Occupational Therapists' Perceptions of the Value of Research

By

Fern Swedlove

Thesis Submitted to the Faculty of Graduate Studies of the

University of Manitoba

in partial fulfilment of the requirements of the degree of

Master of Science

School of Medical Rehabilitation

University of Manitoba

Winnipeg

ABSTRACT

The need to utilize research in decision making is considered critical in the present health care environment. For health research to be applied, it must have value. However, the question of the value of research has not been fully explored in the literature. The purpose of this study is to gain an understanding of occupational therapists' perceptions of the value of research. Semi-structured interviews were completed in Winnipeg, Manitoba with 10 occupational therapists. The four themes in the study influencing their perceptions of the value of research were their experiences with research, the purpose of research, the resources to support research and the clinician and researcher culture. A number of elements were identified which may have informed the occupational therapists' perceptions of the value of research. Having an understanding of the elements that may influence the perceptions of the value of research may assist with developing effective research utilization programs.

ACKNOWLEDGEMENTS

THESIS ORGANIZATION

This thesis is in a manuscript format. The thesis begins with a manuscript version of the thesis. The manuscript is primarily an abridged version of the thesis. The manuscript is in a format suitable for publication and is based on the standards of the American Psychological Association (APA). Avenues for publication will be explored following the completion of the thesis defense. The rational for this type of thesis format is to facilitate the dissemination of the results of the thesis. The manuscript is followed by the thesis which is organized in nine sections: introduction, literature review, research objective, methods supplement, results supplement, discussion, conclusion, references and appendices. There are a number of differences between the manuscript and the thesis. The manuscript contains a section on limitations and future areas of research and the thesis contains both of these sections in an expanded version. The thesis differs from the manuscript in the following areas. The introduction provides additional background for the topic and is more in-depth. The literature review contains information on research utilization with physicians, as well as more detail regarding the theoretical underpinning guiding this research. The methods supplement provides more explanation regarding the study design as well as more description of the sample. The methods supplement also contains supplementary information regarding the methods used to provide trustworthiness to the study as well as the role of the researcher. The results section contains more quotations from the participants. These are longer quotations, often in block format and are throughout the four themes. The discussion section contains much of the same information as the manuscript. The new information added for the thesis includes more discussion of the results of the interviews in relation to the characteristics

of the participants. There is also additional material pertaining to the present challenges in the health care system.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

MANUSCRIPT STYLE FORMATTED PAPER

Occupational Therapists' Perceptions of the Value of Research[1]

---

[1] **A version of this paper will be submitted for publication. Swedlove, F., & Etcheverry, E. Occupational Therapists' Perceptions of the Value of Research.**

Abstract

The need to utilize research is considered critical in the present health care environment of increased demands for services coupled with finite resources. For health research to be read and applied, first it must have value but this question has not been fully explored in the literature. The purpose of this qualitative study was to gain an understanding of occupational therapists' perceptions of the value of research. Semi-structured interviews were completed in Winnipeg, Manitoba with 10 occupational therapists. The four themes in the study influencing occupational therapists' perceptions of value of research were their experiences with research, purpose of research, resources to support research and the clinician and researcher culture. Having a greater understanding of the elements that may potentially inform the perceptions of the value of research may assist with developing effective research utilization programs.

Word Count of abstract = 138 words

Key Words: value of research, evidence-based practice, research utilization

Introduction

For over a decade, health care spending has outpaced inflation and population growth (Canadian Institute of Health Information [CIHI], 2008). Appropriate allocation of resources has become a growing issue in health care because people working on the frontlines of health care are grappling with how to provide quality care to burgeoning caseloads. Concurrently, a paradigm shift is taking place towards a knowledge economy; applying health care research to practice has been touted as an important tool to improve

the ability to deliver quality care efficiently (Elwyn, Taubert, & Kowalczuk, 2007). However, in practice this paradigm shift to incorporate research findings into cost-effective, health care delivery continues to be difficult to achieve (Eccles & Mittman, 2006; Ginsburg, Lewis, Zackheim, & Casebeer, 2007).

A decision making process incorporating research was embraced by health care professionals around the world and included the profession of occupational therapy following the introduction of evidence-based practice (Egan, Dubouloz, von Zweck, & Vallerand, 1998; Sudsawad, 2006). Challenges have developed in the knowledge translation process as evidence-based practice began to be applied in various settings (Kielhofner, 2005). The main problems identified in the literature with incorporating evidence into practice include a lack of time and large workloads, as well as difficulty accessing and critiquing the literature (Bennett et al., 2003; Curtin & Jaramazovic, 2001; Sudsawad, 2005). Even once these concerns have been addressed through educational initiatives, people still do not routinely refer to research when they have a clinical problem or utilize the research for ongoing professional development or simple curiosity (Egan et al., 2004; McCluskey & Lovarini, 2005; Stevenson, Lewis, & Hay, 2004).

Although knowledge translation has been given prominence by professional organizations, government, education and granting agencies, there continues to be a gap in the knowledge translation process (Newton & Scott-Findlay, 2007). What we do know is that health care professionals, including at times occupational therapists, often view "clinical evidence as a square peg to fit in the round hole of the patient's life" (Freeman & Sweeney, 2001, p. 1). We do not know why this problem persists. Research is pointing

towards individual attitudes towards research as a possible explanation but this has not been fully explored in the literature (Pravikoff, Tanner, & Pierce, 2005).

Theoretical Underpinning

In the literature on integrating new clinical behaviour into practice, E.M. Rogers' theoretical approach, as first described in his 1983 book entitled *Diffusion of Innovation* (Rogers, 2003), has been well regarded (Berwick, 2003; Sanson-Fisher, 2004). Estabrooks and colleagues (2008) summarize the results of a bibliometric analysis on the subject of research utilization. The authors conclude that the work of Rogers on innovation diffusion is the dominant theory for this subject (Estabrooks et al., 2008). The diffusion of innovations theory incorporates many facets involved in adopting a new clinical behavior for a clinician or a new way of approaching a problem by a health care system (Sanson-Fisher, 2004).

In the theoretical framework diffusion of innovation, Rogers examines four components involved in change related to innovation: the innovation to be adapted, how the innovation is communicated, the social context for the clinical change to take place and the decision making process involved with the clinical change (Rogers, 2003). According to Rogers, the adoption of the innovation is influenced by the following five elements: relative advantage, compatibility, complexity, observability and trialability (Rogers, 2003).

This study specifically examines the relative advantage of the innovation which refers to the degree that an individual perceives an innovation to be superior to the approach that is currently being utilized (Sanson-Fisher, 2004). The relative advantage of

an innovation is considered one of the more important components of an innovation to examine when determining if an innovation will be adopted (Berwick, 2003). The relative advantage, that is, whether the innovation is better than the previous way of doing something, generally must be perceived as existing prior to an innovation being adopted. Therefore, the innovation must have a value to have a relative advantage. New ideas from research are often a source of innovation because these ideas may result in clinical change. The adoption of the innovation, which may include the adoption of research, can be hindered or facilitated by a number of characteristics. For example, an occupational therapist may perceive a relative advantage or value to research if the research has a direct application to an individual client.

Research Utilization and Clinical Reasoning

There are three recent studies which specifically examine the use of research in practice by occupational therapists. A group of researchers conclude in their survey of occupational therapists that only a minority of occupational therapists practicing in the United States utilize evidence in their clinical decisions (Cameron et al., 2005). Practitioners with more experience working as occupational therapists or more education referred to research less than those therapists who had only worked for a few years. The authors were not able to provide an explanation for these findings and suggest that a qualitative study would provide greater insight. The authors suggest that part of the difficulty in utilizing evidence in practice may be related to a lack of skills for utilizing research (Cameron et al., 2005).

The problem of a lack of research related skills was addressed in an Australian study providing occupational therapists training in utilizing research in practice. A before and after study for 114 self-selected occupational therapists involved skill training in utilizing published research (McCluskey & Lovarini, 2005). This multi-faceted intervention incorporated before and after education and support. Although the occupational therapists demonstrated increased knowledge following completion of the two-day workshop, there were very few changes in behaviour as measured by the frequency that the occupational therapists engaged in searching and appraisal activities eight months after the workshop. A slightly different approach is taken in a recent study conducted in Australia examining the topic of uptake of research evidence by 55 occupational therapists working in the area of stroke rehabilitation (Gustafsson & Yates, 2009). The study is in response to guidelines published in 2005 that summarized and critiqued current research regarding best practice in stroke rehabilitation. Following the occupational therapists completion of a survey, the authors conclude that the evidence is not consistently applied to the management of secondary complications of the arm affected by the stroke.

A large scale quantitative study (Pravikoff et al., 2005) examining the readiness of United States nurses to utilize evidence-based practice concludes that in addition to the common problems encountered with utilizing evidence, the nurses did not find a value in research. The authors suggest that the fact that the nurses do not find value in research may explain their reluctance to engage in evidence-based practice and may be a large factor in determining their readiness to accept utilizing research in their practice.

These studies describe some of the challenges associated with integrating research into health care. These studies did not however delve into the clinical reasoning processes of the health care professionals, but the impression of some of the researchers was that their reasoning process did not generally include the integration of research. These processes, which may involve thinking or decision making in regards to their client's concerns are referred to as clinical reasoning.

In the occupational therapy literature, clinical reasoning is described as tacit and as phenomenological, which refers to the value placed on the lived experience of the individual (Chapparo & Ranko, 2008; Leicht & Dickerson, 2001). Research on clinical reasoning finds that for the more experienced occupational therapist, clinical reasoning becomes solidified with more years of practice and there is less reliance on using research as part of the clinical reasoning process (Gibson et al., 2000). Swedish research raised another consideration in regards to the clinical reasoning of occupational therapists (Gahnstrom-Strandqvist, Josephsson, Tham & Borell, 2000). The Swedish occupational therapists in the study with 10 to 15 years of experience found that the collaborative process with the client is important to their sense of competence, rather than the application of the most recent research. Experienced occupational therapists in this study favour a more tacit approach to clinical reasoning over a reasoning process based on evidence. With a tacit approach to clinical reasoning, the occupational therapists will base their decision making on what they know implicitly rather than on research evidence.

This collaborative type of approach to practice has been a hallmark of occupational therapy practice and is described as client-centred practice in the occupational therapy literature (Egan et al., 1998). A framework that combines evidence-

based practice with the more traditional approach to clinical reasoning has been proposed (Townsend, Egan, Law, Manojlovich, & Head, 2007). A very recent article also suggests combining reflective practice (a component of clinical reasoning) into evidence based practice (Bannigan & Moores, 2009). These proposed frameworks combining evidence-based practice with either clinical reasoning process or reflective practice utilized in occupational therapy have not been critically evaluated in the literature. As there have not been critical examinations of these frameworks in the literature, the question then arises as to whether combining clinical reasoning or reflective practice with evidence-based practice is a viable solution for practice issues. Another possibility is that these two processes could happen either independently or sequentially. This question is difficult to answer without further research on the subject.

This review of the clinical reasoning process as it relates to evidence-based practice in occupational therapy provides important background for consideration of how research is valued.

Value of Research

A group of researchers propose three possible values of research (Ginsberg et al., 2007). The first value described by Ginsberg and colleagues is an instrumental application; research is valued for its concrete application, to make a decision or change in clinical practice. The second area of value of research is conceptual; that is, research is valued for its ability to change the way an individual thinks about a problem. The third area of value suggested by the authors is symbolic. That is, research is valued for its symbolic value, to "legitimate and sustain predetermined positions" (Beyer, 1997, p. 17).

For example, the research may have a political purpose such as to influence an organization or government to define or examine their funding priorities. The authors suggest that symbolic value is likely the most common value for research.

Other researchers analyze the potential value of research in economic terms (Buxton, Hanney, & Jones, 2004). One approach to this analysis is to ask the question from a counterfactual approach: what would be the result if the research had not been completed? The authors categorize the value of research according to the following four benefits: cost-saving to the health care system, healthier workforce benefiting the economy, commercial developments and intrinsic value to society.

These seven categorizations (Buxton et al., 2004; Ginsberg et al., 2007) of the potential values of research provide some insight into the subject of research utilization. These possible values may in turn provide occupational therapists a relative advantage when considering applying a new innovation.

Research Objective

The objective of this study is to gain a greater understanding of occupational therapists' perceptions of the value of research. Only with a more in-depth qualitative understanding of the perceived value of research can future intervention studies hope to have success in changing behaviours. Changing the behaviors associated with research utilization can potentially facilitate the application of research in health care practice.

Methods

A qualitative, exploratory research style (Miller & Crabtree, 1999) was utilized for the study. According to Miller and Crabtree (1999) this type of scientific inquiry which is often referred to as exploratory research has three functions: identification, description and explanation-generation.   An exploratory approach is reasonable when there is little published research that explores this question in an in-depth fashion (Creswell, 2003). An exploratory approach provided an opportunity to obtain preliminary data to gain an understanding of the contextual factors surrounding the research question (Rice & Ezzy, 1999). The participants in the study volunteered because of their interest in the study. As they were receptive to the study, this may have been reflected in their willingness to provide detailed information and honest opinions on the topic (Dickerson, 2006). In this regard, a convenience sample did not impede the study as it may have facilitated the participants providing rich data.

The choice of a large centre for recruitment resulted in participants with diverse backgrounds. The diversity of experience and education in the sample was not intentional, but rather occurred by chance as the sample was comprised of volunteers. The research study was approved (ethics approval number = H2009:078) by the University of Manitoba Health Research Ethics Board (HREB). All of the participants completed a consent form.

Ten participants were recruited through a letter of invitation to occupational therapists working in a large occupational therapy department in Winnipeg, Manitoba. This department is located at the Health Sciences Centre, one of the largest tertiary care facilities in Canada. The therapists who volunteered ranged in their year of graduation

from their occupational therapy program from 1980 to 2005. The majority of the

participants worked full-time and primarily in adult inpatient or outpatient psychiatry or

physical medicine programs (see Table 1 below for further details). Two of the

participants graduated from the Masters in Occupational Therapy program and four of the

participants had either completed a research Masters degree or were enrolled in a Masters

program.

Table 1

Demographic characteristics of participants

Age		Years in OT		Education	
40 & over	4	15 & over	4	Entry level Bachelors in OT	4
30 to 39	4	5 to 15	3	Entry level Masters in OT	2
20 to 29	2	0 to 5	3	Bachelors in OT + Research Masters (Enrolled or in Process)	4

Entry to Practice School of Graduation		Practice Area	
University of Manitoba	7	Physical Medicine - Outpatients	4
Other University Programs	3	Physical Medicine - Inpatients	2
		Psychiatry - Inpatients	2
		Administration/Other	2

An interview guide was developed for the semi-structured, face-to-face

interviews. The development of the interview guide was based on the research utilization

and clinical reasoning literature reviewed for the study. The questions focused on the

value of research as well as the clinical reasoning process of the occupational therapists

in the study. The interview questions were piloted with two occupational therapists prior to beginning the study. The interviews were semi-structured and explored the relative advantage of research as an innovation based on Rogers' diffusion of innovations theory. The questions were utilized as a method to explore the topic in an in-depth fashion. The interviews were completed with the participants in an interview room in a nearby educational setting. Each interview was transcribed verbatim by the researcher.

The first author analyzed the data systematically through analysis of the content to identify themes (Morse, 2008) with the use of a software program for analyzing qualitative research (NVivo). The themes were verified by a second researcher. The addition of one researcher (also the second author) provided investigator triangulation and contributes to the trustworthiness of the study (Farmer, Robinson, Elliott, & Eyles, 2006). The statements within each theme were compared with other statements under the other themes. Comparisons of the statements made by each person were completed to strengthen the trustworthiness of the results (Greenhalgh & Taylor, 1997).

Results

Four themes were identified from the interviews regarding occupational therapists' perceptions of the value of research: purpose of research, resources to support research and clinician, experience with research and researcher culture.

Theme #1 – Purpose of Research

Participants found that research had four main purposes. The first purpose of research related to their practice with clients. This purpose had a number of components. Many participants found that research provided an objective method to validate a treatment for a client or for a service need. Research was also helpful to make decisions, build skills and critical thinking, as well as to establish best practice. This purpose of research varied with each participant. For example, a participant with more years working as an occupational therapist found that the knowledge gained from her years of practice was more useful to her in her practice than research. A more recent graduate stated that research was imperative to her practice: "I think that it is not possible for us as OT's to do our job without knowing why we are doing it and if what we are doing is making an impact."

The second purpose of research mentioned by the participants was to provide a link to their team members. This was accomplished through the sharing of relevant research. One participant said research "gives us the ability to talk and communicate with others … and alters your status on the team."

The third purpose of research identified by a few participants was to provide an underpinning to the profession. For example, some participants discussed the ethical dimension to research: "It is unethical for us to continue to do our interventions… if we do not have ways to support what we are doing empirically," said one participant. Another participant stated that research has the potential to be "cataloguing the beliefs"

shaping the profession. The participant added that research "is a political and social commentary" and may help us to "learn how to think in a different way."

The fourth purpose of research identified by the participants was to provide an economic justification for occupational therapy services due to cuts in health care funding and the elimination of occupational therapy positions. One participant said: "People are worried that their job may be eliminated because there is no evidence to support it and that what they are doing makes a difference. Fear is a factor." As well, the question was raised as to whether occupational therapy is cost-effective. "If you do not have the research that what you do is effective or cost effective then we could be in real trouble," said one participant.

Although the participants found that research could be of value to their clinical practice, this purpose was not explicitly mentioned when asked about their clinical reasoning process with clients. Participants in the study utilized a variety of clinical reasoning processes in their practice. For example, depending on the circumstances they would rely on previous experiences or refer to their colleagues. Their clinical reasoning was often guided by their clients. For example, one participant said that in "one breath" she could think through ten things and start the clinical reasoning process with a client.

Some of the participants found that a particular theory or model guided them in their clinical reasoning particularly at the beginning of their career. On occasion, other participants said they would refer to research to assist with their clinical reasoning. The clinical reasoning of the participants varied with the needs of their clients, time restraints,

area of practice and experience. Their clinical reasoning process was largely tacit and based on their clients needs, rather than on research.

Theme #2 – Resources to Support Research

Participants identified three types of resources that supported research: employment resources, time resources and relevant research resources. The availability of these resources was dependent on the area in which they worked.

The employment resources identified by the participants to support research included access to the following: clinical specialists, service leaders, mentors, groups (i.e. clinical reasoning, research, journal clubs and special interest), technology, continuing education and the library (accessed on-line or in person). A few of the participants worked in a program management system. These occupational therapists were not supervised by an occupational therapist. The background of their supervisors may have been from different professions such as nursing or social work and these program managers may not focus on occupational therapy research. The supports available to them were partially dependant on the orientation of their supervisor.

Access to computers varied among the participants, with some therapists sharing one computer with a number of people while others had their own dedicated computer. At the time of the study, there was no funding for continuing education in the occupational therapy department, but there was some provision for allocation of time. This lack of funding limited participant's ability to go to a course or conference. One participant stated that "not providing money for clinical education comes down to not supporting research."

Access to various employment resources was linked to the time that participants had available after their provision of direct client care. The availability of time was highly variable for each service area and was dependent on staffing levels and caseload demands for the service. For example, participants who worked in mental health were able to participate in a number of different groups specific to their area of interest such as a mental health interest group or a clinical reasoning group. Also, each occupational therapist working in the area of mental health had a personal computer. Participants working with out-patients stated that their case-load had increased in recent years. "Now caseloads demand more of you and there are less of us," said one participant. A number of the participants who were involved in research projects were doing the majority of the work for their studies on their own time.

One participant described "a kind of disparity" due to the time factor involved in daily practice, particularly in very fast-paced environments such as in acute care. "There are days when I just have to get through my day and I don't want to think about research or theory," said one participant.

Participants had varied experiences regarding accessing relevant research for the area in which they worked. Organizations directly related to the area of occupational therapy practice were cited as useful resources for relevant research. The Arthritis Society and mental health groups such as the Canadian Mental Health Association are two examples of organizations where participants found applicable research for their area of practice. Participants found more relevant research located in the specific journals for their service area, such as hand therapy as opposed to the occupational therapy journals. "There are pockets of research that are helpful," said one participant. A number of

participants stated that there was a lack of relevant occupational therapy research to assist them with their daily practice or that would be of interest to the teams that they work with. "There is not a lot of research in some of the areas that are clinically relevant," said one participant but "there is the airy fairy research in areas that people would never do or would never take on." Another participant described her reaction to material she read in occupational therapy journals as the following: "When I pick up OT journals and see a lot of stuff on the OPM (Occupational Performance Model) and whatever it frustrates me… when you are out there trying to keep your positions… and justify what you are doing they don't want to hear about the OPM."

One participant said that funding difficulties for occupational therapy research was a possible factor limiting the provision of relevant research. For example, this participant found that a lot of the research in the area that she worked in was funded by drug companies. As a result, the research was more medically oriented and not relevant to her occupational therapy practice. One participant said that if you work in a specific area as opposed to a mixed caseload, it would be easier to obtain funding. One participant described this difference in obtaining funding as the "haves and have not's."

A lack of understanding of occupational therapy by people working with a medical orientation may have an impact on the provision of relevant research. These individuals may be members of committees that review projects for a facility. One participant described this scenario in the hospital which resulted in roadblocks and projects being refused.

Theme #3 – Experience with Research

Participants in the study had a personal experience with research, often at the beginning of their career. Their experiences with research were often either from observing or participating in a research study in their workplace. Some participants also found that they would seek out research to assist a client or design a program. Others found that attending a conference was another way they were exposed to research. Participants also asked colleagues with specific expertise for information about research. A few of the participants also had research experience from completing their own research projects or from previous careers. The proximity of the occupational therapy department to an occupational therapy education program and the availability of colleagues for consultation were positive contributions to their overall experience with research.

Participants found that although they had positive experiences regarding research, there were also inherent challenges to research. One participant found that it was difficult to initiate a project, while another found the steps necessary to complete a project cumbersome. As one participant said: "I have a small project on the go, but it is proving somewhat of a challenge to balance my clinical case load."

Theme #4 – Clinician and Researcher Culture

Participants in the study spoke about the integral aspect of client-centred practice to their clinical work as occupational therapists and that research may sometimes have a place within that context. "I see a person with all kinds of things going on, cultural,

history, environmental. They are in the centre of this huge, complex mix of things…

research sometimes directs us in a very specific direction," said one participant.

Graduates who completed the Masters in Occupational Therapy had a strong

orientation towards research but this also presented a threat to some of their colleagues. "

For some people there was a great excitement …and others who found it threatening that

we were coming in with a whole different view of things and it was knowledge maybe

they didn't have," said one participant. Another difference between the two groups of

occupational therapists was regarding the use of computers. The more recent graduates

did not have any issues regarding the use of technology. One participant commented that

many of her older colleagues were not comfortable using a computer for tasks such as

literature searches.

A number of participants in the study spoke about the difference between the

work of a clinician and a researcher. One participant said that there was a disconnect

between the two communities in regards to research and that people who do research

"have people who run everything for them." Another participant also commented on a

disconnect between researchers and clinicians: "They [clinicians] don't see them as the

people being involved in the trenches and they [clinicians] see them as the people that are

publishing stuff," she said. Another participant expanded on the potential impact of a

disconnect taking place between frontline clinicians and the researcher. "It is not an

integrity issue, but rather do you really know what you are talking about, a credibility

issue," the participant said.

Another participant described a situation where the occupational therapists were asked to provide subjects for a study. The occupational therapists were not provided with any information regarding the study other than they wanted to have subjects. "It makes you feel like not providing subjects because I don't feel involved in the project," said the participant.   Language is another area where the two cultures differ. Research articles are written in academic language, which is not always understood by clinicians. As one participant said: "You ask people to read something but then you don't write it in a language that they [clinicians] understand."

One participant spoke about intimidation as a concern regarding research. "People don't feel that they have the skills, or they are worthy or they have the education, background to be involved… people get scared off, seems like a mountain to climb …"

Discussion

The objective of this study is to gain an understanding of occupational therapists' perceptions of the value of research. The 10 Canadian occupational therapists interviewed for this qualitative study described the value of research in their clinical practice and for the profession, as well as the context contributing to these perceptions.

Participants in this study found that research could have a number of different values including instrumental, conceptual, symbolic or economic values. The instrumental value of research was evident in the participant's responses in their interviews. These instrumental values included to inform their practice or to validate their interventions with a client. This was an important value for the participants. The conceptual value of research was evident particularly with newer graduates who noted

that the value of research could relate to a change in the way one thinks about a problem or they might refer to research to guide their clinical practice. Symbolic values for research were less evident in the responses by the participants in the study. For example, the symbolic value of research was evident when a participant discussed the change in the status of an occupational therapist when that individual became more involved in research. The status of the occupational therapist improved after they had participated in a research study as their involvement provided a means to legitimize their role and be viewed as an equal member on the team. A number of the participants said that research had the potential to provide economic justification for their service. They saw this value as being important given the present fiscal demands on the health care system and concerns over job security.

These perceptions of the value of research that related to instrumental, conceptual, symbolic and economic values were influenced by four elements: resources, experience with research, clinical reasoning process and education.

Participants noted that having resources to support research, whether through involvement in research studies or the application of research, directly influenced how much value research could have in their practice. For example some of the participants were fortunate to have a resource rich environment and could participate in research related activities, while others were constrained by limitations of time or funding and were not afforded this opportunity. As well, depending on the area of practice, some therapists had access to relevant research while in other areas of occupational therapy, such as acute care, there was very little published relevant research. Limited resources and the disparities in access to resources influenced the perceived value of research as it

was not always accessible or available. As noted by Gutman (2009), the number of

effectiveness studies "has not increased to a level needed to support much of

occupational therapy intervention in a variety of practice areas" (p. 235).

A second element which may have an influence on the perceptions' of the value

of research is that the majority of the participants had an early experience with research

in their career either as an occupational therapy student, as a clinician in their formative

years or in a prior career before becoming an occupational therapist. In addition to these

early experiences described by the majority of the participants, many of them had

continued involvement in different aspects of research with their clinical practice or with

continuing education. As a result of these different types of early experiences, each of the

participants may have articulated a value for research.

Experience with research culture also appears to have influenced the participant's

perception of research. The primary focus for the clinician is with their individual client,

while the primary focus of the researcher is on the research project (Fange & Ivanoff,

2009). Participant's responses indicated that in their experience, the research and

academic culture may be different from an occupational therapy clinician's culture.

Participants noted that many occupational therapy researchers are not involved with

direct clinical care and utilize language that is not always understood by clinicians. This

finding is consistent with a Swedish study (Karlsson & Jornquist, 2007) that found that

occupational therapists reported that there was a "distance between research and clinical

practice" (p. 226).

The difference in the cultures of a clinician and a researcher is an important finding of this study. This difference may contribute to an occupational therapist's professional competence regarding their skills to integrate research into their practice as they may feel intimidated by the skills required to understand or integrate research into their practice. For example, some occupational therapists may lack the technical skills to use research databases or to understand a research study. This perception of professional competence was found to be a factor in a Swedish study (Fange & Ivanoff, 2009). The authors reported that when therapists had a perception of themselves as having the necessary competencies for accessing research, then they were more likely to participate and integrate research into their practice.

The clinical reasoning process may be another element influencing the value of research in the occupational therapist's practice. The occupational therapists in this study generally described this process as based on the everyday experiences of their client's lives. For the majority of the participants in the study, their clinical reasoning was largely based on feedback from their clients and colleagues coupled with their own clinical experience. Notably, the participants did not always emphasize the value of research in their day-to-day decision making, clinical reasoning process. Their clinical reasoning was largely tacit, but on occasion might involve referring to research. Research also had more value for the participants at the beginning of their career as occupational therapists. These differences in the clinical reasoning of the participants may be related to factors such as age, education (Bachelors or Masters in OT) and their area of practice. The occupational therapist's clinical reasoning process generally reflected the traditional approach to occupational therapy clinical reasoning originally described by Mattingly and

Fleming (1994) in which the process is tacit and based on the therapist's experiences and client's presenting problems. Notably, informing clinical reasoning was not a value of research described by the participants in the study except for generally at the beginning of their career.

The participants' access to resources, experience with research and clinical reasoning process are all possible elements which may contribute to the formation of groups, such as those who value research and those who find little or no value in research. These groups may experience disparities or differences. These disparities or differences between the groups may lead to gaps between these groups. These gaps and disparities may contribute to cultural divisions. This cultural divide between those who value research in their practice and those who do not find a value could be a factor having an influence on the overall value of research within the profession of occupational therapy.

These cultural divisions and underlying issues have the potential to contribute to a power imbalance. For example, a number of the participants in the study had limited access to resources, particularly for funding such as the ability to attend continuing education programs. Ultimately, this power is not held by occupational therapists, but rather by program managers or administrators from other professions. Another potential source for a power imbalance lies in the fact that the movement to integrate research into occupational therapy practice has been promoted by individuals who are leaders of organizations or in academic positions. These individuals are not on the frontlines of practice and may lack credibility for clinicians. Although this potential power imbalance was not explored in the study, it is a factor that may influence the value of research.

Communities of practice which combine clinicians with researchers to examine topics of mutual interest are recognized as a solution to bridge these two communities (Li et al., 2009).

The diffusion of innovations theory may advance our understanding of the adoption of the innovation of research. The responses of the participants in the study suggest that a number of elements may limit the relative advantage of research. For example, without the necessary resources or experiences there is the potential to have gaps between groups. These gaps can lead to fragmentation or a disconnect with these groups. As well, the clinical reasoning process of many of the participants may also be an element influencing the relative advantage of research as the blending of the traditional method of clinical reasoning with research can present challenges. The result of a lack of resources or experience is that the relative advantage of the innovation of research becomes weakened, severed or thwarted. There were elements in the environment that contributed to a positive value for research. For example, participants in the study discussed a variety of early experiences of research which were very positive and fostered an interest in integrating research into their practice.

The profession of occupational therapy does not exist in a vacuum. These elements discussed by the participants as influencing their perceptions of the value of research may also be influenced by a number of different factors such as the 100 years of history of the profession in Canada as well as to the present day health care environment of limited resources coupled with increased demands.

The roots of occupational therapy are grounded in a holistic approach to treatment for individuals; the needs of the body, mind and spirit are all considered to be important to address for healing to take place (Friedland, 2003). The roots of the profession "lie deep in the soil of political, social, and artistic ideals prominent at the turn of the 20th century" (Friedland, 2003, p. 211). These ideals focused on the moral imperative to provide treatment to people with many different types of conditions. Over the years the profession has become more aligned with medicine and practices within occupational therapy have changed. However, the importance of client-centred practice is central to Canadian occupational therapy practice and the needs of the individual client remain paramount to the profession. For some occupational therapists, the transition to evidence-based practice may be viewed as counter-cultural in relation to the roots of the profession.

Limitations

A limitation of this study is that the participants were representative of one group of occupational therapists who are potential users of research. The 10 occupational therapists who participated in the study worked primarily in three areas of the hospital, which limited the range of possible responses. All of the participants were volunteers and had a strong interest in the topic, which may have introduced a bias and would limit the number of contrary views. All of the participants were female. As the study utilized a convenience sample, it did not include a range of thoughts or therapists who work in different environments such as academia, private practice or living in a rural area.

Also, because the site is a large facility that is more supportive of research uptake than smaller health care centres in Winnipeg, the facility is not representative of the

majority of centres where occupational therapists work. The use of one location as the source of the sample may have minimized some of the effects of the organization on the study. However, the participant's practice areas had different management structures, such as program management. These different management structures may influence the occupational therapist's perceived value of research.

Future Areas of Research

Other research questions have arisen while in the process of completing this study. These research questions may be of interest to individuals such as researchers, managers or clinicians. For example, the incorporation of research is not explicitly described as part of the practice process in occupational therapy practice models such as the Occupational Performance Process Model (Fearing, Law, & Clark, 1997). If practice models incorporate research, there may be a greater integration of research into occupational therapy. Other areas that would be of interest to explore in relation to this topic would be an occupational therapist's clinical reasoning in regards to research. Occupational therapists described a cultural divide within the occupational therapy culture and between the therapist and the researcher cultures. This is an area of research that would be worthwhile to pursue in further studies. Programs which incorporate communities of practice may be helpful in this area as they provide an opportunity for people with varying degrees of expertise to share knowledge (Li et al., 2009). Bridging this cultural divide may provide an important building block to integrating research into practice.

Conclusion

Although the incorporation of health care research into practice has been embraced by the profession of occupational therapy, research has indicated that in reality this goal has been difficult to achieve. This study which examined the perceptions' of the value of research for 10 occupational therapists' working in a large, urban health care centre in Winnipeg, Manitoba found that research may have a number of different values. These values of research ranged from assisting with deciding on a course of treatment to changing how one thinks about a situation.

While discussing their perceptions' of the value of research, participants also noted a number of different elements which may have influenced these perceptions. Examining these elements may provide insights regarding the gap in the knowledge translation process. These elements include their experiences with research, available resources and clinical reasoning process. These elements are also largely invisible and situated both in the past and present events of the profession of occupational therapy. These elements may contribute to the relative advantage of research, which is a key factor in the adoption of an innovation. This in-depth, qualitative study of the perceived value of research can potentially assist with future intervention studies to change behaviours associated with research utilization and has the potential to facilitate the application of research in health care practice.

The results of the study are not to suggest that this somewhat complex system involving research uptake has failed; rather this transition to a practice where research is integrated into the decision making process continues to evolve. In time, it is likely that a

hybrid culture will emerge which incorporates the past, present and future approaches for occupational therapy practice.

References

Bannigan, K., & Moores, A. (2009). A model of professional thinking: Integrating reflective practice and evidence based practice. *Canadian Journal of Occupational Therapy, 76,* 342-350.

Bennett, S., Tooth, L., McKenna, K., Rodger, S., Strong, J., Ziviani, J. et al. (2003). Perceptions of evidence-based practice: A survey of Australian occupational therapists. *Australian Occupational Therapy Journal, 50*, 13-22.

Berwick, D. (2003). Disseminating innovations in health care. *Journal of the American Medical Association, 289*, 1969-1975.

Beyer, J.M. (1997). Research utilization? Bridging a cultural gap between communities. *Journal of Management Inquiry, 6*, 17-22.

Buxton, M., Hanney, S., & Jones, T. (2004). Estimating the economic value to societies of the impact of health research: A critical review. *Bulletin of the World Health Organization, 82*, 733-739.

Cameron, K., Ballantyne, S., Kulbitsky, A., Morgolis-Gal, M., Daugherty, T., & Ludwig, F. (2005). Utilization of evidence-based practice by registered occupational therapists. *Occupational Therapy International, 12*, 123-136. doi:10.1002/oti.1

Canadian Institute of Health Information. (2008). *Health care in Canada 2008*. Retrieved

    from http://secure.cihi.ca/cihiweb/dispPage.jsp?cw_page=media_23oct2008_e

Chapparo, C., & Ranko, J. (2008). Clinical reasoning in occupational therapy. In J. Higgs

    & M. Jones (Eds.). *Clinical reasoning for the health professional* (pp. 55-64).

    Boston, MA: Butterworth Heineman.

Creswell, J.W. (2003). *Research design: Qualitative, quantitative and mixed methods*

    approaches (2nd ed.). Thousand Oaks, CA: Sage.

Curtin M., & Jaramazovic E. (2001). Occupational therapist's views and perceptions of

    evidence-based practice. *British Journal of Occupational Therapy, 64,* 214-222.

Dickerson, A.E. (2006). Securing samples for effective research across research designs.

    In G. Kielhofner (Ed.), *Research in occupational therapy* (pp. 515-529).

    Philadelphia, PA: F.A. Davis.

Eccles, M., & Mittman, B. (2006). Welcome to Implementation Science. *Implementation*

    Science, 1, 1-3. doi:10.1186/1748-5908-1-1

Egan, M., Dubouloz, C.J., Rappolt, S., Polatajko H., von Zweck, C., King J., et al.

    (2004).

    Enhancing research use through online action research. *Canadian Journal of*

    Occupational   Therapy, *71*, 230-237.

Egan, M., Dubouloz, C. J., von Zweck, C., & Vallerand, J. (1998). The client-centred

evidence-based practice of occupational therapy. *Canadian Journal of Occupational

Therapy, 65*, 136-143.

Elwyn, G., Taubert, M., & Kowalczuk, J. (2007). Sticky knowledge: A possible model

for investigating implementation in health care contexts. *Implementation Science, 2*,

1-8. doi: 10.1186/1748-5908-2-44

Estabrooks, C., Derksen, L., Winther, C., Lavis, J., Scott, S., Wallin, L., et al. (2008). The

intellectual structure and substance of the knowledge utilization field: A longitudinal

author co-citation analysis, 1945-2004. *Implementation Science, 3*, 1-49.

doi:10.1186/1748-5908-3-49

Fange, A., & Ivanoff, S. (2009). Integrating research into practice: A challenge for local

authority occupational therapy. *Scandinavian Journal of Occupational Therapy, 16*,

40-48.

Farmer, T., Robinson, K., Elliott, S., & Eyles, J. (2006). Developing and implementing a

triangulation protocol for qualitative health research. *Qualitative Health Research,

16,* 377-394.

Fearing, V., Law, M., & Clark, J. (1997). An occupational performance process model:

Fostering client and therapist alliances. *Canadian Journal of Occupational Therapy,

64*, 7-15.

Freeman, A. C., & Sweeney, K. (2001). Why general practitioners do not implement evidence: Qualitative study. *British Medical Journal, 323*, 1-5.

Friedland, J. (2003). Why crafts? Influences on the development of occupational therapy in Canada from 1890 to 1930. *Canadian Journal of Occupational Therapy*, *70*, 204-212.

Gahnstrom-Strandqvist, K., Josephsson, S., Tham, K., & Borell, L. (2000). Actions of competence in occupational therapy practice. *Scandinavian Journal of Occupational Therapy, 7*, 15-25.

Gibson, D., Velde, B., Hoff, T., Kvashay, D., Manross, P. L., & Moreau, V. (2000). Clinical reasoning of a novice versus an experienced occupational therapist: A qualitative study. *Occupational Therapy in Health Care, 12*, 15-31.

Ginsburg, L., Lewis, S., Zackheim, L., & Casebeer, A. (2007). Revisiting interaction in knowledge translation. *Implementation Science, 2*, 1-11. doi: 10.1186/1748-5908-2-34

Greenhalgh, T., & Taylor, R. (1997). How to read a paper: Papers that go beyond numbers (qualitative research). *British Medical Journal, 315*, 740-743.

Gustaffson, L., & Yates, K. (2009). Are we applying interventions with research evidence when targeting secondary complications of the stroke-affected upper limb. *Australian Occupational Therapy Journal, 56,*428 - 436. doi:10.1111/j.1440-1630.2008.00757.x

Gutman, S. (2009). Why haven't we generated sufficient evidence: Part 1- Barriers to

    applied research. *American Journal of Occupational Therapy, 63,* 235-237.

Karlsson, U., & Jornquist, K. (2007). What do Swedish occupational therapists feel about

    research? A survey of perceptions, attitudes, intentions, and engagement.

    Scandinavian Journal of Occupational Therapy, 14, 221-229.

Kielhofner, G. (2005). Scholarship and practice: Bridging the divide. *American Journal*

    of Occupational Therapy, 59, 231-239.

Leicht, S.B., & Dickerson, A. (2001). Clinical reasoning. Looking back. *Occupational*

    Therapy in Health Care, 14, 105-130.

Li, C., Grimshaw, J., Nielsen, C., Judd, M., Coytes, P., & Graham, I. (2009). Use of

    communities of   practice in business and health care sectors: A systematic review.

    Implementation Science, *4,* 27. doi:10.1186/1748-5908-4-27.

Mattingly, C., & Fleming, (1994). *Clinical Reasoning Forms of Inquiry in a Therapeutic*

    Practice. Philadelphia, PA: F.A. Davis.

McCluskey, A., & Lovarini, M. (2005). Providing education on evidence-based practice

    improved knowledge but did not change behaviour: A before and after study. *BMC*

    Medical Education, 5, 1-12.

Miller, W.L., & Crabree, B.F. (1999). Primary care research: A multimethod typology

    and qualitative road map. In B. F. Crabtree & W. L. Miller (Eds.), *Doing qualitative*

    research (pp. 3-30). Newbury Park, CA: Sage.

Morse, J. (2008). Confusing categories and themes. *Qualitative Health Research, 18,* 727-728.

Newton, M., & Scott-Findlay, S. (2007). Taking stock of current societal, political and academic stakeholders in the Canadian healthcare knowledge translation agenda. *Implementation Science, 2*, 1- 6. doi:10.1186/1748-5908-2-32

Pravikoff, D., Tanner, A., & Pierce, S. (2005). Readiness of U.S. nurses for evidence-based practice. *American Journal of Nursing, 105*, 40-51.

Rice, P.L., & Ezzy, D. (1999). *Qualitative research methods: A health focus.* New York, NY: Oxford University Press.

Rogers, E.M. (2003). *Diffusion of innovations.* New York, NY: Free Press.

Sanson-Fisher, R. (2004). Diffusion of innovation theory for clinical change. *Medical Journal of Australia, 180*, 555-556.

Stevenson, K., Lewis, M., & Hay, E. (2004). Do physiotherapists' attitudes towards evidence-based practice change as a result of an evidence-based educational programme? *Journal of Evaluation in Clinical Practice, 10*, 207-217.

Sudsawad, P. (2005). A conceptual framework to increase usability of outcome research for evidence-based practice. *American Journal of Occupational Therapy, 59*, 351-358.

Sudsawad, P. (2006). Definition, evolution, and implementation of evidence-based

    practice in occupational therapy. In G. Kielhofner (Ed.), *Research in occupational*

    therapy: Methods of inquiry for enhancing practice (pp. 685-695). Philadelphia, PA:

    F.A. Davis.

Townsend, E., Egan, M., Law, M., Manojlovich, M., & Head, B. (2007). Escalating

    participation in scholarly practice for enabling occupation. In E. Townsend & H.

    Polatajko (Eds.), *Enabling Occupation 11* (pp. 277-293). Ottawa, Ont.: Canadian

    Association of Occupational Therapists.

Thesis Introduction

For over a decade, health care spending has outpaced inflation and population growth (Canadian Institute of Health Information [CIHI], 2008). Appropriate allocation of resources has become a growing issue in health care because people working on the frontlines of health care are grappling with how to provide quality care to burgeoning caseloads. As a component of the paradigm shift towards a knowledge economy, applying health care research to practice has been touted as an important tool to improve the ability to deliver quality care (Elwyn, Taubert, & Kowalczuk, 2007). However, in practice this paradigm shift to incorporate research findings into health care delivery continues to be difficult to achieve (Eccles & Mittman, 2006; Ginsburg, Lewis, Zackheim, & Casebeer, 2007).

Answers to why there is a low degree of integration of health care research into clinical practice continue to be elusive and need to be addressed. At the present time, health care research is a large investment of both public and private organizations (Haynes, 2002). If it is not possible to integrate research into clinical practice, allocation of resources for research could be directed towards areas of health care that have a more tangible benefit. These resources could be distributed to people who are not presently receiving the resources that they require to maximize their well-being. Health care research conducted in a rigorous, ethical and trustworthy fashion has limitless potential to improve the quality of health care and an individual's overall well being. Ultimately, if health care resources are allocated by sound procedures and provided to people who are most in need, then there is the potential for distributive justice to be achieved (Haynes, 2002).

The incorporation of research into clinical decision making was largely introduced with the launch of evidence-based practice in the early 1990's (Estabrooks et al., 2008). Although the meaning of evidence is simply an available body of facts (Pearsall, 1998), evidence-based practice implies the use of a variety of resources including health care research in the decision-making process. Evidence-based practice also includes the application of tacit knowledge, which may be developed from clinical experiences and observations. Research is a broad term and may reflect facts related to a number of different areas. The Canadian Institute of Health Research (CIHR, 2005) has categorized health research into the following themes: biomedical, clinical, health services and policy as well as population and public health research.

Making decisions incorporating research was quickly embraced by all health care professionals around the world, including the profession of occupational therapy (Egan, Dubouloz, von Zweck, & Vallerand, 1998; Sudsawad, 2006a). Challenges developed in the knowledge translation process as evidence-based practice began to be applied in various settings (Kielhofner, 2005; Polotajko, 2005). The main problems identified in the literature with incorporating evidence into practice include a lack of time and large workloads, as well as difficulty accessing and critiquing the literature (Bennett et al., 2003; Curtin & Jaramazovic, 2001; Sudsawad, 2005). Training programs to facilitate the knowledge translation process (Egan et al., 2004; Stevenson, Lewis, & Hay, 2004) have not explained the wide variability of the utilization of evidence in practice.

 In response to these challenges, the knowledge translation field evolved and gained prominence to help understand and resolve the problems encountered when incorporating evidence into practice. The government of Canada recognized the

importance of knowledge translation in 2000 with a mandate for CIHR to incorporate

knowledge translation initiatives into research funding priorities. In 2004, a five-year

plan was instituted by CIHR to make this initiative a reality (CIHR, 2004).

Although knowledge translation has been given prominence by professional

organizations, government, education and granting agencies, there continues to be a gap

in the knowledge translation process (Newton & Scott-Findlay, 2007). What we do know

is that health care professionals, including at times occupational therapists, often view

"clinical evidence as a square peg to fit in the round hole of the patient's life" (Freeman

& Sweeney, 2001, p. 1). There are logistical issues to the process, such as lack of time,

access and interpretation skills, but even once these concerns have been addressed

through educational initiatives, people do not routinely refer to research when they have a

clinical problem or utilize the research for ongoing professional development or simple

curiosity (McCluskey & Lovarini, 2005). What we do not know is why this problem

persists. Research is pointing towards individual attitudes towards research as a possible

explanation but this has not been fully explored in the literature (Pravikoff, Tanner, &

Pierce, 2005).

If one is to understand where the disconnect takes place for people to apply

research in their clinical practice, exploring the question of the value of research is

imperative. Gaining this insight has the potential to facilitate the application of research

in health care practice. The objective of this study was to gain a greater understanding of

the value of research to occupational therapists.

Research Objective

The objective of this study is to gain a greater understanding of occupational therapists' perceptions of the value of research. Only with a more in-depth, qualitative understanding of the perceived value of research can future intervention studies hope to have success in changing behaviours. Changing the behaviors associated with research utilization can potentially facilitate the application of research in health care practice.

Literature Review

The literature reviewed for this study primarily focuses on research related to the practice of utilizing evidence as part of the clinical decision making process, particularly in the field of occupational therapy. Because the use of this approach to practice often implies the use of research findings, this literature is relevant to the subject. Evidence-based medicine has been defined as "a set of tools and resources for finding and applying current best evidence from research for the care of the individual patients" (Haynes, 2002, p. 4). In regards to the profession of occupational therapy, evidence-based practice is viewed as being integral to all aspects of practice. The incorporation of evidence into clinical practice provides a strong foundation to ensure that clients are receiving the most up-to-date knowledge. Additional literature reviewed examines clinical reasoning related to evidence-based practice as well as literature on the value of research. The literature review concludes with a summary of the theoretical underpinning of the thesis.

Research Utilization

There have been three studies published in the past five years which specifically examined the use of research in practice by occupational therapists. In 2005, a group of researchers concluded in their survey of occupational therapists that only a minority of occupational therapists practicing in the United States utilized evidence in their clinical decisions (Cameron et al., 2005). Practitioners with more experience working as occupational therapists or more education referred to research less than those therapists who had only worked for a few years. The authors were not able to provide an explanation for these findings and suggested that a qualitative study would provide

greater insight. The authors suggest that part of the difficulty in utilizing evidence in practice may be related to a lack of skills for utilizing research (Cameron et al., 2005). They also suggest that given that more experienced occupational therapists are less reliant on research than novice therapists, clinical reasoning may be a factor to examine. Likely, clinical reasoning based on past experience is the process that more experienced occupational therapists utilize when making their clinical decisions as opposed to referring to research.

The problem of a lack of research related skills was addressed by an Australian study which provided occupational therapists training in utilizing research in practice. A before and after study was designed for 114 self-selected occupational therapists to provide skills training in utilizing published research (McCluskey & Lovarini, 2005). This multi-faceted intervention incorporated before and after education and support. Although the occupational therapists demonstrated increased knowledge following completion of the two day workshop, there were no changes in behaviour at the 8 month follow-up. This was measured by the frequency that the occupational therapists engaged in searching and appraisal activities. The authors also suggest that more research is needed to gain a better understanding of why this behavioural change did not occur.

A slightly different approach was taken in a study conducted in Australia which examined the topic of uptake of research evidence by 55 occupational therapists working in the area of stroke rehabilitation (Gustafsson & Yates, 2009). The study was in response to guidelines published in 2005 that summarized and critiqued current research regarding best practice in stroke rehabilitation. Following the occupational therapist's completion of a survey, the authors concluded that the evidence was not consistently applied to the

management of secondary complications of the arm affected by the stroke. Gustafsson and Yates were not able to explain this occurrence, but questioned whether it would be worthwhile in the future to delve into the clinical reasoning process utilized by the occupational therapists regarding their tendency to not incorporate evidence into their treatments.

A large scale survey (Pravikoff et al., 2005) which examined the readiness of United States nurses to utilize evidence-based practice found that in addition to the common problems encountered with utilizing evidence, the nurses did not find a value in research. The authors suggest that the fact that the nurses do not find value in research may explain their reluctance to engage in evidence-based practice and may be a large factor in determining their readiness to accept utilizing research in their practice. However, as with the previous three studies, this factor could not be fully explored due to the design of the research.

The interplay between clinical reasoning and the value of research as it influences the adoption of evidence into practice was examined in an ethnographic study completed in two health clinics in London, England (Gabbay & le May, 2004). The individuals employed in the health clinics included physicians, nurses, social workers and pharmacists. Following two years of observation of two health care teams, the researchers concluded that research was rarely accessed, but rather practitioners relied on what the authors referred to as "mindlines – collectively reinforced, internalized, tacit guidelines" (p. 1013). These "mindlines" were informed by brief reading and occasional consults with the research literature, but otherwise were primarily comprised of interactions with a variety of people including their clients and colleagues.

In seeking to understand the 'lost in translation' phenomena which occurs with the process of integrating evidence into practice, Gabbay and le May (2004) suggest that evidence-based health care is an over-rationalist model which is a very different method of clinical reasoning commonly used in health care which favours a more tacit approach (Gabbay & le May, 2004). This approach for decision making is understood or implied but not necessarily articulated. A tacit approach for decision making may be difficult to articulate and may be a factor of a number of different components such as clinical experience, education and client needs. However, this British research did not incorporate the views of occupational therapists regarding their clinical reasoning process and the interplay with evidence-based practice.

This more tacit method of clinical reasoning for health care professionals is also described in a study published in the British Medical Journal, where physicians describe the process of applying evidence as being complex, adaptive and fluid (Freeman & Sweeney, 2001). From this qualitative study, physicians report that when deciding on a treatment plan, often they were simultaneously evaluating the applicable research. The physicians were always considering the research on a particular course of treatment, but often found that it would not be applicable in individual situations.

A number of studies have looked at readership of journals which is another approach to examining the topic of research utilization (Burke et al., 2002; Jones et al., 2004; Philibert, Snyder, Judd, & Windsor, 2003). Burke et al. (2002) in their study of 1204 physiatrists (specialists in the field of physical medicine and rehabilitation) found that only the journals considered by the respondents to be important are read on a regular

basis. Although Burke et al. (2002) do not define what is meant by the word "important", it is reasonable to make the assumption that if people report that an article is important that this provides an indicator of value. Academic physiatrists read more than those working in private practice. Journals which are a member benefit, such as the American Journal of Physical Medicine and Rehabilitation, are read in greater depth. This study examined the depth of reading which may provide an indication of value. The findings of this study of physiatrists suggest that journal articles and abstracts are scanned for information and are not read in-depth.

Clinical Reasoning in Occupational Therapy

A tacit approach to clinical reasoning has also been described in the occupational therapy literature (Chapparo & Ranko, 2008; Leicht & Dickerson, 2001). Research has shown that for the more experienced occupational therapist, clinical reasoning becomes solidified with more years of practice and there is less reliance on using research as part of the clinical reasoning process (Gibson et al., 2000). Research completed in Sweden also raised another consideration. This phenomenological study of occupational therapy practice found that a sense of competence was derived from the relationship between the occupational therapist and the client (Gahnstrom-Strandqvist, Josephsson, Tham, & Borell, 2000). The occupational therapists in the study had 10 to 15 years of experience. For these therapists, the collaborative process was important to their sense of competence, rather than the application of the most recent research. Experienced occupational therapists in the study favoured a more tacit approach to clinical reasoning and in general found value in their work through their collaboration with clients.

This collaborative type of approach to practice has been a hallmark of occupational therapy practice and is described as client-centred practice in the occupational therapy literature (Egan et al., 1998). A framework that combines evidence-based practice with the more traditional approach to clinical reasoning has been proposed (Townsend, Egan, Law, Manojlovich, & Head, 2007). A recent article, also suggests combining reflective practice (a component of clinical reasoning) into evidence based practice (Bannigan & Moores, 2009). These proposed frameworks combining evidence-based practice with either clinical reasoning process or reflective practice utilized in occupational therapy have not been critically evaluated in the literature. As there have not been critical examinations of these frameworks in the literature, the question then arises as to whether combining clinical reasoning or reflective practice with evidence-based practice is a viable solution for practice issues. This question is difficult to answer without further research on the subject.

From the literature on evidence-based practice and clinical reasoning, there appears to be a difference in these approaches to clinical decision making. The clinical reasoning process for many occupational therapists is a tacit approach to clinical decision making which does not emphasize the use of research in the clinical decision making process. In comparison, evidence-based practice is a more linear and rational approach to clinical decision making and research is a key component. This difference in these two approaches to clinical decision making may in turn present as a conflict for health care professionals in terms of the values that guide their practice decisions.   This review of the clinical reasoning process as it relates to evidence-based practice in

occupational therapy provides important background for consideration of how research is valued.

Value of Research

A group of researchers propose three possible values of research (Ginsberg et al., 2007). These values proposed by Ginsberg et al., (2007) were first described by Weiss (1979) in her article entitled: The Many Meanings of Research Utilization. In this article, Weiss discussed how research may have a number of different applications, such as driving knowledge, problem solving, political or tactical solutions. These applications described by Weiss (1979) have been incorporated into the values described by Ginsberg et al. (2007).

The first value described by Ginsberg and colleagues is an instrumental application, which is similar to that proposed by evidence-based practice. That is, research is valued for its concrete application; to make a decision or change in clinical practice. The second area of value of research is conceptual; that is, research is valued for its ability to change the way an individual thinks about a problem. The third area of value suggested by the authors is symbolic. That is, research is valued for its symbolic value, to "legitimate and sustain predetermined positions" (Beyer, 1997, p. 17). For example, the research may have a political purpose such as to influence an organization or government to define or examine their funding priorities. "Research … becomes ammunition for the side that finds its conclusions congenial and supportive," states Weiss (1979, p. 429). Ginsberg et al. (2007) suggest that symbolic value is likely the most common value for research.

Other researchers analyze the potential value of research in economic terms (Buxton, Hanney, & Jones, 2004). One approach to this analysis is to ask the question from a counterfactual approach: what would be the result if the research had not been completed? The authors categorize the value of research according to the following four economic benefits: cost-saving to the health care system, healthier workforce benefiting the economy, commercial developments and intrinsic value to society. The economic value of the intrinsic value to society is based on research that examines fatality research. For example, research which results in decreases in morbidity through behavioural changes or treatments such as surgery provides an intrinsic value to society (Buxton et al., 2004).

These seven categorizations (Buxton et al., 2004; Ginsberg et al., 2007) of the potential values of research provide some insight into the subject of research utilization. These possible values may in turn provide practitioners with a relative advantage when considering applying a new innovation. The three values outlined by Ginsberg and colleagues (2007) have the potential to be the most applicable values to the individual practitioner in their clinical practice. The economic values outlined by Buxton and colleagues (2004) are more likely of relevance to the health care system. These values for research are distilled from previous research and have not been studied in a rigorous manner.

Theoretical Underpinning

Throughout discussions in the literature regarding the integration of a new clinical behaviour into practice, Rogers' diffusion of innovations theory has been well regarded

(Berwick, 2003; Sanson-Fisher, 2004). The diffusion of innovations theory was originally developed for the field of agriculture to explain how people would consider adopting a new behavior such as the use of a pesticide. Over the years, the theory has been adopted by a number of different fields, including business and health care, to provide a theoretical underpinning for understanding the adoption of a new innovation (Sanson-Fisher, 2004). For the subject of research utilization, the innovation would refer to the integration of research into practice, resulting in clinical change. Estabrooks and colleagues (2008) summarized the results of a bibliometric analysis on the subject of research utilization and concluded that Rogers' "theory has been the dominant and most consistently used theory since inception of diffusion research," (Estabrooks et al., 2008. p.12). Estabrooks et al. (2008) state that Rogers' diffusion of innovations theory is not necessarily the best theory but has had a large contribution to the field of knowledge translation.

In the theoretical framework diffusion of innovation, Rogers examines four components involved in change: the innovation to be adapted, how the innovation is communicated, the social context for the change to take place and the decision making process involved with the change (Sudsawad, 2006b). According to Rogers, the adoption of the innovation is influenced by five characteristics: relative advantage, compatibility, complexity, observability and trialability (Rogers, 2003).

The relative advantage of an innovation is whether an innovation will be superior to a previous idea. The compatibility of an innovation refers to how compatible an innovation is with the individual's values, prior experiences and their present needs. How difficult an innovation is to understand and apply will determine the complexity of an

innovation. Observability may be an important component of the innovation and is whether it is possible to observe the innovation. The final element, trialability, relates to whether it is possible to try out an innovation on an experimental basis (Sanson-Fisher, 2004; Sudsawad, 2006b).

The complexity and compatibility characteristics of the diffusion of innovations theory have been examined to some extent in the occupational therapy literature. For occupational therapists, the complexity characteristic of the innovation is a factor influencing adoption of the innovation as therapists find that research is often difficult to understand (Pain, Magill-Evans, Darrah, Hagler, & Warren, 2004; Philibert et al., 2003). The compatibility characteristic is also a factor for occupational therapists because the research may not be suitable for a particular client or intervention context. As well, the research may not be compatible with prior methods of clinical reasoning.

New ideas from research are often a source of innovation because these ideas may result in clinical change. The adoption of the innovation, which in this case is the adoption of research, can be hindered or facilitated by these five characteristics. This study regarding the value of research for occupational therapists examines one of these five areas identified by Rogers which can influence whether the innovation of research will be utilized: the relative advantage of the innovation. The relative advantage, that is, whether the innovation is better than the previous way of doing something, generally must be perceived as existing prior to an innovation being adopted. Therefore, the innovation must have a value to have a relative advantage. For example, an occupational therapist may perceive a relative advantage or value to research if the research has a direct application to an individual client. The relative advantage of an innovation is

considered one of the more important components of an innovation to examine when determining if an innovation will be adopted (Berwick, 2003).

Although people often report a positive value for research, this does not necessarily result in a relative advantage for their individual practice (Kielhofner, 2005). The knowledge translation process may then effectively become stalled; evidence-based practice will not be actualized and occupational therapists will rely on other methods of decision making such as clinical reasoning and/or reflecting on past experiences, to determine their approach to working with a client on their occupational performance issues. Interestingly, the relative advantage of an innovation has not been explored in the occupational therapy literature. The reason for the relative advantage not being explored in the occupational therapy literature may be that there is an assumption that people would naturally find some research to be useful and to be an advantageous approach over a prior approach (Sudsawad, 2005).

Rogers' diffusion of innovations theory provides a theoretical underpinning for the study, particularly in regards to the development of the interview guide and the analysis. Exploration of the value of research for occupational therapists may provide insight into the relative advantage of the innovation of research which may, in turn, be relevant for knowledge translation initiatives.

Summary

The concept of value may have different interpretations for each individual because it is a subjective determination of the worth, usefulness or importance of something such as research (Pearsall, 1998). This determination of value may be formed

by a number of different factors including education, experience or age. The people in

our environment such as our family, friends or colleagues may also influence our

determination of value. Whether we have a positive or negative value may guide us to

determine what we do and the preferences we make for courses of action.

The concept of value has been explored through a few studies and suggests that

this concept is important to consider for this topic. Ginsberg and colleagues (2007) stated

that information or research findings that are inconsistent with individual's values or

expectations have the tendency to be "challenged, questioned, and ultimately

disregarded" (p. 3). Studies of physicians have found that tacit reasoning is generally the

preferred approach to working through clinical problems rather than referring to the

literature (Gabbay & le May, 2004). A survey of clinical nurses in the United States

found that the lack of value for research was the number one reason nurses did not

incorporate research into their practice (Pravikoff et al., 2005). Three studies completed

with occupational therapists found that research did not have a particularly large role to

play in their daily clinical practice.

Rogers' diffusion of innovations theory has guided the development of this thesis

and provides a theoretical underpinning. As the relative advantage of an innovation is

considered the most important characteristic influencing the adoption of an innovation,

this will be the primary focus of the study. The diffusion of innovations theory also

provides credence to the importance of the value of research.

Although studies of research from frontline clinicians do not indicate a high value

for the application of research in their practice, the literature from other fields of study

suggests that there are a number of values for research to consider. These values of research may be instrumental, conceptual or symbolic. The value of research may also be viewed in economic terms. However, we have limited information regarding what the value of research may be for occupational therapists. Gaining an understanding of the potential value of research may shed light on the field of knowledge translation. Gaining an understanding of occupational therapists' perceptions of the value of research will likely be applicable to other health care professions. Ultimately, this information may contribute to providing the best quality of health care with available resources.

Methodology Supplement

Study Design

A qualitative, exploratory research style (Miller & Crabtree, 1999) was utilized for the study. According to Miller and Crabtree (1999) this type of scientific inquiry often referred to as exploratory research has three functions: identification, description and explanation-generation.   As in any type of exploration, there is the opportunity to learn more about the subject in an in-depth fashion. An exploratory approach is reasonable when there is little published research that explores this question in an in-depth fashion (Creswell, 2003). An exploratory approach provides an opportunity to obtain preliminary data to gain an understanding of the contextual factors surrounding the research question (Rice & Ezzy, 1999).

The second rational for this choice of design is because the other types of qualitative designs were not appropriate for this topic. These other types of research designs include ethnography, phenomenology or grounded theory.

A qualitative design was chosen to study this topic as there is little published research in the occupational therapy literature that incorporates this approach. A qualitative design may provide new insights into this topic.

Recruitment

The location for recruitment of the participants for the study was the occupational therapy department located at the Health Sciences Centre in Winnipeg, Manitoba. This centre is a tertiary care facility and provides health care services to residents of Manitoba,

northwestern Ontario and Nunavut. Occupational therapists at the Health Sciences

Centre work with adults and children in the areas of mental health or physical health.

At the time of the study, there were approximately 80 occupational therapists

working in the facility. This site was chosen due to the large variety of practice roles and

contexts that occupational therapists work in, for example as clinical leaders and frontline

clinicians. The choice of this site was purposive due to the site offering diverse practice

areas and occupational therapists. Utilizing one site for recruitment of participants may

have minimized the influence of the environment or organization on the results of the

study. Research has indicated that the type of organization where people work may be a

barrier or facilitator to research transfer (Dobbins, Rosenbaum, Plews, Law, & Fysh,

2007). The Health Sciences Centre encourages occupational therapists to utilize research

in their practice and provides reasonable access as well as peer support for the research

uptake process. These are some of the barriers identified in previous research which may

impede the uptake of research.

A recruitment letter was distributed by the department head of the occupational

therapy department to each occupational therapist working in the centre (see Appendix

A). The department head of the occupational therapy department only distributed the

letter and was therefore not in a power relationship with the potential participants.

In the letter, each therapist was provided with a brief introduction about the study

and background information on the principal investigator to provide additional context

for the research. Each letter contained a bookmark summarizing the purpose of the study

and contact information for the researcher.

Data Collection Procedures

The participants were asked to complete a brief questionnaire prior to the interview (see Appendix B). The questionnaire contained questions regarding basic demographic information such as age, education and position at Health Sciences Centre. The purpose of the questionnaire was to provide demographic information to describe the sample when reporting the results of the study.

An interview guide was developed (see Appendix C) and the questions focused on the value of research as well as the clinical reasoning process of the occupational therapists in the study. The interview questions were designed to capture domain areas related to the theory and literature review on the subject. These domain areas are included in the interview guide in Appendix C.

The questions were piloted with two occupational therapists prior to beginning the study. The interview guide, which included probes for the questions, assisted with providing structure to the interview process as well as encouragement to discuss the topic in an in-depth fashion. The questions in the interview guide were framed by the theoretical underpinning of the study, as well as the literature review.

Semi-structured, face-to-face interviews were completed with the participants. The interviews were held at the School of Medical Rehabilitation located at the Bannatyne Campus at the University of Manitoba or at a mutually agreeable location. The room was in an area that did not have any competing distractions or interruptions from the outside.

The interviews did not take place during work hours, but were scheduled to fit with the schedules of the participants to minimize disruption. Each interview was audio recorded to assist the interviewer as it allowed for less note taking during the interview; this facilitated the development of rapport with the participant as well as provided an accurate account of the interview. Notes were also taken regarding facial expressions and body language of the participant. The audio files were transcribed verbatim by the researcher. The transcriptions were generally completed after each interview except when the interviews had to be scheduled consecutively and there was not enough time to complete the transcription prior to doing the next interview.

Participants

Ten occupational therapists were recruited from a large occupational therapy department in Winnipeg, Manitoba. All of the occupational therapists who volunteered to participate in the study replied to the recruitment letter by e-mail.

The sample was one of convenience because the sample was easily accessible. The diversity of experience and education in the sample was not intentional, but rather occurred by chance as the sample was comprised of volunteers. However, the hope had been that this would occur given that the site contained a diverse group of occupational therapists working in different practice areas. As the sample was not random, it was a non-probability sample. A non-probability sample provides for the opportunity to include a range of participants, with the possibility of including key informants (Mays & Pope, 1995).

After the completion of 10 interviews, the decision was made to not continue to recruit more volunteers for the sample. The 10 interviews had provided very detailed and varied information on the subject. According to Rice and Ezzy (1999), "when the researcher is satisfied that the data are rich enough and cover enough of the dimensions they are interested in, then the sample is large enough" (p. 46). Two principles to guide decisions about qualitative sampling are appropriateness and adequacy (Dickerson, 2006). The respondents in the study were all very informed on the subject of research and had a wide variety of experiences. They offered a great deal of information. Their description of their thoughts on the value of research and how these perceptions were formed provided a rich description and towards the completion of the 10 interviews there was little new information coming forward indicating that saturation was taking place.

The sample was somewhat diverse (see Table 1 on page 58). However, it did not include any occupational therapists working with children or with rehabilitation inpatients (physical medicine). Occupational therapists with caseloads comprised of physical medicine inpatients worked in acute care. The sample did include a range of ages and years of practice. Most of the occupational therapists in the study obtained their education at the University of Manitoba for their entry to practice. More than half of the sample had a partial or full Masters level of education.

Table 1

Demographic characteristics of participants

Age		Years in OT		Education	
40 & over	4	15 & over	4	Entry level Bachelors in OT	4
30 to 39	4	5 to 15	3	Entry level Masters in OT	2
20 to 29	2	0 to 5	3	Bachelors in OT + Research Masters (Enrolled or in Process)	4

Entry to Practice School of Graduation		Practice Area	
University of Manitoba	7	Physical Medicine - Outpatients	4
Other University Programs	3	Physical Medicine - Inpatients	2
		Psychiatry - Inpatients	2
		Administration/Other	2

Ethical Considerations

The researcher insured that the research was completed in an ethical manner and the rights of the participants were not being violated. The research study was submitted to the Research Ethics Board of the University of Manitoba for approval and all of the participants were provided with a consent form to complete. The purpose of the study was explained verbally, as well as in written form (see Appendix D). All of this information was provided to the participants prior to beginning the interview.

Another important ethical consideration is that the research provides a benefit to the participants (Creswell, 2003). It is anticipated that occupational therapists will benefit from gaining more information regarding occupational therapists' perceptions on

the value of research. In turn, the results of this study may help to support the research uptake process.

A number of different approaches will be taken to insure that the participants will receive a report of the findings. The approaches for dissemination will include presentations, written reports and publication.

Data Analysis Procedures

The data were analyzed systematically through analysis of the content to identify themes (Morse, 2008). The researcher purchased a student version of NVivo, a software program for analyzing qualitative research. The use of a computer program allowed for an analysis on a broader basis. The interviews were then coded line by line. The statements within each section were compared with other statements under each theme. Comparisons were also made regarding the statements made by each person (Greenhalgh & Taylor, 1997).

As there was no predetermined codebook or template, the analysis style was that of the editing style described by Miller and Crabtree (1999). With this type of analytic style, the researcher searches for "meaningful segments, cutting and pasting, and rearranging until the reduced summary reveals the interpretive truth in the text" (p. 20). During the analysis, the researcher searched for themes that could be meaningful independently or when combined would relate to the purpose of the study. In the case of this research, the themes either provided a description of the occupational therapist's perceptions of the value of research or explanations for their perceptions of the value of research.

A list of potential themes was made during the transcription process. Following the transcription process, this list of eight themes was made: client-centred practice, clinical reasoning, experience with research, lack of relevant research, continuing education, context, value and cultural divide.

Sections of the data which corresponded to the themes were placed within the relevant section (Bowen, 2008; Greenhalgh & Taylor, 1997). After reviewing the eight themes, they were reorganized and/or consolidated. Value was renamed as the purpose of research. Experience with research remained as one theme. Lack of relevant research and continuing education became a new theme of resources to support research. Client-centred practice became part of the new theme of researcher and clinician culture. Context and cultural divide became integrated into the theme of researcher and clinician culture.

After the coding was completed, there were not that many comments on clinical reasoning and the decision was made that these comments would not be included in one of the four themes. These comments were discussed under the first theme of the purpose of research, but because the participants generally referred to their clinical reasoning as being a more tacit process and research not having a central role with their clinical reasoning, it was not included as part of the themes and sub-themes. Clinical reasoning is discussed in more detail in the discussion section to assist with understanding occupational therapists' perceptions of the value of research.

In summary, this funneling process of moving from the larger picture, refining to a smaller number of themes resulted in four themes: purpose of research, resources to support research, experience with research and clinician and researcher culture.

Audit Trail

According to Lysack, Luborsky and Dillaway (2006) an audit trail consists of different types of documentation. This documentation is maintained in a systematic fashion. The authors state that an audit trail is comprised of six components. The six components of the documentation includes the data that is generated, models and concepts descriptions underpinning the study, data collection and analysis explanations, details regarding technical aspects of the methods utilized in the study, personal notes and reflections as well as copies of the protocols utilized in the interviews and recruitment for data collection.

These six types of documentation comprising an audit trail were all utilized in this study. The data generated from the interviews were transcribed in a word-processing program and then transferred to NVivo for coding. The concepts for the study are contained in the literature review and theoretical underpinning section of the thesis. Regarding the procedures explanations, three of the transcribed interviews were provided to the researcher's advisor in conjunction with the initial coding of these interviews for review. Following the coding of the remainder of the interviews, the NVivo files of the eight themes were provided to the researcher's advisor. When these eight themes were regrouped into four themes, these files were also sent to the researcher's advisor for

review. Consensus was reached by the two researchers regarding the coding of the data and the themes generated from the coding.

Print outs were made throughout the coding process and reread throughout the analysis of the data by the primary researcher. A field book was kept to make personal reflections throughout the study. The interview guide can be found in the appendices of the thesis (page 121), as well as the consent form (page 118) and demographic survey (page 117).

Trustworthiness

Trustworthiness is an important concept in qualitative research and the purpose is to ascertain whether the findings are accurate from the standpoints of all of the research participants. A number of methods can be utilized to improve trustworthiness (Baxter & Eyles, 1997; Bowen, 2008; Bryman & Teevan, 2005; Creswell, 2003). The methods utilized in the study include confirmability, credibility and dependability.

Confirmability of the study was facilitated by the researcher maintaining a fieldbook throughout the process. This was helpful in guiding the researcher to reflect on her bias and on her interview technique as the interviews progressed.

Four methods were utilized to address the credibility of the study. The first method was source triangulation. This entailed utilizing a number of quotations from ten different respondents. The second method utilized to improve the credibility of the study was investigator triangulation with the addition of the researcher's advisor to review the analysis of the data (Farmer, Robinson, Elliott, & Eyles, 2006). The third method utilized to improve credibility was member checks. Participants were provided with the

opportunity to read a copy of the transcript to verify the accuracy of the interview. Seven

participants reviewed their interview and verified the accuracy of the interview. A few of

the participants recommended minor corrections to their transcribed interviews and these

corrections were completed by the primary researcher. The fourth method to address

credibility of the study was the use of rich, thick descriptions with the completion of

detailed notes and verbatim transcriptions.

Three methods were utilized to maximize the dependability of the study. The first

method was peer debriefing. The debriefing comprised of the researcher's advisor

reviewing the results of the interviews and questioning the researcher as required. The

second method was saturation. Saturation began to occur prior to completing the 10

interviews; that is many of the comments being made were similar. All of the 10

interviews were completed. The third method was prolonged engagement. This term

refers to the period of time that is spent collecting the data and is not time-based but data-

based (Lysack, Luborsky, & Dillaway, 2006).   The interviewer did not limit the length of

the interviews if they went longer than the allotted time which helped to facilitate the

collection of rich, detailed data. Although all of the interviews were completed either

before the occupational therapist began working or during their lunch hour, they often

stayed longer than the allotted one hour for the interview to continue discussing the topic.

Role of the Researcher

The researcher has both educational and professional experience with the subject

area. She began her career as an occupational therapist in 1979 working in a variety of

settings and positions. Her previous employment was working for five years as the editor

for the Canadian Journal of Occupational Therapy, a 64-page peer-reviewed journal

published five times a year by the Canadian Association of Occupational Therapists.

This was followed by two years as the editor of Occupational Therapy Now, a 32-page

practice magazine published six times a year by the Canadian Association of

Occupational Therapists. The researcher has maintained her professional occupational

therapy registration in the province and nationally. Her past and present experience as

well as a network of personal connections within the profession of occupational therapy

facilitated gaining access to participants for this study. While completing this research,

the researcher was employed as a research co-coordinator and as a freelance editor and

writer. The researcher has no employee or employer relations with the participants of the

study.

     The researcher is adequately trained for the role. Her first degree is in

occupational therapy. Subsequently, the researcher obtained a diploma in

communications, which involved training in journalism. This education further refined

her interviewing skills. The researcher has completed the course work for the Master of

Science (Rehabilitation) degree. This education has provided grounding in research

methods such as skills related to accessing and interpreting research information, as well

as an in-depth exploration of the literature on research utilization.

     This combination of the researcher's education and experience has contributed to

a perspective grounded in both the profession of occupational therapy and publications.

Throughout her career, the researcher has been interested in the application of research to

practice as well as the dissemination of research. Both of these areas of interest have

informed this study and motivated the researcher to learn more about the topic. This dual

perspective of the researcher may have also assisted in facilitating rapport with the participants.

The researcher recognizes that she has a strong bias towards the research study as she has always been a strong advocate for the use of research in occupational therapy practice. Efforts were made to minimize this bias through the use of field notes throughout the process, as well as a reflective journal and discussions with the researcher's advisor. This provided a series of checks and balances during the research process and insured a method to maintain quality assurance. The researcher endeavored to maintain a neutral relationship at all times during the research process.

Limitations

A limitation of this study is that the participants were representative of one group of occupational therapists who are potential users of research. The 10 occupational therapists who participated in the study worked primarily in three areas of the hospital, which limited the range of possible responses. All of the participants were volunteers with a strong interest in the topic and as a result a bias may have been introduced. All of the participants were female. As the study utilized a convenience sample, it did not include a number of other therapists who may have differing perceptions of the value of research and work in different environments such as academia, private practice or living in a rural area. Also, because the site is a large facility that is more supportive of research uptake than smaller health care centers in Winnipeg, the facility is not representative of the majority of centers where occupational therapists work. The use of one location as the source of the sample may have minimized some of the effects of the organization on

the study. However, the participants' practice areas did have different management

structures, such as program management or occupational therapy departmental

management. If an occupational therapists is working in a progam management system

then the likelihood is that the therapist will be supervised by someone who is not an

occupational therapist or has a rehabilitation background. If the occupational therapist is

working under the auspices of the occupational therapy department then the therapist will

be supervised by an occupational therapist. As the sample is from one location which

may be perceived by occupational therapists working in other settings as being resource

rich, the results may not necessarily resonate with the larger occupational therapy

population.

The majority of the research was completed by a novice researcher, with

continuous supervision by the researcher's advisor. Although the researcher had

experience with interviewing, this was in different situations other than research. The

researcher's formal interview training was for journalism and there was not training or

direct supervision for the interviews completed for this research study. As well, since the

researcher did the transcribing and a few of the interviews had to be scheduled within a

few days of each other due to the availability of the occupational therapists, it was not

always possible to complete the transcription of the interview prior to beginning the next

interview. There might have been further refinement of the interview questions if the

transcription had been completed prior to beginning each interview as originally planned.

When the researcher did complete the transcription process after each interview,

this gave the researcher the opportunity to pick up on common problems with the

interview, which was primarily losing control of the interview from time to time (Britten, 1996).

This is the first complete qualitative research project that the researcher had completed and as a result there were likely aspects of the research project that could have been done differently with greater experience. However, it is possible that this lack of experience assisted with gaining rapport with the individuals that volunteered to be interviewed.

There are a number of limitations to qualitative interviewing (Lysack et al., 2006). The interview guide contained mostly open-ended questions, with the occasional fixed-response question. Lysack et al. (2006) state that there are three limitations of fixed-response questions: not always clear if the respondent understood the question as intended, may limit the provision of relevant information and the answers may by modified by a bias of the respondents to be socially desirable. Open-ended questions have the additional limitations of being time consuming, are difficult to compare to other groups and without a skilled interviewer may be difficult to keep people on the subject (Lysack et al., 2006). As well, participants may prefer to not divulge information of a personal or provocative nature (Lysack et al., 2006).

The researcher utilized the NVivo program for the data analysis. Rice and Ezzy (1999) point out that computer programs tend "to disembody interviews even further than physical transcripts" (p. 204). It is difficult to determine whether this separation of the words from the overall text did indeed take place while the researcher was going through the analysis process. The researcher spent a great deal of face-to-face time in

conversation with the researcher's advisor which greatly assisted with iterative process of

moving back and forth between the smaller and larger analytical process with the data.

Also, the coding took place over a 2-month period while the analysis continued

throughout the period of writing the thesis. The expectation is that given the time and

continuous revisiting of the analysis of the data, that this was done in a thorough,

integrated way and minimized this potential limitation.

Results Supplement

Four themes were identified from the interviews regarding occupational therapists' perceptions of the value of research: purpose of research, resources to support research and clinician, experience with research and clinician and researcher culture.

Two conceptual guides were created to provide visual representations of the four themes. The conceptual guides can be found on page 71 and 72. The first conceptual guide on page 71 represents the first theme of the purpose of research. This guide is comprised of three sizes of circles. The largest circle represents the purpose of research. The next smaller size of the circles represents the sub-themes: practice with clients, underpin the profession, link to team members and economic justification. The smallest circles are the related concepts contained within the two sub-themes: practice with clients and to underpin the profession. The theme of the purpose of research is the only theme comprised of three sizes of circles. Therefore, this type of conceptual guide was not created for the other three themes. The other three themes are at the same hierarchal level as the purpose of research theme.

The second conceptual guide on page 72 represents all of the four themes: purpose of research, resources to support research, experience with research and clinician and researcher culture. The purpose of research is a slightly larger circle than the other three themes and is placed in front of the other three themes. The purpose of this design is to demonstrate that the purpose of research is the main theme relating to occupational therapists' perception of the value of research and the other three themes are related to the factors associated with the purpose of research. A different colour was utilized for

each of these four themes so that they are easily differentiated. The sub-themes related to each of the themes are in a lighter shade of the same colour.

The idea for this conceptual guide was taken from another guide found on the Open Knowledge Foundation website. The position of the circles is meant to demonstrate the interactive aspect of the themes. Patton (2002) discussed the rational for visually representing information, for example in a matrix, to demonstrate "linkages, patterns, themes, experiences, content…to understand the relationships between processes and outcomes" (p. 474). The aspect between processes and outcomes will be explored in more detail in the discussion section of the thesis.

The design for this conceptual guide was chosen as the circles do not appear as static as boxes or a table. The circles demonstrate the interconnections between the themes and that this is not a linear, sequential topic.

Figure One

Conceptual Guide: Theme Number 1 – Purpose of Research
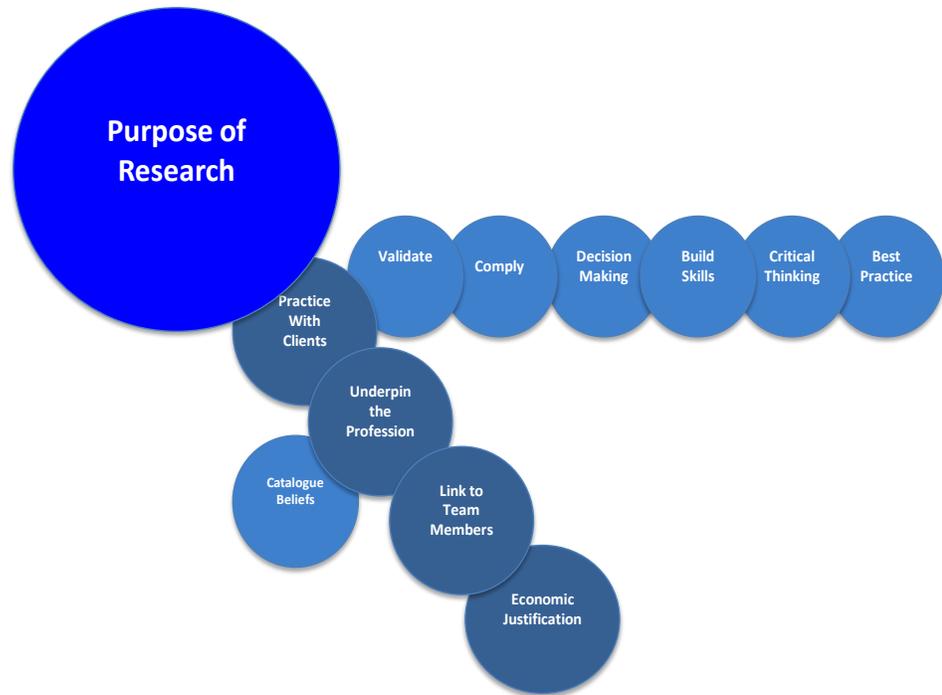
Figure Two

Conceptual Guide: Perceived Value of Research by Occupational Therapists
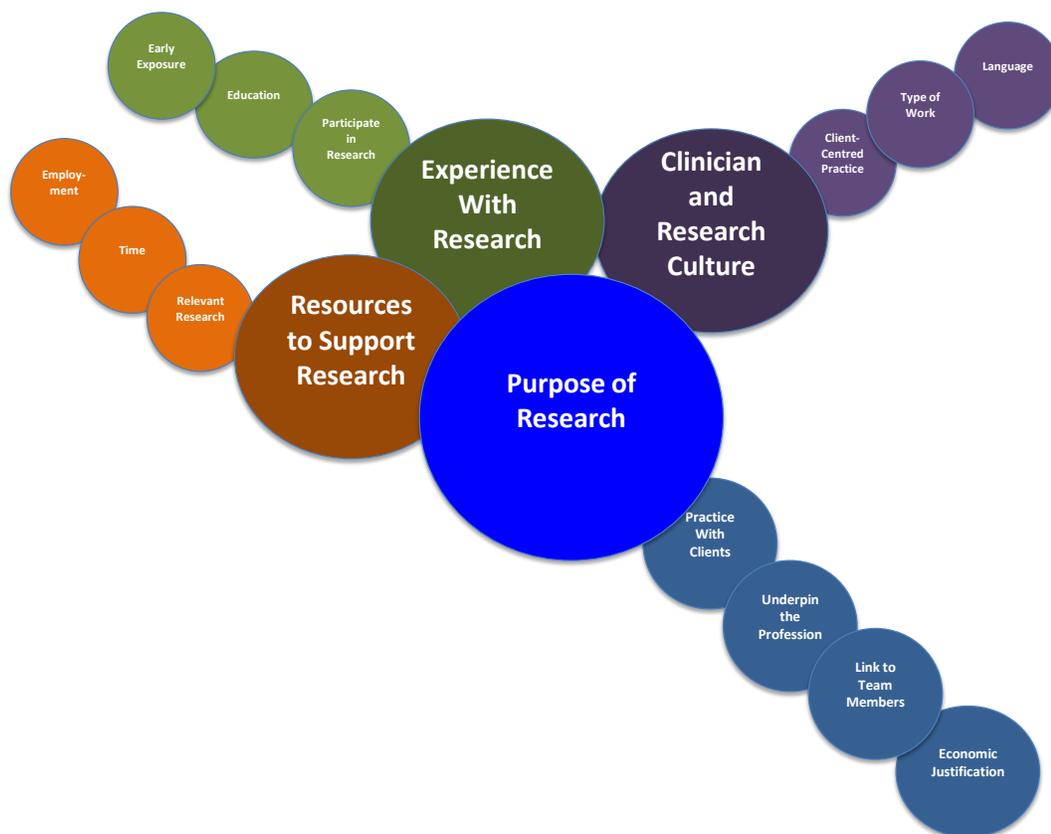
Theme #1 – Purpose of Research

Participants found that research had four main purposes. The first purpose of research related to their practice with clients. This purpose had a number of components. Many participants found that research provided an objective method to validate a treatment for a client or for a service need. One participant described this situation as follows:

> Sometimes you have clients who just seem to need information. They want all the objective pieces and I'll say you know I've read some articles and this is supported in that as well. I'm sure I identify articles and validate what I do clinically.

Another participant found research also helped with clients complying with their treatment:

> For the most part when I read something in a journal, it doesn't drastically change my practice but it just helps to solidify what we are doing, what we are doing is correct. I use research a lot when I am explaining things to my clients – I especially find I am more confident when I try to explain what I am doing and then I get more compliance.

Research was also helpful to make decisions, build skills and critical thinking, as well as to establish best practice. One participant said: "I think it should be guiding our clinical practice. I think when we're doing things it should be based on a little bit of objective research so that we're not just doing, you know, I feel like doing this today". Another participant added:

> It has given me sort of like a backbone to build off of. So that I know that what I'm doing I can feel a little more confident and that some of the activities and interventions that I'm choosing to do are based not only because I think they are good to do that there are other people but that are doing them and its working well.

Research also had a purpose to support decisions that had already been made. For

example, one participant recounted this situation where this occurred:

> There are pockets of research that are helpful and they run a wide gamut in terms
> of how useful it is. I remember that recently we had to do a justification for our
> cognitive assessments. With the research I was able to justify the use of the
> assessment tool.

> Another participant added the following comment on the value of research as it

relates to the overall practice of occupational therapy:

> To further inform on a topic, to assist with decision making whether it is a clinical
> decision or administrative decision. To provide a foundation of knowledge,
> clinical knowledge, research knowledge at any level. It could be about occupation,
> performance components, administrative, could be at any level.

> This purpose of research varied with each participant. For example, a participant

with more years working as an occupational therapist found that the knowledge gained

from her years of practice was more useful to her in her practice than research. A more

recent graduate stated that research was imperative to her practice: "I think that it is not

possible for us as OT's to do our job without knowing why we are doing it and if what

we are doing is making an impact."

Another participant added the following comment on the purpose of research and

differentiated between the different types of research:

> There is big "R" research and little "R" research. The big "R" research is a very
> formalized research process looking at a formal question, through formal
> processes, going through an ethics process, developing tools and measures and
> going for publication and wide dissemination. And then I would say that there is
> small "R" research looking at a smaller problem or quandary question that you
> have and doing all that you can to investigate and come up with a solution based
> on that you have investigated the topic fully.

The second purpose of research mentioned by the participants was to provide a link to their team members. This was accomplished through the sharing of relevant research. One participant said described the effect of research on teams as follows:

> It gives us the ability to talk and communicate with others. Gives you an understanding to talk to others and alter your status on the team. If they see that you have that skill they look at you different, you are forward thinking and thinking critically. Therapists who are engaged in research enjoy a different status on their teams.

Another participant added the following comment regarding how research affects relationships with team members: "Doctors look at therapists differently. They have more in common. The OT research methods are the same so they have a common language to work with."

The third purpose of research identified by a few participants was to provide an underpinning for the profession. For example, some participants discussed the ethical dimension to research. One participant described the ethical value as follows:

> It is unethical for us to continue to do our interventions over and over again if we do not have ways to support what we are doing empirically. Whether we are using quantitative or qualitative data, it doesn't mater. But how is it ethical for me to say that X is going to make a difference when I really don't know.

Another participant stated that research has the potential to be "cataloguing the beliefs" shaping the profession. The participant added the following comment:

> Research captures how we think and how we feel and how we're moving in some way. And it is a political and social commentary. I think research has its own dimension and it's what makes what we do so much greater than ourselves. Research speaks to the human condition.

The fourth purpose of research identified by the participants was to provide an economic justification for occupational therapy services due to cuts in health care funding

and the elimination of occupational therapy positions. One participant said: "People are worried that their job may be eliminated because there is no evidence to support it and that what they are doing makes a difference. Fear is a factor." As well, the question was raised as to whether occupational therapy is cost-effective. "If you do not have the research that what you do is effective or cost effective then we could be in real trouble," said one participant. Another participant described this value as follows:

> I really believe that there is a monetary purpose. In health care right now you need to be able to justify what you do and in the past years there have been lots of health care cuts and positions being lost. We need specific sort of data to back what we are doing, that it's useful that it was helpful. Then I could ... if I had to get up in front of a group of people and they were saying why should we keep you here in this position versus eliminating my job, then I would have some really solid arguments. There was a sense when I first started that you could be doing something of no long term benefits for that client because you have nothing to base it on other than you say it seems to work when the client says I feel better when I do this.

Although the participants found that research could be of value to their clinical practice, this purpose was not explicitly mentioned when asked about their clinical reasoning process with clients. Participants in the study utilized a variety of clinical reasoning processes in their practice. For example, depending on the circumstances they would rely on previous experiences or refer to their colleagues. Their clinical reasoning was often guided by their clients.

Some of the participants found that a particular theory or model guided them in their clinical reasoning particularly at the beginning of their career. On occasion, other participants said they would refer to research to assist with their clinical reasoning. The clinical reasoning of the participants varied with the needs of their clients, time restraints, area of practice and experience. One participant highlighted the automatic, quick process

involved in her clinical reasoning when she said that in "one breath" she could think

through 10 things related to the client's situation and start the clinical reasoning process

for their intervention. Their clinical reasoning process for the participants was largely

tacit and based on their clients needs, rather than on research.

Theme #2 – Resources to Support Research

Participants identified three types of resources that supported research and

influenced the value they placed on research: employment resources, time resources and

relevant research resources. The availability of these resources was dependent on the area

in which they worked.

The employment resources identified by the participants to support research

included access to the following: clinical specialists, service leaders, mentors, groups

(i.e. clinical reasoning, research, journal clubs and special interest), technology,

continuing education and the library (accessed on-line or in person). One participant

commented on mentorship in the profession:

> There are not a lot of mentors in OT. No a lot of people stay in a field and become
> experts in the profession. I don't know where they go. Health Sciences Centre
> seems to be 30 and under for the large majority of OT's. Seems to be a lot of new
> grads. A revolving door. We ought to get somebody to stay around and kind of
> really specialize. Or able to really teach in that area.

Some of the participants worked in a program management system. The supports

available to them were partially dependant on the orientation of their supervisor. These

occupational therapists were not supervised by an occupational therapist. One participant

described the situation of working in a program managed system as follows:

> We have staff that are program managed and their supervisors have no understanding of professional development, professional responsibility, they just want people to get the job done. They are not caring how the job is done; they just want it done immediately.

Access to computers varied among the participants, with some therapists sharing one computer with a number of people while others had their own dedicated computer. At the time of the study, there was no funding for continuing education in the occupational therapy department, but there was some provision of time. The lack of funding limited participant's ability to go to a course or conference. One participant stated that "not providing money for clinical education comes down to not supporting research." Another participant described this situation as follows:

> There is no support to go to conferences – zero funding, not time off if the course is on a weekend, no travel time. That has slowly gotten worse. That has detracted from trying to improve your self. MSOT (Manitoba Society of Occupational Therapists) does not support that either. That is frustrating and it makes you more frustrated about the whole research aspect. There are people here who don't go on any courses. They won't go; they don't feel that they owe their job anything.

Another participant added the following comment regarding the effect of funding cuts for continuing education:

> But for national conferences and travel expenses that is a bit more challenging. The enthusiasm and motivation is there but there is no incentive. It is also disheartening to hear that other professions are getting the budget for it. So it makes you say how come we are not getting the funding.

Another participant described the impact of budget cuts as follows:

> This day and age people don't have a budget. Nobody goes to courses. Nobody's been to courses for years. We don't have courses in Winnipeg. Nobody's learning. The only way of learning anything new is reading. And there is such a pressure from team members. You need physicians to approve what it is you do and everything is evidence based…We have a new surgeon and he's like are you sure you need a splint on? He doesn't want to splint anything and he's asking what evidence do you have and you don't see a lot of evidence out there.

Access to various employment resources was linked to the time that participants had available after their provision of direct client care. The availability of time was highly variable for each service area and was dependent on staffing levels and caseload demands for the service. For example, participants who worked in mental health were able to participate in a number of different groups specific to their area of interest such as a mental health interest group or a clinical reasoning group. Also, each occupational therapist working in the area of mental health had a personal computer. Participants working with out-patients stated that their case-load had increased in recent years. "Now caseloads demand more of you and there are less of us," said one participant. A number of the participants who were involved in research projects were doing the majority of the work for their studies on their own time.

One participant described "a kind of disparity" due to the time factor involved in daily practice, particularly in very fast-paced environments such as in acute care. "There are days when I just have to get through my day and I don't want to think about research or theory," said one participant. Another participant described the time constraints as follows:

> Depends on how overwhelmed or underwhelmed you are feeling and whether you can go check out the research. There could be all of this great research out there but no one has gone to look at it or no one has bothered to point it out to you.

Participants had varied experiences regarding accessing relevant research for the area that they worked in. Organizations directly related to the area of occupational therapy practice were cited as useful resources for relevant research. The Arthritis Society and mental health groups such as the Canadian Mental Health Association are two examples of organizations where participants found applicable research for their area

of practice. Participants found more relevant research   located in the specific journals for

their service area, such as hand therapy as opposed to the occupational therapy journals.

"There are pockets of research that are helpful and they run a side gamut in terms of how

useful it is," said one participant. A number of participants stated that there was a lack of

relevant occupational therapy research to assist them with their daily practice or that

would be of interest to the teams that they work with. "There is not a lot of research in

some of the areas that are clinically relevant," said one participant but "there is the airy

fairy research in areas that people would never do or would never take on." One

participant discussed specific areas of occupational therapy where research is lacking. "It

happened with sensory integration. There was not much research then, but there is still no

evidence. Same with neuro-developmental training, tools use and something as simple as

configuring bathroom equipment – which we still don't know."

Another participant spoke about if the research was up to date and how this

related to other disciplines in the following comment:

> And I think a lot of what we do now is old. If you start researching there hasn't
> been anything recent. There isn't anything to back up what we do in the research
> right now and as I say there is a lot of research going on in the medical field and I
> think that there is a lot of support for that through huge amounts of
> pharmaceutical grants.

Another participant described her reaction to material she read in occupational

therapy journals as the following: "When I pick up OT journals and see a lot of stuff on

the OPM (Occupational Performance Model) and whatever it frustrates me… when you

are out there trying to keep your positions… and justify what you are doing they don't

want to hear about the OPM." Another participant described her experience looking for

research in a specific practice area as follows:

> They talk about it and then I think do I feel that way and then I think yes, like I have this problem ……. and do I find anything about that – no. This stuff in the journals is not helpful to me right now but I know in the big picture this is helpful to me in the big picture. But this person is sitting in front of me right now and what am I going to do?

Another participant described the situation in mental health as follows:

> We definitely need more research in mental health from the occupational therapy standpoint. There really isn't a lot available. There is certainly research being done but in comparison to other disciplines or practice areas, there is not a lot being done.

One participant said that funding difficulties for occupational therapy research was a possible factor limiting the provision of relevant research. For example, this participant found that a lot of the research in the area that she worked in was funded by drug companies. As a result, the research was more medically oriented and not relevant to her occupational therapy practice. One participant said that if you work in a specific area as opposed to a mixed caseload, it would be easier to obtain funding. One participant described this difference in obtaining funding as the "haves and have not's."

Providing relevant research may be influenced by a lack of understanding of occupational therapy by people working with a medical orientation. These individuals may be members of committees that review projects for a facility. One participant described this scenario in the hospital which resulted in roadblocks and projects being refused.

Theme #3 – Experience with Research

Participants in the study had a personal experience with research, often at the beginning of their career. For example, one participant described her early experience with research while studying to become an occupational therapist as follows:

> I have found that the first few years practicing, I was really honing in on my skills, transitioning from the theoretical knowledge to the practical. The last half of the last few years I have just become increasingly interested in the research component because that is something that I missed from school. I liked it in school, reading the literature and keeping up with the evidence. I could not really do that in the first few years. That is why I decided to go back to school because I really wanted to keep those skills up to date.

Another participant described her education in the Masters in Occupational

Therapy program in relation to her experience with research as follows:

> I don't know what the BSc program was like at all, but I do know that the MOT program was really focused on research. They really got it into your head. I don't know if you heard about the problem based learning. You had to do research twice a week. You met twice a week and after each meeting you had to research certain things. You had to do lit searches to find the evidence based info. It was definitely very encouraged in the MOT program. All of this research utilization, knowledge translation is really coming about now. I agree with it completely, but it's so funny how I don't do it myself.

Their experiences with research were often either from observing or participating in a

research study in their workplace. Another participant described her experience with

research as follows:

> I have always answered people's surveys, offered to help. I think if people have gone to the trouble to do them then I should try and participate. I was part of a research study shortly after I graduated and I thought that was a great experience and very interesting. It gave me a chance for reflection and think about things that on a daily basis we don't necessarily think about.

Some participants also found that they would seek out research to assist a client or

design a program.   Others found that attending a conference was another way they were

exposed to research or by joining a research interest group. Participants also asked

colleagues with specific expertise for information about research. A few of the

participants also had research experience from completing their own research projects or

from previous careers. The proximity of the occupational therapy department to an

occupational therapy education program and the availability of colleagues for

consultation were positive contributions to their overall experience with research.

Participants found that although they had positive experiences regarding research,

there were also inherent challenges to research. One participant found that it was difficult

to initiate a project, while another found the steps necessary to complete a project

cumbersome. As one participant said: "I have a small project on the go, but it is proving

somewhat of a challenge to balance my clinical case load." Another participant described

her experience with conducting research:

> Doing research is a stressful experience. It is one of those things they never run
> the way that it happens on your protocol. You send your protocol to ethics, but
> that is the tip of the iceberg. At HSC, recruitment is always an issue, clinical
> research is really challenging, get it back from ethics, resubmit, trying to get
> money really a challenge in frontline allied health research. Not just a lot of grants
> out there for us. COTF (Canadian Occupational Therapy Foundation) is really
> small and they are highly competitive because there is not that much. HSC does
> have a grant, but it does not fund a principal investigator.

Theme #4 – Clinician and Researcher Culture

Participants in the study spoke about the integral aspect of client-centred practice

to their clinical work as occupational therapists and that research may sometimes have a

place within that context. "I see a person with all kinds of things going on, cultural,

history, environmental. They are in the centre of this huge, complex mix of things…

research sometimes directs us in a very specific direction," said one participant.

Graduates who completed the Masters in Occupational Therapy had a strong

orientation towards research but this also presented a threat to some of their colleagues. "

For some people there was a great excitement …and others who found it threatening that

we were coming in with a whole different view of things and it was knowledge maybe

they didn't have," said one participant. Another difference between the two groups of

occupational therapists was regarding the use of computers. The more recent graduates

did not have any issues regarding the use of technology. One participant commented that

many of her older colleagues were not comfortable using a computer for tasks such as

literature searches. The participant said: "A lot of staff at the mid to end of their careers

don't know how to do a literature search. It is very intimidating. They don't even know

where to start when they go into the library."Regarding the use of computers, another

participant had the following comment:

> When they decided to go to information by email a few years ago that was a huge
> thing. Most of the people I work with didn't know how to use email. People
> forget. We don't use computers on a regular basis. We don't work on computers
> we work with people. We have two in the department. That is for the whole
> rehabilitation gym. And we still have people who have trouble logging on.

A number of participants in the study spoke about the difference between the

work of a clinician and a researcher. One participant said that there was a disconnect

between the two communities in regards to research and that people who do research

"have people who run everything for them." Another participant also commented on a

disconnect between researchers and clinicians:

> The research that is out there is the same authors, topic after topic and article after
> article and I think people start to disconnect with that when they see academics
> doing the research not being clinicians. They don't see them on the frontline, they
> don't see them as the people being involved in the trenches, and they see them as
> the people that are publishing stuff. So I think there is a bit of a disconnect
> between what they see as valuable and useful research and who it is that it is
> doing it.

Another participant expanded on the potential effect of a disconnect taking place between

frontline clinicians and the researcher. "It is not an integrity issue, but rather do you

really know what you are talking about, a credibility issue," the participant said.

Another participant added: "It would be nice if when people doing research at the U of M

talked to the clinicians."

Another participant described a situation where the occupational therapists were

asked to provide subjects for a study. The occupational therapists were not provided with

any information regarding the study other than they wanted to have subjects. The

participant described this situation as follows:

> They didn't really work with us at all as to why they were doing this. They just came in and said they would like us to provide them with this stuff period. They maybe got funding from wherever and they want to do something and they want us to provide the subjects but I don't see it solving anything clinically for us so then it makes you feel like not providing subjects because I don't feel involved in the project. Whereas when a project was done here and it was the therapists doing it and you feel more involved and feel like this may help us with the practice. I wonder if I want to subject my clients to that. After developing a rapport with them how can I try and sell them something I don't even believe in myself. If it's not comfortable it's just not going to happen.

Language is another area where the two cultures differ. Research articles are

written in academic language, which is not always understood by clinicians. One

participant commented that some of the journal articles that she has read "are over my

head. Maybe language I don't use." Another participant said:

> Language is another problem with uptake. A lot of people I work with don't do [understand] research language and it is very frustrating for them. They don't understand the articles. They are written in academic language which is OK if you want academics to read them. You ask people to read something but then you don't write it in a language that they [can] understand.

Another participant commented on the language issue:

> The journal is the main means of communication. It is through the writing. Because the journal is hard to read or maybe not particularly interesting or

relevant or all of that but if you can't even get through reading it, it doesn't mater if it is relevant and interesting if the words are too esoteric it isn't user friendly.

One participant spoke about intimidation as a concern regarding research. "People

don't feel that they have the skills, or they are worthy or they have the education,

background to be involved… people get scared off, seems like a mountain to climb …"

Discussion

The objective of this study is to gain an understanding of occupational therapists' perceptions of the value of research. The 10 Canadian occupational therapists interviewed for this qualitative study described the value of research in their clinical practice and for the profession, as well as elements contributing to these perceptions.

Explanations for the research-practice gap in occupational therapy have generally focused on the perceived or experienced barriers to research utilization (Bannigan, 2007). Given that measures to address these barriers have met with limited success (McCluskey & Lovarini, 2005; Stevenson, Lewis, & Hay, 2004) and that occupational therapists experience difficulty translating evidence into action (Bannigan, 2007), this approach to understanding the topic of research utilization has been limited. This study utilized a different approach to gaining an understanding of this topic.

The diffusion of innovations theory (Rogers, 2003) was the theoretical underpinning for the study. Rogers suggests that one of the components influencing people to adopt a new innovation, such as the utilization of research in clinical practice, is that they perceive the innovation to have a relative advantage over the prior method. Exploring the relative advantage of the innovation of research was therefore a strong focus of the interview process. The diffusions of innovations theory guided the interview process and will be discussed in context of the results of the interviews. The diffusions of innovations theory is applicable to this discussion on an individual level and on an organizational level.

The participants in the study articulated a number of relative advantages for the innovation of research (see page 71 for the conceptual guide). The participants in this study also discussed elements which may have positively or negatively influenced whether an innovation has a relative advantage and may be adopted.

Participants in this study found that research could have a number of different values including instrumental, conceptual, symbolic (Ginsberg et al., 2007) or economic values (Buxton et al., 2004). The instrumental value of research was evident in the participant's responses in their interviews. These instrumental values included to inform their practice or to validate their interventions with a client. This was an important value for the participants. The conceptual value of research was evident particularly with newer graduates who noted that the value of research could relate to a change in the way one thinks about a problem or they might refer to research to guide their clinical practice.

Symbolic values for research were less evident in the responses by the participants in the study. For example, the symbolic value of research was evident when a participant discussed the change in the status of an occupational therapist when that individual became more involved in research. The status of the occupational therapist improved after they had participated in a research study as their involvement provided a means to legitimize their role and be viewed as an equal member on the team. The symbolic value of research was also mentioned when research was utilized to support a clinical decision that had already been made.

Bannigan (2007) discusses the instrumental, conceptual and symbolic types of research utilization as they apply to occupational therapy. As there is limited strong

research available for many clinical questions, Bannigan (2007) is of the opinion that most occupational therapy research may have more value for conceptual applications and less tangible or instrumental applications. A few of the participants spoke about the conceptual value of research, but this was not as highly regarded a value as was the instrumental value or economic value. This may be a reflection of the areas of practice, years of working and present fiscal limitations of the participants.

A number of the participants said that research had the potential to provide economic justification for their service. They saw this value as being important given the present fiscal demands on the health care system and concerns over job security.

As the diffusions of innovations theory states that the relative advantage of an innovation is important to the overall adoption of an innovation, the fact that the participants articulated a number of perceived values for research is an important finding of the study as it provides support for the applicability of the theory on an individual level to this area of study in occupational therapy. On an individual level, the diffusion of innovations theory may inform our understanding of the adoption of the innovation of research as a result of the relative advantage that people find in the innovation of research.

The responses of the participants in the study suggest that the elements of resources, experience, culture and clinical reasoning may limit or enhance the relative advantage of the innovation of research. Three of the elements were from three of the themes: resources to support research, experience with research and clinician and researcher culture. The fourth element of clinical reasoning was discussed by the

participants. Clinical reasoning was discussed within the results section in the first theme of the purpose of research. As clinical reasoning likely impacts the other themes and the topic as a whole, it is integrated into the discussion.

In the conceptual guide on page 71 illustrating the relationship between the themes, the purpose of research is connected to the other three themes in the study: resources to support research, experience with research and clinician and research culture. These three themes are placed on top of the first theme of the purpose of research to demonstrate how these three themes may influence or are connected to the purpose of research.

With this conceptual guide of the four themes, clinical reasoning could not be included as it was not a theme or sub-theme. If the entire diffusion of innovations theory had been utilized to underpin this study, then clinical reasoning could have been applicable when examining the compatibility of the innovation. Compatibility is one of the five attributes of an innovation which may impact the adoption of an innovation. "Compatibility refers to the degree to which an innovation is perceived as being consistent with the existing values, needs and past experiences of potential adopters " (Dobbins, Ciliska, Cockerill, Barnsley, & DiCenso, 2002, p. 3).

These elements which the participants discussed during the interview as influencing the relative advantage of research contains other aspects of the diffusion of innovations theory. For example, when the participants discuss resources which support the value of research, this captures one aspect of the innovation which Rogers defines as the complexity of the innovation. This is evident when the participants expressed

difficulty in understanding research articles. Also, in the discussion of the differences between the clinician and researcher culture, this is reflective of the social context for change, one of the four components for change to take place identified by the diffusions of innovations theory (Rogers, 2003).

Participants noted that having resources to support research, whether through involvement in research studies or the application of research, directly influenced how much value research could have in their practice. For example some of the participants were fortunate to have a resource rich environment and could participate in research related activities, while others were constrained by limitations of time or funding and were not afforded this opportunity.   Experienced occupational therapists in the study commented on the lack of availability of more experienced therapists available as mentors which may share research knowledge. The participants also mentioned the difficulty they encountered to attend continuing education events due to funding limitations. Attending continuing education events is another opportunity to connect with mentors. This lack of mentors in the profession is discussed by Schell and Boyt-Schell (2008), who state that this situation has developed in part due to the decreased access for professional interaction.

As well, depending on the area of practice, some therapists had access to relevant research while in other areas of occupational therapy, such as acute care, there was very little published relevant research. The occupational therapists working in inpatient psychiatry had less difficulty finding research to support their programs. The occupational therapists working in outpatient physical medicine or administration found that there were some questions they could find answers for in the published research but

this was for specific topics only. Limited resources and the disparities in access to resources influenced the perceived value of research as it was not always accessible or available. As noted by Gutman (2009), the number of effectiveness studies "has not increased to a level needed to support much of occupational therapy intervention in a variety of practice areas" (p. 235).

The relative advantage of research as an innovation can be undermined by a lack of resources. This may occur on an individual level, where an occupational therapist has no free time during their work day to look for research to assist with a clinical plan and is not able or willing to do this on her non-work time. The lack of resources can negatively influence the relative advantage of an innovation in a more complex, invisible way where gaps may be formed between groups who work in resource rich environments and others who do not. This phenomenon can contribute to a negative attitude and discourage a positive perspective on the value of research. The method of communication and decision making that can influence the adoption of an innovation are also two factors influencing the adoption of an innovation according to Rogers (2003).

An additional element which may have an influence on the perceptions' of the value of research is that the majority of the participants had an early experience with research in their career either as an occupational therapy student, as a clinician in their formative years or in a prior career before becoming an occupational therapist. In addition to these early experiences described by the majority of the participants, many of them had continued involvement in different aspects of research with their clinical practice or with continuing education. Possibly as a result of these early experiences in

the initial stages of their career, in a prior career or in their current practice, each of the participants articulated a value for research.

The perceptions of the value of research of these participants in the study may be different from the general occupational therapy population as the participants in the study are a more educated group. Six of the participants in the study either had an entry level Masters in occupational therapy. Two of the participants had a partial or completed research Masters degree. At the present time, most occupational therapists in practice have a Bachelors level of training. The entry level Masters in occupational therapy is a relatively new program and there are not that many occupational therapists who have completed or are enrolled in the Masters degree program.

Experience with research culture also appears to have influenced the participant's perception of research. The primary focus for the clinician is with their individual client, while the primary focus of the researcher is on the research project (Fange & Ivanoff, 2009). Participant's responses indicated that in their experience, the research and academic culture may be different from an occupational therapy clinician's culture. Participants noted that many occupational therapy researchers are not involved with direct clinical care and utilize language that is not always understood by the clinicians. This finding is consistent with a Swedish study (Karlsson & Jornquist, 2007) that found that occupational therapists reported that there was a "distance between research and clinical practice" (p. 226).

The difference in the cultures of a clinician and a researcher is an important finding of this study. This difference may contribute to an occupational therapist's

professional competence regarding their skills to integrate research into their practice as they may feel intimidated by the skills required to understand or integrate research into their practice. For example, some occupational therapists may lack the technical skills to use research databases or to understand a research study. This perception of professional competence was found to be a factor in a Swedish study (Fange & Ivanoff, 2009). The authors reported that when therapists had a perception of themselves as having the necessary competencies for accessing research, then they were more likely to participate and integrate research into their practice. This cultural component is also another factor in the diffusion of innovations theory that can influence the adoption of an innovation.

Although the 10 participants had a wide age range and years of practice in occupational therapy, the only area where this made a significant difference in the results of the study was in relation to their clinical reasoning process. Notably, informing clinical reasoning was not a value of research described by the participants in the study except generally at the beginning of their career.

The clinical reasoning process may be an element influencing the value of research in the occupational therapist's practice. The occupational therapists in this study generally described this process as based on the everyday experiences of their client's lives. For the majority of the participants in the study, their clinical reasoning was largely based on feedback from their clients and colleagues coupled with their own clinical experience. Notably, the participants did not always emphasize the value of research in their day-to-day decision making, clinical reasoning process. Their clinical reasoning was largely tacit, but on occasion might involve referring to research. Research also had more value for the participants at the beginning of their career as occupational

therapists. These differences in the clinical reasoning of the participants may be related to factors such as age, education (Bachelors or Masters in OT) and their area of practice. The occupational therapist's clinical reasoning process generally reflected the traditional approach to occupational therapy clinical reasoning originally described by Mattingly and Fleming (1994) in which the process is tacit and based on the therapist's experiences and client's presenting problems. Narrative reasoning (Fleming & Mattingly, 2008) with the focus on the client and their individual story is a key component of the occupational therapy process as this facilitates the collaborative process which is important for the client to be invested in the therapeutic approach.

The clinical reasoning process of many of the participants may be another element influencing the relative advantage of research as the blending of the traditional method of clinical reasoning with research can present challenges. Research may have more value with decision making at the novice stage of an occupational therapist's career, but as they move through the stages of advanced beginner, competent, proficient and expert, research will become less important in their clinical reasoning (Sinclair, 2007). This appeared to be the case with the participants in the study.

The occupational therapists in the study often had difficulty describing their method of clinical reasoning. As this was not the primary focus of the study, the clinical reasoning of the occupational therapists was not explored in-depth. It is possible that the occupational therapist's may sometimes utilize a type of reasoning described by Boyt Schell (2008) as pragmatic reasoning. This type of reasoning takes place when occupational therapists are dealing with the daily practical aspects of providing client care. For example, pragmatic reasoning could encompass aspects such as time

management, caseload prioritization, discharge planning and payment issues (Boyt Schell, 2008). Pragmatic reasoning also includes personal context such as attitudes and personal norms. Research does not have a role in pragmatic reasoning, except in regards to the therapy skills which is one of the many factors requiring pragmatic reasoning.

The utilization of research evidence in clinical practice requires the skills of a therapist who has reached the expert level of practice (Sinclair, 2007). "Clinicians must be judicious in selecting the best evidence" (Boyt Schell, Unsworth, & Schell, 2008). According to Sinclair (2007), this occurs after an occupational therapist has completed the prior stages of novice, advanced beginner, competent and proficient. This may provide some explanations as to why the occupational therapists in the study found that at times research was not always a component of their clinical reasoning process as they had not necessarily reached this level of advanced reasoning. The process of integrating evidence in practice is highlighted by Townsend, Egan, Law, Manojlovich and Head (2007) where they outline a six-step process to integrate evidence into practice. This process may assist with developing this advanced reasoning in the future.

The participants' access to resources, experience with research, experiences of researcher and clinician culture, as well as their clinical reasoning process are all possible elements which may contribute to the formation of groups, such as those who value research and those who find little or no value in research. These groups may experience disparities or differences. These disparities or differences between the groups may lead to gaps between these groups. These gaps and disparities may contribute to cultural divisions. This cultural divide between those who value research in their practice and

those who do not find a value could be a factor having an influence on the overall value of research within the profession of occupational therapy.

These cultural divisions and underlying issues have the potential to contribute to a power imbalance. For example, a number of the participants in the study had limited access to resources, particularly for funding such as the ability to attend continuing education programs. Ultimately, this power is not held by occupational therapists, but rather by program managers or administrators from other professions. Another potential source for a power imbalance lies in the fact that the movement to integrate research into occupational therapy practice has been promoted by individuals who are leaders of organizations or in academic positions. These individuals are not on the frontlines of practice and may lack credibility for clinicians. Although this potential power imbalance was not explored in the study, it is a factor that may influence the value of research. In this respect, the application of the diffusion of innovations theory moves from an individual level to an organizational level. In some cases the organization may be at the level of the employer, government or the profession.

These elements discussed by the participants as influencing their perceptions of the value of research are also linked to the 100 years of history of the profession as well as to the present day health care environment of limited resources and increased demands. The roots of occupational therapy are grounded in a holistic approach to treatment for individuals; the needs of the body, mind and spirit are all considered to be important to address for healing to take place (Friedland, 2003). The roots of the profession "lie deep in the soil of political, social, and artistic ideals prominent at the turn of the 20th century" (Friedland, 2003, p. 211). These ideals focused on the moral

imperative to provide treatment to people with many different types of conditions. Over the years the profession has become more aligned with medicine and practices within occupational therapy have changed. However, the importance of client-centred practice that is central to Canadian occupational therapy practice and the needs of the individual client remain paramount to the profession. For some occupational therapists, the transition to evidence-based practice may be viewed as counter-cultural in relation to the roots of the profession.

Hocking (2007) suggests that as occupational therapists may have lost sight of the original assumptions of occupational therapy over the years and that their beliefs about clients were relegated to more of an underground practice while at the same time maintaining a "façade of rational explanation to account for what they do, why they do it and what might be achieved…" (p. 36). This tension that exists within present occupational therapy practice as a result of those individuals in the profession who believe that there should be more of a return to the roots of the profession may not assist with research having a relative advantage for occupational therapists and could be reflected in the attitudes of occupational therapists towards research.

The challenge of the lack of resources for integrating research into their occupational therapy practice may contribute to larger issues evident in today's health care system. In a recent article in the Globe and Mail on health care (Howlett, 2010), the impact of cutting costs in health care is examined. The author suggests that the quest to control costs has resulted in a beleaguered work force as there has been extensive cost cutting measures. In Andre Picard's five-point plan article to improve health care (Picard, 2010), he discusses the problem of the delays to implement the most recent evidence-

based care and ultimately "efficiency, quality and safety are not what they should be." If occupational therapists were provided with the necessary monetary resources to improve their ability to integrate research into their clinical practice, then there could be savings to the health care system and improved delivery of service.

From the analysis of the participant's interviews, the elements influencing the relative advantage of research are unique to each individual and are a function of the area where they work, available resources, experience with research and approach to clinical reasoning. Many of these elements do not necessarily work in isolation of each other. As the conceptual guide on page 71 graphically illustrates, the elements may be connected to each other or overlap in some way. For example, a number of the participants stated that a lack of continuing education funds limited the value of research as they had fewer opportunities to be exposed to research. This occurrence was also often related to the area that they worked.

Bannigan (2007) states that it is important to understand occupational therapist's attitudes towards research utilization as "without a measure of attitude an individual may seem antithetic to the use of research-based knowledge when, in fact, they are not hostile but are experiencing other problems such as a lack of skills or the constraints of resources, culture or the nature of research" (p. 204).

Future Areas of Research

Other areas to study have arisen while in the process of completing this research. A number of these areas are relevant for researchers. For example, the applicability of the diffusion of innovations theory to the topic of research utilization with occupational therapists has not been explored. The incorporation of research into practice models such as the Occupational Performance Process Model (Fearing, Law, & Clark, 1997) might be another topic of interest to study. Exploring the relationship between research and clinical reasoning in greater depth has the potential to further our understanding of this topic. Given the limitations of the convenience sample in this study, duplicating this study with different locations, occupational therapists working in different settings, a larger sample, key informants or utilizing mixed methods would be useful to see if the results would differ. Finally, exploring the potential cultural divide within the profession of occupational therapy culture and also between the clinician and the researcher culture could be of value to enhance our understanding of the factors influencing the utilization of research.

Managers or clinicians may find that exploring the utilization of communities of practice may provide an alternative method for improving the uptake of research in clinical practice. Managers may also be interested in initiating and evaluating workplace changes to provide occupational therapists with more resources to incorporate research into their clinical decision making. Another potential topic of interest for research for clinicians, managers or researchers may be to explore initiatives that bridge cultural divides between different communities of occupational therapists as well as between clinicians and researchers.

Recommendations to Facilitate Research Utilization

A number of recommendations to facilitate research utilization and concomitantly the value of research can be derived from this study. The following four recommendations are based on the themes generated from the interviews with the occupational therapists.

The first recommendation is for educators and service managers to provide or facilitate opportunities for occupational therapists to have early experiences that involve different aspects of research. This recommendation also pertains to occupational therapists themselves who can optimize their participation by seeking and engaging in research opportunities.

The occupational therapists in the study spoke about the influence of their early experiences with research. Some of the therapists spoke about the positive influence that these experiences had throughout their career such as motivating them to be interested in research. These early experiences included participating in a research study, learning about research through their education, observing a research study and attending continuing education.

The second recommendation is for funders and funding agencies to improve access for occupational therapists for continuing education and research by providing financial support for these activities.

The participants spoke extensively about the importance of funding as a resource to support research. At the present time, there are limited funds available to clinicians to either learn about current research or conduct their own research studies. Clearly, if there

was greater access to funds, the therapists would be more involved with research whether as consumers or as participators. Due to the present fiscal constraints in the health care system, traditional funding options such as employers are limited or non-existent. Alternative funders, such as organizations or foundations may be possible sources of funding to encourage greater involvement in research utilization.

The third recommendation is for researchers to provide occupational therapists with relevant research for their clinical practice.

At the present time, the occupational therapists in the study find that the published research does not always provide support for their clinical practice or that the research is difficult to understand. Without relevant research to their practice areas, it is less likely that occupational therapists will find a value in research. Efforts to increase the amount of published research that is relevant to clinicians may facilitate research utilization. One way for this to take place would be if researchers consulted clinicians and/or clients regarding potential research topics. Research also needs to be understood by practioners. Another method to address this recommendation would be to provide published research in plain language format with links to the original published research though the Internet. This would provide evidence-based information that is free of jargon and difficult to understand.

The fourth recommendation is for researchers and managers to provide opportunities to bridge cultural divides between researchers and clinicians.

Participants in the study spoke about the differences in the cultures between the research community and the clinical community. The clinicians were primarily focused

on their clients while the researchers focus was on their research. Another source for this divide is that the two communities have different resources available to them for research endeavours and often the resources for clinicians are minimal. Bridging the divide between these two groups may assist with research utilization as the occupational therapists may view researchers in a more positive light which may in turn impact their view of the value of research. Bridging this cultural divide may be accomplished through informal and formal methods. Informal methods could include researchers and clinicians meeting to discuss their respective work in an informal setting. More formal methods could include initiatives such as communities of practice where people of different backgrounds come together to work on a shared interest, as well as greater availability of resources for clinicians.

Conclusion

When the profession began approximately100 years ago in Canada, occupational therapy focused on holism. Over the years, there was movement towards more of a reductionist approach to occupational therapy treatment (Friedland, 2003). Presently, there is a gradual movement back to a more holistic approach in some areas of occupational therapy practice. These changes in the orientation of the profession may be reflected in the value ascribed to research and the applicability of research to occupational therapy. The historical underpinnings of the profession may be another element informing the relative advantage of the innovation of research.

As the objective of this study is to gain a greater understanding of occupational therapists' perceptions of the value of research, the study contributes to the knowledge base of this topic in a few areas. The research examines the views of Canadian occupational therapists on their perceived value of research, utilizes a qualitative research methodology to explore the topic in detail and considers the application of the diffusion of innovations theory to this topic. This more in-depth, qualitative understanding of the perceived value of research can contribute to the development of future intervention studies to change behaviours regarding research utilization. Successfully changing behaviors associated with research utilization has the potential to facilitate the application of research in health care practice. Communities of practice may be worthwhile to study for the development of future knowledge translation activities as they provide an opportunity for people with varying degrees of expertise to share knowledge (Li et al., 2009; Schell & Boyt Schell, 2008). Communities of practice may assist with bridging the cultural divide between clinicians and researchers. Although this research focused on the

experiences of occupational therapists, the results have applicability to other health care

professionals who experience many similar challenges integrating research into their

clinical practice.

References

Bannigan, K. (2007). Making sense of research utilisation. In J. Creek & A. Lawson-Porter, *Contemporary issues in occupational therapy: Reasoning and reflection* (pp.189-216). Toronto, Ont.: Wiley & Sons.

Bannigan, K., & Moores, A. (2009). A model of professional thinking: Integrating reflective practice and evidence based practice. *Canadian Journal of Occupational Therapy, 76,* 342-350.

Barber, K. (Ed.) (2005). *Oxford Canadian dictionary of current English*. Toronto, Ont.: Oxford University Press.

Baxter, J., & Eyles, J. (1997). Evaluating qualitative research in social geography: Establishing 'rigour' in interview analysis. *Transaction of the Institute of British Geographers*, *22*(4)*,* 91-109.

Bennett, S., Tooth, L., McKenna, K., Rodger, S., Strong, J., Ziviani, J. et al. (2003). Perceptions of evidence-based practice: A survey of Australian occupational therapists. *Australian Occupational Therapy Journal, 50*, 13-22.

Berwick, D. (2003). Disseminating innovations in health care. *Journal of the American Medical Association, 289,* 1969-1975.

Beyer, J.M. (1997). Research utilization? Bridging a cultural gap between communities. *Journal of Management Inquiry, 6*, 17-22.

Bowen, G.A. (2008). Naturalistic inquiry and the saturation concept: A research note. *Qualitative Research, 8*, 137-152.

Boyt Schell, B.A. (2008). Pragmatic reasoning. In B. Boyt Schell & J. W. Schell, *Clinical and professional reasoning in occupational therapy* (pp. 169-187). Baltimore, MD: Lippincott Williams & Wilkins.

Boyt Schell, B., Unsworth, C.A., & Schell, J.W. (2008). Theory and practice: New directions for research in professional reasoning. In B. Boyt Schell & J. W. Schell, *Clinical and professional reasoning in occupational therapy* (pp. 401-432). Baltimore, MD: Lippincott Williams & Wilkins.

Britten, N. (1996). Qualitative interviews in medical research. In N. Mays & C. Pope (Eds.), *Qualitative research in health care* (pp. 28-35). London: BMJ.

Bryman, A., & Teevan, J. (2005). *Social Research Methods* (Canadian Edition). Toronto, Ont.: Oxford University Press.

Burke, D., Judelson, A., Schneider, J., Jeffrey, C., DeVito, M., & Latta, D. (2002). Reading   habits of practicing physiatrists. *American Journal of Physical Medicine and Rehabilitation*, *81*, 779-787.

Buxton, M., Hanney, S., & Jones, T. (2004). Estimating the economic value to societies of the impact of health research: A critical review. *Bulletin of the World Health Organization, 82*, 733-739.

Cameron, K., Ballantyne, S., Kulbitsky, A., Morgolis-Gal, M., Daugherty, T., & Ludwig, F. (2005). Utilization of evidence-based practice by registered occupational therapists. *Occupational Therapy International, 12*, 123-136. doi:10.1002/oti.1

Canadian Institute of Health Information. (2008). *Health care in Canada 2008*. Retrieved from http://secure.cihi.ca/cihiweb/dispPage.jsp?cw_page=media_23oct2008_e

Canadian Institute of Health Research. (2004). *Knowledge translation strategy 2004-2009.* Retrieved from http://www.cihr-irsc.gc.ca/e/26574.html

Canadian Institute of Health Research. (2005). *Developing a CIHR framework to measure the impact of health research - a synthesis report of meetings February 23, 24, and May 18, 2005.* Retrieved from, http://www.cihr-irsc.gc.ca/e/30251.html

Chapparo, C., & Ranko, J. (2008). Clinical reasoning in occupational therapy. In J.Higgs & M. Jones (Eds.), *Clinical Reasoning for the Health Professional* (pp.275-281). Boston, MA: Butterworth Heineman.

Creswell, J.W. (2003). *Research design: Qualitative, quantitative and mixed methods approaches* (2nd ed.). Thousand Oaks, CA: Sage.

Curtin, M., & Jaramazovic E. (2001). Occupational therapist's views and perceptions of evidence-based practice. *British Journal of Occupational Therapy, 64,* 214-222.

Dickerson, A.E. (2006). Securing samples for effective research across research designs. In G. Kielhofner (Ed.), *Research in occupational therapy* (pp. 515-529). Philadelphia, PA: F.A. Davis.

Dobbins, M., Ciliska, D., Cockerill, R., Barnsley, J., & DiCenso, A. (2002). A framework for the dissemination and utilization of research for health care policy and practice. *The Online Journal of Knowledge Synthesis for Nursing, 9,* Document 7.

Dobbins, M., Rosenbaum, P., Plews, N., Law, M., & Fysh, A. (2007). Information transfer: What do decision makers want and need from researchers? *Implementation Science, 2*, 1-12. doi**:** 10.1186/1748-5908-1-1

Eccles, M., & Mittman, B. (2006). Welcome to Implementation Science. *Implementation Science, 1*, 1-3. doi: 10.1186/1748-5908-1-1

Egan, M., Dubouloz, C.J., Rappolt S., Polatajko H., von Zweck, C., King J., et al. (2004). Enhancing research use through online action research. *Canadian Journal of Occupational Therapy*, *71*, 230-237.

Egan, M., Dubouloz, C. J., von Zweck, C., & Vallerand, J. (1998). The client-centred evidence-based practice of occupational therapy. *Canadian Journal of Occupational Therapy, 65*, 136-143.

Elwyn, G., Taubert, M., & Kowalczuk, J. (2007). Sticky knowledge: A possible model for investigating implementation in health care contexts. *Implementation Science, 2*, 1-8. doi:10.1186/1748-5908-2-44

Estabrooks, C., Derksen, L., Winther, C., Lavis, J., Scott, S., Wallin, L., et al. (2008). The intellectual structure and substance of the knowledge utilization field: A longitudinal

author co-citation analysis, 1945-2004. *Implementation Science, 3*, 1-49. doi:10.1186/1748-5908-3-49

Fange, A., & Ivanoff, S. (2009). Integrating research into practice: A challenge for local authority occupational therapy. *Scandinavian Journal of Occupational Therapy, 16*, 40-48.

Farmer, T., Robinson, K., Elliott, S., & Eyles, J. (2006). Developing and implementing a triangulation protocol for qualitative health research. *Qualitative Health Research, 16,* 377-394.

Fearing, V., Law, M., & Clark, J. (1997). An occupational performance process model: Fostering client and therapist alliances. *Canadian Journal of Occupational Therapy, 64*, 7-15.

Fleming, M., & Mattingly, C. (2008). Action and narrative: Two dynamics of clinical reasoning. In J. Higgs & M. Jones (Eds.), *Clinical Reasoning for the Health Professional* (pp.55-64). Boston, MA: Butterworth Heineman.

Freeman, A. C., & Sweeney, K. (2001). Why general practitioners do not implement evidence: Qualitative study. *British Medical Journal, 323*, 1-5. doi: 10.1136/bmj.323.7321.1100

Friedland, J. (2003). Why crafts? Influences on the development of occupational therapy in Canada from 1890 to 1930. *Canadian Journal of Occupational Therapy, 70,* 204-212.

Gabbay, J., & le May, A. (2004). Evidence based guidelines or collectively constructed "mindlines"? Ethnographic study of knowledge management in primary care. *British Medical Journal, 329*, 1013-1016. doi:10.1136/bmj.329.7473.1013

Gahnstrom-Strandqvist, K., Josephsson, S., Tham, K., & Borell, L. (2000). Actions of competence in occupational therapy practice. *Scandinavian Journal of Occupational Therapy, 7*, 15-25.

Gibson, D., Velde, B., Hoff, T., Kvashay, D., Manross, P. L., & Moreau, V. (2000). Clinical reasoning of a novice versus an experienced occupational therapist: A qualitative study. *Occupational Therapy in Health Care, 12*, 15-31.

Ginsburg, L., Lewis, S., Zackheim, L., & Casebeer, A. (2007). Revisiting interaction in knowledge translation. *Implementation Science, 2*, 1-11.

 doi:10.1186/1748-5908-2-34

Greenhalgh, T., & Taylor, R. (1997). How to read a paper: Papers that go beyond numbers (qualitative research). *British Medical Journal, 315*, 740-743.

Gustafsson, L., & Yates, K. (2009). Are we applying interventions with research evidence when targeting secondary complications of the stroke-affected upper limb. *Australian Occupational Therapy Journal, 26,* 428-436. doi:10.1111/j.1440-1630.2008.00757.x

Gutman, S. (2009). Why haven't we generated sufficient evidence: Part 1 - Barriers to applied research. *American Journal of Occupational Therapy, 63,* 235-237.

Haynes, R. B. (2002). What kind of evidence is it that evidence-based medicine advocates want health care providers and consumers to pay attention to? *BMC Health Services Research, 2*, 1-7. Retrieved from http://www.biomedcentral.com/1472-6963/2/3

Hocking, C. (2007). The romance of occupational therapy. In J. Creek & A. Lawson-Porter, *Contemporary issues in occupational therapy: Reasoning and reflection* (pp.23-40). Toronto, Ont.: Wiley & Sons.

Howlett, K. (2010, February 27). Road to the budget: The trouble with health care. *The Globe and Mail,* pp. F1, F6-F7.

Jones, T., Hanney, S., Buxton, M., & Burns, T. (2004). What British psychiatrists read: Questionnaire survey of journal usage among clinicians. *British Journal of Psychiatry*, 185, 251-257.

Karlsson, U., & Jornquist, K. (2007). What do Swedish occupational therapists feel about research? A survey of perceptions, attitudes, intentions, and engagement. *Scandinavian Journal of Occupational Therapy, 14.* 221-229.

Kielhofner, G. (2005). Scholarship and practice: Bridging the divide. *American Journal of Occupational Therapy, 59*, 231-239.

Leicht, S.B., & Dickerson, A. (2001). Clinical reasoning. Looking back. *Occupational Therapy in Health Care, 14,* 105-130.

Li, C., Grmshaw, J., Nielsen, C., Judd, M., Coytes, P., & Graham, I. (2009). Use of

   communities of practice in business and health care sectors: A systematic review.

   Implementation Science, 4, 27. doi: 10.1186/1748-5908-4-27.

Lysack, C., Luborsky, M.R., & Dillaway, H. (2006). Gathering qualitative data. In G.

   Kielhoffner (Ed.), *Research in occupational therapy: Methods of inquiry for*

   enhancing practice (pp. 341-357).Philadelphia, PA: F. A. Davis.

Mattingly, C., & Fleming, (1994). *Clinical Reasoning Forms of Inquiry in a Therapeutic*

   Practice. Philadelphia, PA: F.A. Davis.

Mays, N., & Pope, C. (1995). Qualitative research: Rigour and qualitative research.

   British Medical Journal, 311, 109-112.

McCluskey, A., & Lovarini, M. (2005). Providing education on evidence-based practice

   improved knowledge but did not change behaviour: A before and after study. *BMC*

   Medical Education, 5, 1-12. doi:10.1186/1472-6920-5-40

Miller, W.L., & Crabtree, B.F. (1999). Primary care research: A multi method typology

   and qualitative road map. In B. F. Crabtree & W.L.Miller (Eds.), *Doing qualitative*

   research (pp. 3-30). Newbury Park, CA: Sage.

Morse, J. (2008). Confusing categories and themes. *Qualitative Health Research, 18,*

   727-728.

Newton, M., & Scott-Findlay, S. (2007). Taking stock of current societal, political and academic stakeholders in the Canadian healthcare knowledge translation agenda. *Implementation Science, 2*, 1-6. doi:10.1186/1748-5908-2-32

Open Knowledge Foundation. (n.d.) *Where does my money go?* Retrieved from http://www.wheredoesmymoneygo.org/prototype/

Pain, K., Magill-Evans, J., Darrah, J., Hagler, P., & Warren, S. (2004). Effects of profession and facility type on research utilization by rehabilitation professionals. *Journal of Allied Health*, *33*, 3-217.

Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3rd ed.). Thousand Oaks, CA: Sage.

Pearsall, J. (Ed.). (1998). *The new Oxford dictionary of English*. New York, NY: Oxford University Press.

Philibert, D. B., Snyder, P., Judd, D., & Windsor, M. (2003). Practitioners' reading patterns, attitudes, and use of research reported in occupational therapy journals. *American Journal of Occupational Therapy*, *57*, 450 - 458.

Picard, A. (2010, February 27). Five-point plan for health care. *The Globe and Mail,* p. F7.

Polotajko, H. (2005). Translational work: Calling all clinicians. *Occupational Therapy Journal of Research: Occupation, Participation and Health, 25*, 131-132.

Pravikoff, D., Tanner, A., & Pierce, S. (2005). Readiness of U.S. nurses for evidence-based practice. *American Journal of Nursing, 105*, 40-51.

Rice, P.L., & Ezzy, D. (1999). *Qualitative research methods: A health focus.* New York, NY: Oxford University Press.

Rogers, E. (2003). *Diffusion of innovations.* New York, NY: Free Press.

Sanson-Fisher, R. (2004). Diffusion of innovation theory for clinical change. *Medical Journal of Australia, 180*, 555-556.

Schell, J.W., & Boyt Schell, B.A. (2008). Teaching for expert practice. In B. A. Boyt Schell & J. W. Schell, *Clinical and professional reasoning in occupational therapy* (pp. 258-288). Baltimore, MD: Lippincott Williams & Wilkins.

Sinclair, K. (2007). Exploring the facets of clinical reasoning. In J. Creek & A. Lawson-Porter, *Contemporary issues in occupational therapy: Reasoning and reflection* (pp.143-160). Toronto: Wiley & Sons.

Stevenson, K., Lewis, M., & Hay, E. (2004). Do physiotherapists' attitudes towards evidence-based practice change as a result of an evidence-based educational programme? *Journal of Evaluation in Clinical Practice, 10*, 207-217.

Sudsawad, P. (2005). A conceptual framework to increase usability of outcome research for evidence-based practice. *American Journal of Occupational Therapy, 59*, 351-358.

Sudsawad, P. (2006a). Definition, evolution, and implementation of evidence-based

    practice in occupational therapy. In G. Kielhofner (Ed.), *Research in occupational*

    therapy: Methods of inquiry for enhancing practice (pp. 685-695). Philadelphia, PA:

    F.A. Davis.

Sudsawad, P. (2006b). Creating outcome research relevant for evidence-based practice.

    In G. Kielhofner (Ed.), *Research in occupational therapy: Methods of inquiry for*

    enhancing practice (pp. 697-706). Philadelphia, PA: F.A. Davis.

Townsend, E., Egan, M., Law, M., Manojlovich, M., & Head, B. (2007). Escalating

    participation in scholarly practice for enabling occupation. In E. Townsend & H.

    Polatajko (Eds.), *Enabling occupation 11* (pp. 277-293). Ottawa, Ont.: Canadian

    Association of Occupational Therapists.

Weiss, C.H. (1979). The many meanings of research utilization. *Public Administration*

    Review, *39*, 426-431.

Appendices

Appendix A – Recruitment Letter

225 Yale Avenue
Winnipeg, R3M 0L3
fswedlove@gmail.com

May 7, 2009

Dear Colleague,

I am writing to invite all occupational therapists at the Health Sciences Centre to participate in a study that I will complete for my Master of Science (Rehabilitation) degree. Currently, I am enrolled in the program at the University of Manitoba and have been an occupational therapist since 1979. The title of the qualitative study is "Occupational Therapists' Perceptions of the Value of Research".

Volunteers for the study will be interviewed for approximately one hour. The interview will be conducted at a mutually convenient time and place. The interview will be taped and transcribed, with complete confidentiality ensured by the use of pseudonyms. The study has been reviewed and approved by the Ethics Review Board of the University of Manitoba (Bannatyne Campus). Prior to the interview, a consent form and a short set of demographic questions will be sent to each volunteer participating in the study. Throughout the study, I will be supervised by my advisor Dr. Emily Etcheverry who will not be informed of the names of the participants.

During the interview, your thoughts and opinions regarding the value of research will be explored to gain an understanding of the research utilization process. A qualitative research design was chosen to explore this topic in an in-depth fashion.

If you would like to volunteer for the study and/or have any questions, please do not hesitate to contact me by email (fswedlove@gmail.com) or phone (453-2835). I would be more than happy to answer any of your questions. Please reply at your earliest convenience as I hope to begin interviewing as soon as possible.

Your contribution of your time for the interview is greatly appreciated and will assist in advancing knowledge in the field of research utilization.

Sincerely,

Fern Swedlove, O.T. (Reg.) MB

Appendix B – Demographic Questions

Demographic Questionnaire

This questionnaire is to provide background information for the study "Occupational Therapists' Perceptions of the Value of Research".

Please answer the following questions with either a tick or a short answer.

1 . Please indicate to which age group you belong:
- *20 - 29   ....*
- *30 - 39   ....*
- *40 - 49   ....*
- *50 - 59   ....*
- *60 + ...*

2. Please indicate your gender:

Male .... Female ....

3. What is your highest education level of <u>occupational therapy</u> qualifications?
- *Diploma ....*
- *Baccalaureate ....*
- *Master's Degree ....*
- *Other (specify) ....*

4. What is the year of graduation from your highest level occupational therapy program ?

..

5. From what university did you graduate from your highest level of OT program?

..

6. Are you enrolled in post-professional graduate studies?

Yes .... No ....

If you answered yes to the above question, please describe the type of

degree.

....
....

7. Do you have any other post-secondary qualifications?

Yes.......... (please specify)...

No.........

8. How many years have you been practicing as an occupational therapist?..........

9. How many hours a week do you work as an occupational therapist? ....

10. Are you employed at another institution or worksite other than HSC?

Yes ....   No ....

11. What service location are you presently working at? (Indicate all that apply)
   ➢ *General Hospital ....*
   ➢ *Rehabilitation Hospital ....*
   ➢ *Women's Hospital ....*
   ➢ *Children's Hospital ....*
   ➢ *PsychHealth Centre ....*

12. What is the client age group that you work with? (Indicate all that apply)

Neonatal .... Child .... Adolescent .... Adult .... Senior (over age 65) ....

13. What is the practice setting?

Inpatient .... Outpatient ....

14. What service area do you work in ? (Indicate all that apply)

- ➢ *Geriatric Assessment ....*
- ➢ *Orthopaedics ....*
- ➢ *Neurology/Neurosurgery/Neuromuscular ....*
- ➢ *Surgery ....*
- ➢ *Rheumatology ....*
- ➢ *Paediatrics ....*
- ➢ *Burns/Plastic ....*
- ➢ *General Psychiatry ....*
- ➢ *Autism ....*
- ➢ *Intensive Care ....*
- ➢ *Child Development ....*
- ➢ *Other (please specify) ....*

Thank you for your assistance in completing this questionnaire. Please return the questionnaire to: SMR – Attention Fern Swedlove, MSc Student, R 106 – 771 McDermot Avenue.

Appendix C - Interview Guide

Clarification and/or review of demographic information.

With your work as an occupational therapist, what has been your personal experience with research? Tell me a bit about yourself and your work experience as an occupational therapist?

Probe – Describe a specific experience and involvement: e.g. participates, reads or completes a research project.

How would you describe the process you use to guide your practice? For example when you decide on a course of action what are the possible steps involved?

Probe – Are there any other ways that you can describe the process used to guide your practice?

In what way, if any, does research help to guide your practice decisions?

Probe – An asset, irreplaceable, respected or little meaning.

Describe a situation when you utilized research to help resolve a client's occupational performance issue?

How would you describe the term research?

Probe – Application of the scientific method, a harnessing of curiosity.

How would you describe the purpose of research?

Probe – Discovers, explains interprets and revises facts or advances knowledge. Contributes to your clinical competence, helps to understand the bigger picture in relation to your practice as an occupational therapist, and helps you to work with the team.

In what ways, if any, has research provided value to your practice?

Probe – Assists with how to approach a situation; provides a theoretical perspective to a treatment or a new idea; enhances what is already known, contributes to the organization.

In what ways, if any, have organizations contributed to the way that you value research? What about the professional organizations such as CAOT. How do they contribute to your value of research?

On reflecting on the value of research in your practice as an occupational therapist, have you found there were factors impacting on your perception of the value of research?

Probe – Access, time, readability, relevance and educational level.

On reflecting on the value of research in your practice as an occupational therapist, have you found that there have been facilitators that have impacted on the value of research?

Probe – Employer culture, supportive colleagues and available time.

How one perceives the value of research may be a function of the quality of the research. What do you think of the quality of the research completed in the profession?

What initiatives could be undertaken to improve the quality of the research in the profession?

Domain Areas of Interview Questions

With your work as an occupational therapist, what has been your personal experience with research?

Domain Area = Relative advantage of research

How would you describe the process you use to guide your practice?

Domain Area = Clinical reasoning

In what way, if any, does research help to guide your practice decisions?

Domain Area = Clinical reasoning

Describe a situation when you utilized research to help resolve a client's occupational performance issue?

Domain Area = Clinical reasoning

How would you describe the term research?

Domain Area = Relative advantage of research

How would you describe the purpose of research?

Domain Area = Relative advantage of research

In what ways, if any, has research provided value to your practice?

Domain Area = Relative advantage of research

In what ways, if any, have organizations contributed to the way that you value research? What about the professional organizations such as CAOT. How do they contribute to your value of research?

Domain Area = Barriers and facilitators to the relative advantage of research

On reflecting on the value of research in your practice as an occupational therapist, have you found there were factors impacting on your perception of the value of research?

Domain Area = Barriers and facilitators to the relative advantage of research

On reflecting on the value of research in your practice as an occupational therapist, have you found that there have been facilitators that have impacted on the value of research?

Domain Area = Barriers and facilitators to the relative advantage of research

How one perceives the value of research may be a function of the quality of the research. What do you think of the quality of the research completed in the profession?

Domain Area = Barriers and facilitators to the relative advantage of research

What initiatives could be undertaken to improve the quality of the research in the profession?

Domain Area = Barriers and facilitators to the relative advantage of research

Appendix D – Research Participant Information and Consent Form

Title of Study: Occupational therapists' perceptions of the value of research

Principal Investigator:
Fern Swedlove, BSc (OT), Diploma in Communications, MSc Student
225 Yale Avenue
Winnipeg, R3M 0L3
Manitoba
Phone/Fax: 453-2835
E-mail: fswedlove@gmail.com

You are being asked to participate in a research study. Please take your time to review this consent form and discuss any questions you may have with the study staff. You may take your time to make your decision about participating in this study and you may discuss it with your friends or family. Please ask the study staff to explain any words or information that you do not clearly understand.

Purpose of Study

This research study is being conducted to study the value of health research to occupational therapists. The purpose of this study is to gain greater understanding of this topic to facilitate knowledge translation. A total of 10 to 15 participants will participate in this study.

Study Procedure

Participation in the study will involve approximately one interview, with a time line of 30 – 60 minutes. You can stop participating at any time. However, if you decide to stop participating in the study, we encourage you to talk to the researcher first. When the research project is finished, a copy of the final document including all research findings will be available to you upon request. The audio recordings and transcriptions will be destroyed after two years of completion of the research study.

Risks and Discomforts

Due to the non-sensitive nature of this research study there are minimal risks involved. No unpleasant experiences are expected.

Benefits

There may or may not be direct benefit to you from participating in this study. We hope the information learned from this study will benefit the community in the future.

Costs

No specific costs should be incurred by participating in this study.

Payment of participation

You will receive no payment or reimbursement for any expenses related to taking part in this study. A gift card to a local coffee shop will be provided to thank you for participating in the study.

Confidentiality

Information gathered in this research study may be published or presented in public forums. However, your name and other identifying information will not be used or revealed. Names and any other identifying information will be changed to protect your privacy. Despite efforts to keep your personal information confidential, absolute confidentiality cannot be guaranteed. Your personal information may be disclosed if required by law.

The University of Manitoba Health Research Ethics Board may review records related to the study for quality assurance purposes. All records will be kept in a locked secure area and only those persons identified will have access to these records. No information revealing any personal information such as your name, address or telephone number will leave the University of Manitoba Bannatyne Campus.

Voluntary Participation/Withdrawal from the Study

Your decision to take part in this study is voluntary. You may refuse to participate or you may withdraw from the study at any time. Your decision not to participate or to withdraw from the study will not affect your chances of participating in another study in the future.

Questions

You are free to ask any questions that you may have about your rights as a research participant. If any questions come up during or after the study contact Fern Swedlove at (204) 453-2835 or Emily Etcheverry (advisor) at (204) 789-3418.

For questions about your rights as a research participant, you may contact The University of Manitoba, Bannatyne Campus Research Ethics Board Office at (204) 789-3389. Do not sign this consent form unless you have had a chance to ask questions and have received satisfactory answers to all of your questions.

Statement of Consent

I have read this consent form. I have had the opportunity to discuss this research study with _ Fern Swedlove_____. I have had my questions answered by them in language I understand. The risks and benefits have been explained to me. I believe that I have not been unduly influenced by any study team member to participate in the research study by any statements or implied statements. Any relationship (such as employer, supervisor or family member) I may have with the study team has not affected my decision to participate. I understand that I will be given a copy of this consent form after signing it. I understand that my participation in this study is voluntary and that I may choose to withdraw at any time. I freely agree to participate in this research study.

I understand that information regarding my personal identity will be kept confidential, but that confidentiality is not guaranteed. I authorize the inspection of any of my records that relate to this study by The University of Manitoba Research Ethics Board for quality assurance purposes.

By signing this consent form, I have not waived any of the legal rights that I have as a participant in a research study.

I agree to be contacted for future follow-up in relation to this study,

Yes _   No _

Participant signature_____

  Date _____ (day/month/year)

Participant printed name: _____

I, the undersigned, have fully explained the relevant details of this research study to the participant named above and believe that the participant has understood and has knowingly given their consent.

Printed Name: _____

  Date _____ (day/month/year)

Signature: _____

Role in the study:_____

Appendix E – Glossary

1. Evaluation:

A systematic assessment of policies, programs or initiatives to determine success in meeting objectives, including the interests of its stakeholders (CIHR, 2005).

2. Evidence:

The available body of facts etc. indicating whether something is true or valid (Barber, 2005).

3. Health Research:

CIHR adopts a broad approach to health research built around four research themes (CIHR, 2005):

(a) Biomedical research:

Research with the goal of understanding normal and abnormal human functioning, at the molecular, cellular, organ system and whole body levels, including development of tools and techniques to be applied for this purpose; developing new therapies or devices that improve health or the quality of life of individuals, up to the point where they are tested on human subjects. Studies on human subjects that do not have a diagnostic or therapeutic orientation.

(b) Clinical research:

Research with the goal of improving the diagnosis, and treatment (including rehabilitation and palliation), of disease and injury; improving the health and quality of

life of individuals as they pass through normal life stages. Research on, or for the

treatment of, patients.

(c) Health services and policy research:

Research with the goal of improving the efficiency and effectiveness of health

professionals and the health care system, through changes to practice and policy. Health

services research is a multidisciplinary field of scientific investigation that studies how

social factors, financing systems, organizational structures and processes, health

technologies, and personal behaviours affect access to health care, the quality and cost of

health care, and, ultimately, Canadians' health and well-being.

(d) Population and public health research:

Research with the goal of improving the health of the Canadian population, or of defined

sub-populations, through a better understanding of the ways in which social, cultural,

environmental, occupational and economic factors determine health status.

4. Knowledge: Awareness or familiarity gained by experience or a person's range of

knowledge (Barber, 2005).

5. Knowledge Translation:

CIHR defines knowledge translation as the exchange, synthesis and ethically-sound

application of knowledge - within a complex system of interactions among researchers

and users - to accelerate the capture of the benefits of research for Canadians through

improved health, more effective services and products, and a strengthened health care

system. This broad definition can include for example, the translation of health research

results into forms that will influence decision-making in the health policy or medical practice sectors, or the development of commercial products from health research (CIHR, 2005).

6. Output:

The actual products or services created. In the context of evaluating health research, outputs would usually be expressed in terms of new knowledge, techniques for treatment or products such as pharmaceuticals or devices.. (CIHR, 2005).

7. Outcome:

The key results of an initiative (can be short or longer term). For example, a new medical device may be the output of a specific research initiative. The outcome may be more efficient diagnosis or treatment of a disease (CIHR, 2005).

8. Payback Model Categories to Measure the Impact of Health Research (CIHR, 2005).

(a) Knowledge production:

The contributions to knowledge from a research project or a body of research involving multiple projects. Knowledge production is usually measured through contributions to scientific publications and patents or invited presentations (e.g. conferences) but includes knowledge fed more directly to users through commissioned reports etc.

(b) Research targeting and research capacity:

Benefits to future research activity. This includes the use of research information to improve targeting of future research; individual and group development of research skills

and research capacity; development of the capability to use existing national or international research.

(c) Informing policy and product development:

Clinical and administrative benefits, including the development of informed information based upon which to make decisions, and the application of research findings in policy development (at all levels of policy). Includes development of clinical practice guidelines. Benefits for product or process development where research findings feed into commercial decisions and developments. (This category has been modified in the CIHR framework, where product development and commercialization of research findings will be included in the category of economic benefits).

(d)Health and health sector benefits:

Improvements in life expectancy and quality of life through advances in prevention, diagnosis or treatment made possible by research. Increased efficiency of service organization. Improved equity in the health sector.

 (e) Broader economic benefits:

Benefits to the economy that result from health research. These benefits can include economic returns from commercialization and contributions to the economy from improvements in workforce health.

9. Impacts:

In the context of evaluating health research, the overall results of all the effects that a body of research has on society. Impact includes outputs and outcomes, and may also include additional contributions to the health sector or to society. Impact includes effects that may not have been part of the research objectives, such as contributions to a knowledge based society or to economic growth (CIHR, 2005).

10. Value:

The worth, usefulness or importance of a thing (Barber, 2005).