Extent of Diversity Level of Trust Clarity of Issues Discussed
5 – Degree of Centrality	6 *	Extent of Diversity
7 – Extent of Diversity	12 *	Assigned or Assumed Role
8 – Degree of Centrality	10 ^ 24 * 26 ^	Extent of Diversity Commitment to & Recognition of Goals Commitment to & Recognition of Goals
9 – Extent of Diversity	17 * 21 ^ 22 ^ 23 ^ 38 *	Member Leadership & Influence Level of Trust Clarity of Issues Discussed Clarity of Issues Discussed Use of Stories & Lessons Learned
10 – Extent of Diversity	24 ^ 26 *	Commitment to & Recognition of Goals Commitment to & Recognition of Goals
11 – Extent of Diversity	12 ^ 40 *	Assigned or Assumed Role Use of Stories & Lessons Learned
16 – Member Leadership & Influence	30 *	Commitment to & Recognition of Goals

Item (& Subscale)	Correlates with	Subscale Item is from
17 – Member Leadership & Influence	26 ^	Commitment to & Recognition of Goals
19 – Member Leadership & Influence	27 *	Commitment to & Recognition of Goals
21 – Level of Trust	22 ^ 23 * 38 ^ 39 ^	Clarity of Issues Discussed Clarity of Issues Discussed Use of Stories & Lessons Learned Use of Stories & Lessons Learned
22 – Clarity of Issues Discussed	28 * 30 * 38 ^	Commitment to & Recognition of Goals Commitment to & Recognition of Goals Use of Stories & Lessons Learned
23 – Clarity of Issues Discussed	27 * 31 ^ 35 * 38 ^ 39 ^	Commitment to & Recognition of Goals Contextual Influences Mutual Accountability – Community Level Use of Stories & Lessons Learned Use of Stories & Lessons Learned
24 – Commitment to & Recognition of Goals	25 *	Clarity of Issues Discussed
25 – Clarity of Issues Discussed	35 *	Mutual Accountability – Community Level
26 – Commitment to & Recognition of Goals	38 *	Use of Stories & Lessons Learned
27 – Commitment to & Recognition of Goals	31 ^ 39 *	Contextual Influences Use of Stories & Lessons Learned
31 – Contextual Influences	38 * 39 ^	Use of Stories & Lessons Learned Use of Stories & Lessons Learned
33 – Mutual Accountability – Member Level	34 * 40 *	Mutual Accountability – Community Level Use of Stories & Lessons Learned

Appendix 10: Quantitative Findings - T2

Inter-item Subscale Correlations[1]

Degree of Centrality

	1	7	9	12	19	21
1	1.00	.73030 ^	.76796 ^	.28630	.72211 ^	-.04046
7		1.00	.61619 *	.38136	.66315 *	.17590
9			1.00	.22934	.86799 ^	.10144
12				1.00	.28976	.49510
19					1.00	.18195
21						1.00

Leadership & Influence

	2	11	14	16	19	26	33
2	1.00	.16131	.51554	.24336	.81388 ^	.28209	.30886
11		1.00	.11200	.36460	.30852	.38019	.32588
14			1.00	.30070	.55433	.17074	.42208
16				1.00	.30931	.18803	.43597
19					1.00	.41041	.52467
26						1.00	.50443
33							1.00

Extent of Diversity

	5	10	13	27	35
5	1.00	.25677	.42538	.47941	.41687
10		1.00	.03901	.37360	.57392
13			1.00	.24687	.19600
27				1.00	.56801
35					1.00

Assigned or Assumed Roles

	6	15
6	1.00	.05326
15		1.00

[1] Please note for all tables: * = $p \leq 0.01$; ^ = $p \leq 0.001$

Level of Trust

	17	18
17	1.00	.71415 ^
18		1.00

Clarity of Issues Discussed

	4	20	29
4	1.00	-.02810	.28771
20		1.00	.42409
29			1.00

Commitment to and Recognition of Goals

	23	24	25	28	37	39
23	1.00	.29926	.00715	.15607	.10863	.06578
24		1.00	-.15882	.53496	-.22975	.19129
25			1.00	-.23216	-.16159	.05708
28				1.00	-.06080	.31294
37					1.00	.21331
39						1.00

Mutual Accountability – Member Level

	31	36
31	1.00	.18898
36		1.00

Mutual Accountability – Community Level

	22	32	34	38
22	1.00	.51564	.46505	.03951
32		1.00	.41675	.20155
34			1.00	.09041
38				1.00

Use of Stories & Lessons Learned

	8	40	41
8	1.00	.60123 *	.33689
40		1.00	.48048
41			1.00

Item-Subscale Total Correlations and Cronbach Alpha Scores

Degree of Centrality

Cronbach Coefficient Alpha	
Variables	**Alpha**
Raw	0.826067

Cronbach Coefficient Alpha with Deleted Variable		
	Raw Variables	
Deleted Variable	**Correlation with Total**	**Alpha**
q1	0.772998	0.758838
q7	0.770920	0.785731
q9	0.797884	0.751210
q12	0.465370	0.825932
q19	0.840102	0.738531
q21	0.058847	0.869965

Leadership & Influence

Cronbach Coefficient Alpha	
Variables	**Alpha**
Raw	0.808001

Cronbach Coefficient Alpha with Deleted Variable		
	Raw Variables	
Deleted Variable	**Correlation with Total**	**Alpha**
q2	0.643101	0.772202
q11	0.375687	0.807993
q14	0.547909	0.786431
q16	0.440015	0.802510

Cronbach Coefficient Alpha with Deleted Variable		
	Raw Variables	
Deleted Variable	Correlation with Total	Alpha
q19	0.798221	0.726749
q26	0.424745	0.802255
q33	0.752618	0.761461

Extent of Diversity

Cronbach Coefficient Alpha	
Variables	**Alpha**
Raw	0.735472

Cronbach Coefficient Alpha with Deleted Variable		
	Raw Variables	
Deleted Variable	Correlation with Total	Alpha
q5	0.522934	0.681635
q10	0.452419	0.719948
q13	0.277121	0.755682
q27	0.602236	0.650706
q35	0.668561	0.615170

Assigned or Assumed Roles

Cronbach Coefficient Alpha	
Variables	**Alpha**
Raw	0.098765

Cronbach Coefficient Alpha with Deleted Variable		
	Raw Variables	
Deleted Variable	Correlation with Total	Alpha

Cronbach Coefficient Alpha with Deleted Variable		
	Raw Variables	
Deleted Variable	**Correlation with Total**	**Alpha**
q6	0.053262	.
q15	0.053262	.

Level of Trust

Cronbach Coefficient Alpha	
Variables	**Alpha**
Raw	0.820059

Cronbach Coefficient Alpha with Deleted Variable		
	Raw Variables	
Deleted Variable	**Correlation with Total**	**Alpha**
q17	0.714146	.
q18	0.714146	.

Clarity of Issues Discussed

Cronbach Coefficient Alpha	
Variables	**Alpha**
Raw	0.496454

Cronbach Coefficient Alpha with Deleted Variable		
	Raw Variables	
Deleted Variable	**Correlation with Total**	**Alpha**
q4	0.163758	0.589971
q20	0.314576	0.394737
q29	0.521583	-.071942

Commitment to and Recognition of Goals

Cronbach Coefficient Alpha	
Variables	**Alpha**
Raw	0.383309

Cronbach Coefficient Alpha with Deleted Variable		
	Raw Variables	
Deleted Variable	**Correlation with Total**	**Alpha**
q23	0.268553	0.272775
q24	0.307530	0.245772
q25	-.164458	0.497881
q28	0.342110	0.225840
q37	-.033980	0.458787
q39	0.341552	0.228690

Mutual Accountability – Member Level

Cronbach Coefficient Alpha	
Variables	**Alpha**
Raw	0.296296

Cronbach Coefficient Alpha with Deleted Variable		
	Raw Variables	
Deleted Variable	**Correlation with Total**	**Alpha**
q31	0.188982	.
q36	0.188982	.

Mutual Accountability – Community Level

Cronbach Coefficient Alpha	
Variables	**Alpha**
Raw	0.609865

Cronbach Coefficient Alpha with Deleted Variable		
	Raw Variables	
Deleted Variable	Correlation with Total	Alpha
q22	0.491213	0.483108
q32	0.541999	0.402556
q34	0.449195	0.501152
q38	0.151526	0.705882

Use of Stories & Lessons Learned

Cronbach Coefficient Alpha	
Variables	Alpha
Raw	0.709517

Cronbach Coefficient Alpha with Deleted Variable		
	Raw Variables	
Deleted Variable	Correlation with Total	Alpha
q8	0.557006	0.643326
q40	0.642184	0.478088
q41	0.473844	0.686649

Correlations between Subscales

Item (& Subscale)	Correlates with	Subscale Item is from
1 – Degree of Centrality	8 * 17 40	Use of Stories & Lessons Learned Level of Trust Use of Stories & Lessons Learned
2 – Leadership & Influence	7 9 17 18 35 40	Degree of Centrality Degree of Centrality Level of Trust Level of Trust Extent of Diversity Use of Stories & Lessons Learned
3 – Leadership & Influence	8 24 28 30 40	Use of Stories & Lessons Learned Commitment to & Recognition of Goals Commitment to & Recognition of Goals Contextual Influences Use of Stories & Lessons Learned
6 – Assigned/Assumed Roles	21 24	Degree of Centrality Commitment to & Recognition of Goals
7 – Degree of Centrality	10 13 15	Extent of Diversity Extent of Diversity Assigned/Assumed Roles
8 – Use of Stories & Lessons Learned	17 18 ^ 28	Level of Trust Commitment to & Recognition of Goals
9 – Degree of Centrality	14 17 18 31 35 41	Leadership & Influence Level of Trust Level of Trust Mutual Accountability – Member Level Extent of Diversity Use of Stories & Lessons Learned
10 – Extent of Diversity	22 26 32	Mutual Accountability – Community Level Leadership & Influence Mutual Accountability – Community Level
12 – Degree of Centrality	24 27 30 33	Commitment to & Recognition of Goals Extent of Diversity Contextual Influences Leadership & Influence

Item (& Subscale)	Correlates with	Subscale Item is from
14 – Leadership & Influence	23 38	Commitment to & Recognition of Goals Mutual Accountability – Community Level
16 – Leadership & Influence	28 * 30 *	Commitment to & Recognition of Goals Contextual Influences
17 – Level of Trust	19 * 23 27 ^ 28 33 * 40	Degree of Centrality Commitment to & Recognition of Goals Extent of Diversity Commitment to & Recognition of Goals Leadership & Influence Use of Stories & Lessons Learned
18 – Level of Trust	19 31 ^ 35 40	Degree of Centrality Mutual Accountability – Member Level Extent of Diversity Use of Stories & Lessons Learned
19 – Degree of Centrality	28 31 35 40	Commitment to & Recognition of Goals Mutual Accountability – Member Level Extent of Diversity Use of Stories & Lessons Learned
21 – Degree of Centrality	24 30 33	Commitment to & Recognition of Goals Contextual Influences Leadership & Influence
23 – Commitment to & Recognition of Goals	29	Clarity of Issues Discussed
24 – Commitment to & Recognition of Goals	30 ^ 33 ^	Contextual Influences Leadership & Influence
26 – Leadership & Influence	31	Mutual Accountability – Member Level
27 – Extent of Diversity	31 33	Mutual Accountability – Member Level Leadership & Influence
30 – Contextual Influences	33 ^	Leadership & Influence
31 – Mutual Accountability – Member Level	32 ^ 35 *	Mutual Accountability – Community Level Extent of Diversity

Item (& Subscale)	Correlates with	Subscale Item is from
32 – Mutual Accountability – Community Level	35 39	Extent of Diversity Commitment to & Recognition of Goals
34 – Mutual Accountability – Community Level	36 *	Mutual Accountability – Member Level
35 – Extent of Diversity	40	Use of Stories & Lessons Learned

* = $p \leq 0.01$; ^ = $p \leq 0.001$

Subscale Inter Correlations

Item[m]	1	2	3	4	5	6	7	8	9	10	11
1	1.00	0.91 <.0001	0.69 0.0016	0.76 0.0003	0.52 0.027	0.60 0.0078	0.39 0.1043	0.61 0.0071	0.60 0.0087	-0.35 0.1596	0.62 0.0056
2		1.00	0.73 0.0006	0.73 0.0006	0.61 0.0070	0.72 0.0007	0.52 0.0261	0.49 0.0372	0.56 0.0162	-0.38 0.1229	0.58 0.0111
3			1.00	0.68 0.0020	0.48 0.0452	0.62 0.0058	0.38 0.1187	0.64 0.0045	0.63 0.0051	-0.04 0.8614	0.62 0.0055
4				1.00	0.44 0.0653	0.44 0.0656	0.20 0.4228	0.65 0.0206	0.70 0.0012	-0.40 0.0974	0.60 0.0080
5					1.00	0.61 0.0071	0.30 0.2313	0.28 0.2528	0.28 0.2529	-0.49 0.0367	0.49 0.0374
6						1.00	0.64 0.0041	0.45 0.0595	0.30 0.2256	-0.15 0.5431	0.62 0.0056
7							1.00	0.17 0.5028	0.13 0.6165	0.06 0.8167	0.25 0.3240
8								1.00	0.67 0.0021	0.07 0.7753	0.33 0.1800
9									1.00	-0.13 0.6165	0.30 0.2244
10										1.00	-0.51 0.0295
11											1.00

[m] 1=Degree of Centrality, 2=Leadership, 3=Extent of Diversity, 4=Level of Trust, 5=Clarity of Issues Discussed, 6=Commitment to Goals, 7=Contextual Influences, 8=Mutual Accountability – Community, 9=Mutual Accountability – member, 10=Assigned or Assumed Roles, 11=Use of Stories & Lessons Learned

Appendix 11: Qualitative Concurrent Validation

Rule: the proportion of scores from each interview range must at least 'lean' towards the NEQ rank in order for this to be a match.

E.g. A score of 0-1-3 satisfies a NEQ rank of 1 given that the highest range score is in the 3rd score

A score of 1-2-0 satisfies a NEQ rank of 2 given that the highest range score is in the 2nd category (score of 2).

Rule: A comparison is said to be inconclusive if there is no distinct pattern in the interview range numbers.

E.g. a score of 0-1-1 is inconclusive for a NEQ rank of 1 given that the second and third category scores are the same.

Level of Agreement of NEQ & Interview by Subscale

Theme: Degree of Centrality

Participant No.	Interview Range Score	NEQ Rank	Match/Mismatch	% match
5	0-0-4	1	match	29%
9	0-7-19	1	match	
15	7-7-1	1	miss	
4	1-6-1	1	inconclusive	
16	3-2-0	1	miss	
3	8-14-5	1	miss	
12	1-8-4	1	miss	
7	5-17-0	1	miss	
10	1-3-0	2	match	67%
13	3-6-1	2	match	
17	7-3-0	2	miss	
6	1-3-0	2	match	
14	3-7-5	2	match	
2	2-2-6	2	miss	
11	7-14-4	2	match	
1	4-7-2	2	match	
8	11-3-0	2	miss	

Theme: Leadership & Influence

Participant No.	Interview Range Score	NEQ Rank	Match/Mismatch	% match
9	0-6-12	1	match	75%
15	2-8-5	1	match	
4	1-3-1	1	inconclusive	
5	0-1-5	1	match	
3	1-2-6	1	match	
16	1-5-1	1	miss	
12	5-2-3	1	miss	
7	0-2-4	1	match	
10	0-6-8	1	match	
13	3-3-2	1	inconclusive	
6	0-1-1	2	inconclusive	0%
14	0-1-2	2	miss	
17	3-2-1	2	miss	
2	0-1-2	2	miss	
11	0-1-8	2	miss	
1	4-1-1	2	miss	
8	0-1-2	2	miss	

Theme: Extent of Diversity

Participant No.	Interview Range Score	NEQ Rank	Match/Mismatch	% match
4	0-0-3	1	match	87%
9	2-5-3	1	match	
15	2-3-11	1	match	
16	0-1-1	1	match	
3	0-0-7	1	match	
5	0-2-0	1	match	
8	0-0-0	1	silent	
10	1-1-2	1	match	
1	0-5-0	1	miss	
7	0-0-4	1	match	
11	0-0-3	1	match	
12	1-1-2	1	match	
14	0-3-1	1	miss	
2	0-5-5	1	match	
6	0-2-2	1	match	
13	0-0-5	1	match	
17	0-0-4	2	miss	0%

Theme: Assigned or Assumed Roles

Participant No.	Interview Range Score	NEQ Rank	Match/Mismatch	% match
3	8-1-8	1	match	70%
8	3-0-0	1	miss	
10	1-1-4	1	match	
15	1-4-14	1	match	
17	6-2-0	1	miss	
2	0-0-9	1	match	
5	0-2-5	1	match	
9	0-8-9	1	match	
12	3-2-0	1	miss	
14	0-0-4	1	match	
16	1-0-1	1	inconclusive	
6	0-2-9	2	miss	0%
7	1-1-5	2	miss	
11	1-2-8	2	miss	
4	1-0-0	2	miss	
1	10-3-3	2	miss	
13	0-2-2	2	inconclusive	

Theme: Level of Trust

Participant No.	Interview Range Score	NEQ Rank	Match/Mismatch	% match
4	0-1-0	1	miss	82%
6	0-0-3	1	match	
10	0-0-2	1	match	
12	0-1-2	1	match	
5	0-0-0	1	silent	
8	0-1-1	1	match	
9	0-1-2	1	match	
14	0-1-1	1	match	
15	0-3-2	1	match	
16	0-0-1	1	match	
1	0-0-0	1	silent	
2	0-0-0	1	silent	
3	0-1-3	1	match	
7	1-0-0	1	miss	
17	0-0-0	1	silent	
13	0-0-1	2	miss	0%
11	0-0-1	2	miss	

Theme: Clarity of Issues Discussed

Participant No.	Interview Range Score	NEQ Rank	Match/Mismatch	% match
4	0-1-1	1	match	22%
10	3-0-1	1	miss	
11	0-5-0	1	miss	
15	1-5-0	1	miss	
16	0-0-1	1	match	
3	0-9-0	1	miss	
6	1-0-0	1	miss	
12	0-1-0	1	miss	
17	0-8-0	1	miss	
9	0-2-2	2	match	88%
2	0-10-1	2	match	
13	0-1-1	2	match	
5	0-0-1	2	miss	
8	0-2-0	2	match	
14	0-2-1	2	match	
1	1-9-0	2	match	
7	0-8-0	2	match	

Theme: Recognition of & Commitment to Goals

Participant No.	Interview Range Score	NEQ Rank	Match/Mismatch	% match
3	0-2-8	1	match	70%
5	0-2-6	1	match	
9	0-2-2	1	match	
15	1-1-0	1	miss	
10	1-7-6	1	match	
4	0-0-0	1	silent	
11	0-2-12	1	match	
13	0-5-2	1	miss	
14	0-1-4	1	match	
16	0-2-3	1	match	
17	1-4-0	1	miss	
1	2-9-0	2	match	20%
6	0-1-3	2	miss	
12	1-2-2	2	inconclusive	
2	0-0-5	2	miss	
7	0-5-1	2	miss	
9	0-0-2	2	miss	

Theme: Mutual Accountability – Member Level

Participant No.	Interview Range Score	NEQ Rank	Match/Mismatch	% match
7	4-3-0	1	miss	50%
3	0-4-1	1	miss	
4	0-3-1	1	miss	
5	1-0-10	1	match	
6	1-0-2	1	match	
8	0-2-1	1	match	
12	5-2-1	1	miss	
13	1-0-0	1	miss	
15	0-0-4	1	match	
16	0-0-3	1	match	
2	1-5-0	1	miss	
9	0-0-9	1	match	
11	0-2-6	1	match	
17	3-0-0	1	miss	
14	4-3-3	2	inconclusive	0%
1	3-7-1	2	miss	
10	0-0-2	3	miss	0%

Theme: Mutual Accountability – Community level

Participant No.	Interview Range Score	NEQ Rank	Match/Mismatch	% match
13	0-0-0	1	silent	86%
16	0-1-0	1	miss	
3	0-1-1	1	inconclusive	
15	0-1-1	1	inconclusive	
4	0-0-2	1	match	
6	0-0-2	1	match	
7	0-0-5	1	match	
9	0-0-6	1	match	
11	0-0-4	1	match	
12	0-1-4	1	match	
5	0-0-5	2	miss	25%
14	0-1-0	2	match	
17	0-0-0	2	silent	
8	0-0-1	2	miss	
10	0-2-3	2	miss	
2	0-1-1	2	inconclusive	
1	1-1-1	3	silent	0%

Theme: Use of Stories & Lessons Learned

Participant No.	Interview Range Score	NEQ Rank	Match/Mismatch	% match
15	0-1-0	1	miss	50%
2	0-0-0	1	silent	
4	0-0-0	1	silent	
5	0-0-0	1	silent	
9	0-0-0	1	silent	
11	0-0-0	1	silent	
16	0-0-0	1	silent	
6	0-3-0	1	match	
12	0-0-0	1	silent	
3	0-1-0	2	match	100%
7	0-0-0	2	silent	
17	0-0-0	2	silent	
8	0-2-1	2	match	
13	0-3-0	2	match	
14	0-0-0	2	silent	
10	0-0-0	3	silent	0%
1	0-3-0	3	miss	

Appendix 12: Revised Network Engagement Questionnaire

This survey seeks to better understand your involvement in CANSPANN, how this community functions and the nature of the interactions that take place between members of CANSPANN. Please not that you may decline to answer any questions that you do not wish to answer.

Name: _____

Please rate your agreement or disagreement with each of the following statements regarding CANSPANN. Responses range from the lowest number (1) corresponding to "Strongly disagree" through to the highest number (5) corresponding to "Strongly agree".

	Strongly Disagree				*Strongly Agree*
I have learned a great deal as a result of CANSPANN	1	2	3	4	5
I have changed my thinking as a result of CANSPANN.	1	2	3	4	5
I have changed my performance in my present role as a result of CANSPANN.	1	2	3	4	5
I have based significant decisions on information and skills from CANSPANN.	1	2	3	4	5
CANSPANN has had a considerable influence on my work.	1	2	3	4	5
I have a better understanding of _____ (topic of PA/N/O) as a result of CANSPANN.	1	2	3	4	5
I have greater depth of understanding of physical activity and/or nutrition strategies as a result of CANSPANN.	1	2	3	4	5
I can communicate with colleagues better as a result of CANSPANN.	1	2	3	4	5
CANSPANN has improved my ability to plan interventions generally.	1	2	3	4	5
CANSPANN has improved my ability to implement interventions generally.	1	2	3	4	5
CANSPANN has improved my ability to interventions generally.	1	2	3	4	5

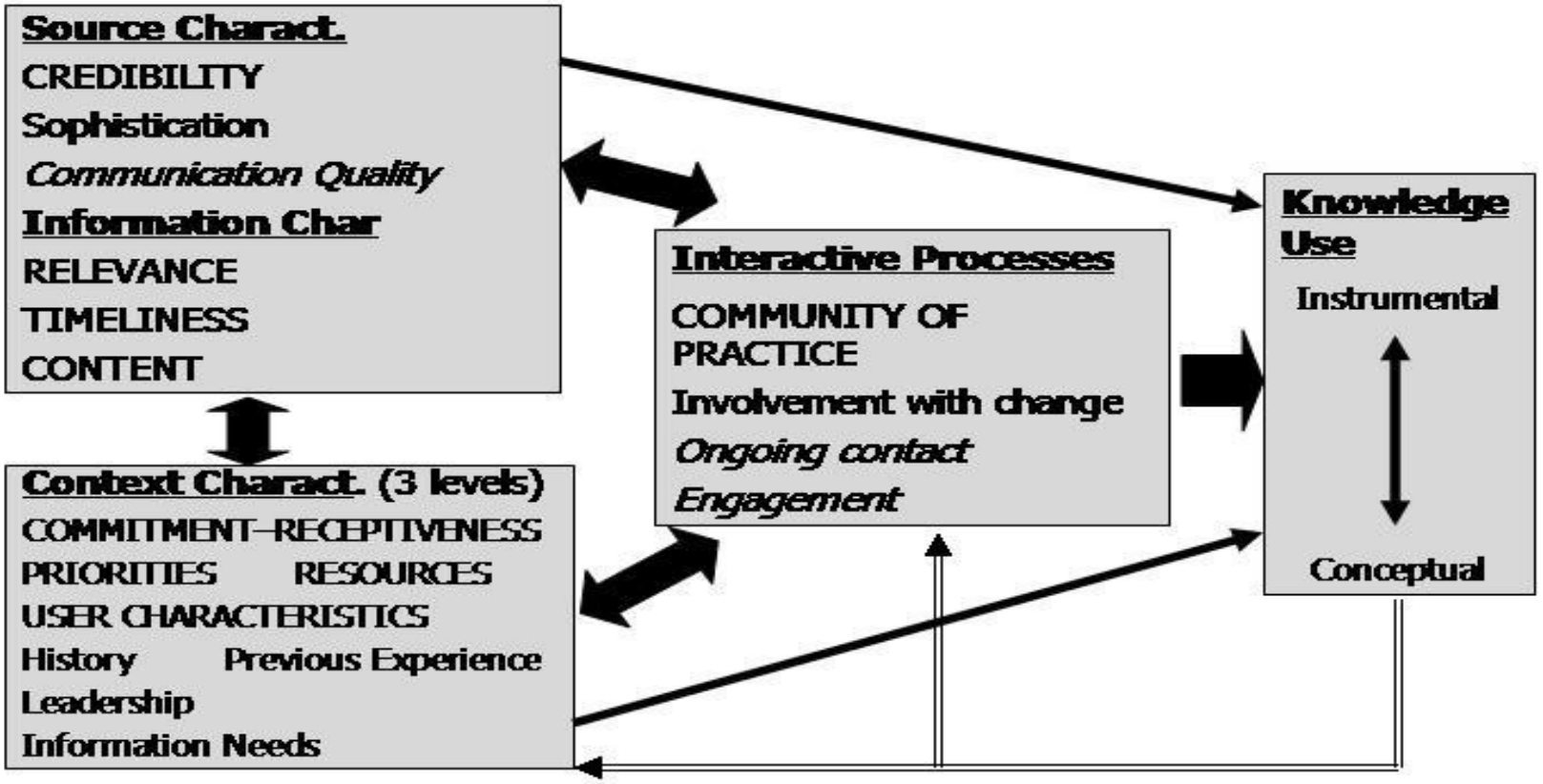
Please rate your agreement or disagreement with each of the following statements regarding your involvement in CANSPANN by circling the number that best applies.

		Strongly Disagree	Disagree	Neutral / Don't know	Agree	Strongly Agree
1	I feel connected to many of the activities of CANSPANN	1	2	3	4	5
2	The leaders in CANSPANN are engaged in many CANSPANN activities	1	2	3	4	5
3	I am involved in a large number of CANSPANN activities (e.g., core group member, Action team member, participant, etc.)	1	2	3	4	5
4	I help shape much of what goes on in CANSPANN	1	2	3	4	5
5	I play a leadership role in CANSPANN	1	2	3	4	5
6	An activity or project is more likely to be successful if a CANSPANN leader is involved	1	2	3	4	5
7	The leaders in CANSPANN have been engaged for longer periods of time than other members	1	2	3	4	5
8	Members approach an activity from different perspectives	1	2	3	4	5
9	CANSPANN members bring a range of different skill sets (or work experiences/perspectives) to the table	1	2	3	4	5
10	The diverse perspectives of CANSPANN members facilitate our ability to achieve our goals & objectives	1	2	3	4	5
11	Network members are approachable and friendly	1	2	3	4	5
12	CANSPANN members collaborate and/or cooperate on projects and activities	1	2	3	4	5
13	The network meets with stakeholders to discuss future directions	1	2	3	4	5
14	The network produces information materials that keep members up to date and involved	1	2	3	4	5

		Strongly Disagree	Disagree	Neutral / Don't know	Agree	Strongly Agree
15	The network meets with stakeholders to discuss our progress	1	2	3	4	5
16	Members share stories/experiences with one another that help us complete a task	1	2	3	4	5
17	I share stories of my experiences/lessons learned with other CANSPANN members that help us complete a task	1	2	3	4	5
18	Members have an opportunity to engage in non-work related conversation/discussion	1	2	3	4	5

Thank you for taking time to complete this questionnaire.

Appendix 13: Manske's Knowledge Exchange Model



Appendix 14: Information Letter & Consent Form

University of Waterloo

Date

Dear ***(insert participant's name):***

This letter is an invitation to consider participating in a study being conducted by myself, Dr. Steve Manske and Dr. Lawrence Brawley. We are both professors in the faculty of Applied Health Sciences at the University of Waterloo. I would like to provide you with more information about this project and what your involvement would entail if you decide to take part.

Although physical activity (PA) and proper nutrition have finally been acknowledged as health behaviour priorities that are as important as smoking cessation, drug abuse, and risky sexual practices, the available evidence to promote integrated efforts toward prevention on the former behaviours lags far behind the latter. If a population model of disease prevention is considered the full spectrum of interventions at the levels of individuals, communities, environments, and public policy will be needed to realize population level impacts. However, much of the evidence that is required to advocate this full spectrum of physical activity and nutrition interventions toward the goal of healthy living is lacking. Although school and community-based trials of physical activity and nutrition interventions are informative, the most recent evidence suggests it is conflicting at best. An integrated effort to fill some of these existing gaps is needed. At present, ***there exists no integrated pan- Canadian research network specifically focusing upon social-ecological research about physical activity and nutrition*** that would serve the needs of a healthy living strategy and population-level approaches to prevention and health promotion.

As a result of the lack of a network between researchers and decision makers in healthy living, the principal investigators of this study have set out to develop one such network. We have called this network CANSPANN which stands for Canadian School Physical Activity and Nutrition Network.

You have been recommended by individuals in one of the fields of physical activity, nutrition, health promotion or school-based health programming as someone who has knowledge and resources that can enhance the CANSPANN network.

The purpose of this interview is to gather in-depth information about your involvement in programming or policy development focused on physical activity, nutrition, or healthy body weight such as projects, studies, evaluation, information collection, consensus conferences, etc. During the interview there will be opportunities for open-ended comments to enable you to describe factors you believe influence your ability to use, access, and develop knowledge relevant to physical activity, nutrition or health body weight projects and policies.

Participation in this study is voluntary. It will involve an interview of approximately thirty minutes in length to take place in over the telephone at a time convenient to you. You may decline to answer any of the interview questions if you so wish. Further, you may decide to withdraw from this study at any time without any negative consequences by advising the researcher. With your permission, the interview will be tape-recorded to facilitate collection of information, and later transcribed for analysis. Shortly after the interview has been completed, I will send you a copy of the transcript to give you an opportunity to confirm the accuracy of our conversation and to add or clarify any points that you wish. All information you provide is considered completely confidential. Information you provide will be shared with other CANSPANN members in order to facilitate networking of CANSPANN members with each other. Your name will not appear in any thesis or report resulting from this study. Data collected during this study will be retained for 5 years in a locked cabinet in a locked

office. Only researchers associated with this project will have access. There are no known or anticipated risks to you as a participant in this study.

If you have any questions regarding this study, or would like additional information to assist you in reaching a decision about participation, please contact me at 1-519-888-4567 ext. 4518 or by email at manske@healthy.uwaterloo.ca.

I would like to assure you that this study has been reviewed and received ethics clearance through the Office of Research Ethics. However, the final decision about participation is yours. If you have any comments or concerns resulting from your participation in this study, please contact Dr. Susan Sykes of this office at (519) 888-4567 Ext. 6005.

I hope that the results of this study will be of benefit to those organizations directly involved in the study, other voluntary recreation organizations not directly involved in the study, as well as to the broader research community.

I very much look forward to speaking with you and thank you in advance for your assistance in this project.

Yours Sincerely,

Steve Manske

CONSENT FORM

I agree to participate in a study being conducted by Steve Manske of the Department of Health Studies and Gerontology, University of Waterloo. I have made this decision based on the information I have read in the Information Letter. In addition I have had the opportunity to receive any further details I wanted about the study. I understand that I may withdraw from the study at any time, without penalty, by telling the researcher.

I also understand that this project has been reviewed by, and received ethics clearance from the Office of Research Ethics at the University of Waterloo, and that I may contact this office if I have any concerns or comments resulting from my involvement in the study.

Participant Name (Please print): _____

Participant Signature: _____

Witness Signature: _____

Date: _____

CONSENT FORM FOR AUDIOTAPING INTERVIEW

I understand that the interview will be audio taped to facilitate the collection of information with the understanding that all information which I provide will be held in confidence and I will not be identified in a thesis, summary report, or publication. I understand that I may withdraw this consent at any time without penalty by advising the researcher.

Participant Name: _____

Participant Signature: _____

Witness Name: _____

Witness Signature: _____

Date: _____

Appendix 15: Interview Schedule

This interview is a follow-up to a questionnaire you completed about your participation in the CANSPANN network and your interaction with other CANSPANN members.

The purpose of this interview is to gather in-depth information about your involvement in the network and where you see yourself fitting into this network. I'm also interested in how you have interacted with other CANSPANN members and how (and if) you have maintained connections with members you spoke with at the workshop or have worked with in the past. During the interview there will be opportunities for open-ended comments to enable you to describe factors you believe influence your ability to be involved with CANSPANN and what influences your interaction with other members.

Please let me remind you that you can choose to not answer any question if you wish and you can stop this interview at any time.

Could you tell me about your involvement with other CANSPANN members?

-Tell me about your interactions with _____.

-Why did you interact with this person specifically?

-Did you interact with this person with the intention of learning something? Passing on information to them? Receiving information from them?

-did you have a previous relationship with this person? Is this someone you have shared or exchanged information or knowledge with in the past?

-Now tell me about _____. What's different or the same about this interaction than with your interaction with _____?

-What determines whether or not you interact with a specific CANSPANN member?

-How often do you interact with each of these people?

-What form do your interactions take? For instance, what methods do you use to communicate (e.g. email, structured meetings, casual interactions, etc.)?

-What kinds of things / topics are discussed in these interactions?

-Are there some people who you interact with more than others? Why is this?

How would you describe your relationship with other CANSPANN members?

Contrast this relationship with [name], with the relationship you have with others.

-Who do you approach for help? Why? (ability to contact, structured, unstructured, etc.)

-Does anyone approach you for help around issues related to CANSPANN? Why? (Characteristics, their roles, perceived ability, expertise) What has facilitated that interaction?

Tell me about other people's interactions in CANSPANN? What do you know about other peoples' interactions?

-How do people get along?
-Intensity of interactions (in terms of perceived productivity)
-How would you rate the interactions among individual members?
-What are people interacting about? Are they sharing information? Working on other projects?

What is the nature of CANSPANN's leadership?

-What role do you feel you play in this network? Are you on an action team? If so, what do you do on that team?
-Do you have specific skills or abilities that you bring to the network?
-How do you share these skills/abilities with other members?
-What are your perceptions of the leadership of CANSPANN?
-Are there specific people who play specific roles? What are those people's roles?
-How do you go about performing your role?

-What obstacles has the group faced? How does this group overcome obstacles?

Recently a proposal was submitted by the CANSPANN Action Teams.

-Did you know about this proposal? Did you take part in planning, writing or preparing or offering feedback on the proposal? How well does this proposal mesh with your priorities?
-Why is/isn't this the case?
-How do your priorities align with the networks?
-Did you make sure your priorities were included in this proposal? How do you do this?
-How are decisions made about CANSPANN priorities amongst the membership?

What do you think are the goals of CANSPANN?

-Do you think these goals are recognized by the network?
-How does the network work towards these goals?
-How well do you align with these goals?

I'd like to spend a brief time talking about your responsibilities or contributions to CANSPANN. Do you feel responsible for helping this network meet its goals?

-Do you feel responsible to this network? How?
-How are other members responsible to the network?
-Do your contributions help move CANSPANN's goals forward? How is that? Isn't that? Can you give me an example of how you contribute to CANSPANN's goals?
-Do you receive acknowledgment for your contributions? (Do people acknowledge your contribution to the action teams/groups? Do people know that you are involved with these teams or research grants?)

Is there anything else I need to know to understand the emergence of this network and your involvement with the network?

Thank you so much for your contribution to this project and spending some of your time with me. I appreciate your involvement and hope that you will continue to be involved with this study and also with the CANSPANN network.

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