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# The influence of personal knowledge management on individual decision making in healthcare medical treatment

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## Abstract

Personal knowledge management (PKM) is a method to enhance an individual's learning ability and critical thinking skills allowing an individual to make more effective decisions. Individuals, who must make health care decisions in an increasingly information-rich environment, may benefit from PKM. Little is known about how PKM can optimize individuals' healthcare decision making. With this in mind, this study will investigate how PKM can help individuals better manage complex healthcare issues through well-informed decisions when facing healthcare medical treatment. Grounded action learning, an integration of grounded theory and action learning is adopted for this study. A framework for a PKM-based decision making training program format has been proposed based on action learning methods. Data collection and analysis is based on grounded theory approaches. This study is expected to provide new insights for PKM implementation to help individuals manage information overload and improve their information literacy skills as well as knowledge management capabilities when confronting health-related decisions.

## Keywords

Action learning, grounded theory, grounded action learning, healthcare medical treatment, decision making, and personal knowledge management.

## 1 Introduction

Individual health care consumers (i.e., laypeople) are encouraged to participate in their own healthcare medical treatment decisions by healthcare professionals to improve healthcare services and treatment outcomes (Vahdat, Hamzehgardeshi, Hessam, & Hamzehgardeshi, 2014). Kumar and Sharma (2014) define healthcare as "the diagnosis, treatment, and prevention of disease, illness, injury, and other physical and mental impairments in humans" (p.1). In this study, healthcare consumers will potentially use healthcare services to address their personal health issues. In one study nearly two-thirds (61%) of adults went online to seek information to learn about healthcare medical treatments for their conditions (McGinnis, Saunders, & Olsen, 2011). Healthcare consumers search for formal treatment and (Aldridge, 2000), similarly to the way they search for information on how to

satisfy their other needs; e.g., considering the best value for their money in exchange for a product (Bin, Chew, & Shin, 2015; Boyett & Boyett, 2003). However, with the growth of the Internet and the development of social media, individuals are often confronted with considerable volumes of information relating to healthcare medical treatment. Healthcare consumers may have difficulty absorbing the information, or lack skills to incorporate the information into their base of knowledge, and this may generate confusion and hinder decision making.

Several ways have been suggested in various domains to help individuals improve decision making, such as helping organisations (and their employees) to manage information overload (Christopher, 2013), and develop knowledge management capabilities (McKenzie, van Winkelen, & Grewal, 2011), and improving students' information literacy to help empower their critical thinking skills in education (Clayton-Molina, 2016). However, technology might be a drawback for these techniques. A report shows that 6 out of 10 people have low technology skills, and cannot do basic tasks like sorting, searching for, and emailing data from a spreadsheet (Schaffhauser, 2015). Throughout literature, these techniques have only been applied to individuals with a higher education background, which might not benefit people who have low technology skills. Personal knowledge management (PKM) may be one way to reduce the information overload problem (Ghad, 2015), while increasing an individual's knowledge management capabilities (Jain, 2011). PKM is a conceptual framework that blends technology, personal skills, processes, and methodology (Jefferson, 2006) with the purpose of enhancing an individual's information literacy and improving their knowledge (Zhou, Wang, & Ju, 2014).

However, in the field of decision making, PKM is still an under-explored or under-researched area. Judging from the available literature, very limited research or significant conceptual development has been undertaken in the field of PKM (Gorman & Pauleen, 2011). Thus, more investigation is needed in this field to close the gaps. This paper presents work in progress that aims to address this issue by answering the question: "*In what ways can PKM be used in individual decision making in deciding on health care medical treatment?*" A training program ([Appendix A](#)) has been developed to help individuals manage healthcare medical treatment information and to improve (confidence in and effectiveness of) decision making (DM) about healthcare medical treatment.

## 2 Literature Review

This section provides an initial literature review of consumer decision making in the context of healthcare, PKM, and the relationship between PKM and consumer decision making.

### 2.1 Decision Making in Healthcare Medical Treatment

Several authors claim that the obtaining of information and information quality are the most important factors in consumer decision making (Guillemette, Laroche, & Cadieux, 2014; Kolstad & Chernew, 2009). Barker, Broadbent, Gosai, Jackson, and Wheeler (2014) reported that information received from health professionals has a positive influence on an individual's decision making. Fagerlin, Wang, and Ubel (2005) examined factors influencing individuals decision making in health care. They suggest that people's decisions are typically influenced by "individuating information," such as using anecdotes when they make decisions or judgments in health care.

Normative decision theory has been most commonly applied to medical decision making studies (Siminoff & Step, 2005). The normative model assumes that decision makers in the healthcare context, have all the information required to decide, including knowledge of all the alternative options. It implies that consumers are rational decision makers (Cowan, Dowie, French, & Wellings, 2013), who are carefully defining the problem and clarifying their preferences, gathering as much information as possible, considering the pros and cons of all possible alternatives, and evaluating and selecting among the alternatives (Boehnke & Bar-Tal, 1998; Vroom & Yetton, 1973; Wood, 2012).

To sum up, consumer decision making has been emphasized and extensively discussed over several decades. Normative decision theory has been most widely used in the field of health care medical treatment decision making. It provides a theory explaining individual decision making processes in medical treatment. However, medical treatment literature, particularly in the context of consumer decision making, is limited. Thus, this study aims to identify methods to improve individual health care medical treatment decision making.

## 2.2 Personal Knowledge Management (PKM)

Gorman and Pauleen (2011) implied that knowledge management (KM) and personal information management (PIM) are the conceptual antecedents to PKM. KM is a process of knowledge creating, developing, and sharing effectively to make the best use of knowledge within organizations (Costa, Prior, & Rogerson, 2010; Kamath, Rodrigues, & Desai, 2014). PIM concerns processes for storing and organizing information for personal use (Bergman, Boardman, Gwizdka, & Jones, 2004).

Previous studies on PKM have focused on education to help improve students' learning abilities. For instance, Benitez, Pauleen, and Hooper (2013) investigated how PKM can help post-graduate students manage information and knowledge during their studies. They state that people's learning abilities usually increase over time through their learning from others as well as trial and error they gain from their experience during the retrieval and storing of information sources, and personal knowledge growth. These studies suggest that once individuals know how to control their knowledge management processes which are knowledge storage, access, category, delivery and sharing, discovery and visualization, as well as utilization (Safar & Alkhezzi, 2014), they can merge information into their personal knowledge and improve individual learning abilities.

To sum up, PKM may be a method to reduce information overload and improve personal skills and knowledge management (KM) capabilities to create knowledge and help individuals make more effective decisions. Technology may assist with PKM to help individuals manage information and knowledge more effectively. Up until now, there has been very little empirical research or significant conceptual development of PKM in the context of healthcare decision making.

## 2.3 PKM and Consumer Decision Making

PKM may improve decision making in several different ways. One way is by helping to manage information overload. Information overload is where the user has received more information than is needed, and more than they can readily assimilate (Kulyk, Kosara, Urquiza, & Wassink, 2007). PKM through the systematic use of information technology, may assist an individual to store and retrieve information more easily and quickly, helping individuals deal with masses of unstructured information (Fathizargaran, 2012).

Another way PKM may help improve decision making is by developing individual's information literacy skills. Information literacy is a set of abilities to recognize what information is needed, and what resources are available, finding information, evaluating and using information effectively, communicating or sharing findings, as well as managing findings (Iannuzzi, 2000; Ranaweera, 2008; Świgoń, 2013). PKM involves a range of techniques and tools that individuals can use to acquire, create and share knowledge, extend personal networks and collaborate with others (Gorman & Pauleen, 2011). Additionally, the PKM process can help individuals to discover and to value information that means something to them, which results in personal knowledge (Benitez & Pauleen, 2009).

Furthermore, knowledge is a critical tool for health, and knowledge management is the capacity to translate knowledge into policies and practices that can improve the quality of life (Metaxiotis, 2011). Sher and Lee (2004) argued that developing knowledge management (KM) capabilities could be seen as a way to improve decision making. KM focuses on the various management processes that facilitate finding, identifying, capturing, creating, storing, applying, sharing, and renewing knowledge that improves decision making capabilities (Al-Khoury, 2014). Cheng (2015) indicates that a set of PKM skill training processes can help individual's KM activities in their daily work.

In sum, PKM may be able to address the information overload problem and develop information literacy skills and knowledge management competencies to help improve an individual's decision making. Technology, collaborating skills and personal skills all play important roles in PKM to help individuals better understand information and knowledge. Therefore, PKM is an appropriate conceptualisation of the skills and knowledge needed and which resonates with individual decision making in healthcare.

## 3 Method and Methodology

To investigate the ways PKM can be used in individual decision making in deciding on health care medical treatment, a qualitative grounded action learning method that combines action learning and grounded theory has been chosen for this study. A framework for a PKM and decision making (DM) training program format ([Appendix A](#)) has been developed based on methods developed in action learning, with data collection and analysis based on grounded theory approaches.

### 3.1 Grounded Action Learning Approach

Action learning and grounded theory are two interpretive qualitative methodologies that together constitute *grounded action learning*. Action learning "is a basic concept of action research" (Zuber-Skerritt, 1995, p. 214). Action research is a methodology to bring change in communities, or organizations or programs to increase understanding on the part of the researcher (Dick, 2010), and help collect trustworthy data on the multiple perspectives of particular groups (Schmuck, 2008). The grounded theory approach offers systematic strategies that synthesize sampling, analysis and coding for theory development that are perceived as rigorous, while still permitting the researcher to remain flexible and creative (Andrews, Higgins, Andrews, & Lalor, 2012; Jones & Alony, 2011).

"Grounded action learning methodologies have been used in various domains of qualitative interpretative studies, including information systems (Pauleen & Yoong, 2004), healthcare (Greenall, 2006; Kerr, 2006), and education (Keown, 2009; Mcalpine, 2014)

To sum up, grounded action learning is a method for generating and analysing data in an area that has not been much explored. With it a researcher may discover multiple problems and issues raised by participants. Grenall (2006) suggested a combination of action learning and grounded theory was helpful in exploring consumer decision making in healthcare. Action learning allows for a creative and flexible approach to gathering data, while the grounded theory method helps with analytical rigor and validity (Pauleen & Yoong, 2004). The combinations of action learning and grounded theory methods have worked well together in previous studies. This method looks to be a promising method, but the literature indicates very limited use of grounded action learning with more research required. This study is expected to help fill that gap.

### 3.2 Data Collection and Data Analysis

This study is a work in progress. Data is being collected during the first action learning training program (see [Appendix A](#)) group, which explores participants' opinions and experiences of PKM regarding healthcare medical treatment decisions. Several methods of data collection are being used in this study: informal discussions which are audio-recorded and participant notes. A grounded theory coding technique (open, axial and selective) will be used to analyse the data. This systematic approach is expected to reduce the threat to rigor, credibility and validity of data collection and analysis (Douglas, 2003). QSR NVivoTM software will be used throughout the coding process to gain a rich understanding of the data and to facilitate managing codes. Emerging concepts from the data will then be compared and contrasted with the literature to refine and generate theory.

### 3.3 Sampling and Participants

Members of patient health support groups and Church members located in Auckland, New Zealand are being approached to participate. A purposive sampling technique is also being used to identify and engage people who are investigating healthcare information in-order to make decisions. Moreover, as PKM in healthcare medical treatment decision making lacks empirical study, a theoretical sampling method will allow the researcher to decide which data and from where to collect next (Riazi, 2016). Theoretical sampling is also suggested as an important component in the development of grounded theory (Achora, 2014). Therefore, sampling will be both purposeful and theoretical.

## 4 Conclusion

This is a research paper in progress that explores the *ways PKM can be used in individual decision making in deciding on health care medical treatment*. By conducting a qualitative grounded action learning study with consumers involved in healthcare medical treatment decisions, a PKM/DM training program ([Appendix A](#)) has been developed to focus on the experiences of individuals' PKM when confronting an overwhelming information environment and making complex healthcare medical treatment decisions. An emergent theory about the influence of PKM will contribute to the limited literature, and help to progress the body of knowledge in an important yet under-researched area.

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## Appendix A Training Program

<b>PKM/DM Action Learning Program</b>	
<b>Session</b>	<b>Upon completion of the Session, the trainee will be effectively able to:</b>
<b>One:</b> Strategy for clarifying information needs	<ul style="list-style-type: none"><li>➤ Determine information needs;</li><li>➤ Determine information seeking;</li><li>➤ Determine whether the information is from credible sources.</li></ul>
<b>Two:</b> Strategy for developing critical thinking and decision making skills	<ul style="list-style-type: none"><li>➤ Use at least one tool/technology to organize information and knowledge;</li><li>➤ Conceptualizing, applying, analysing, synthesizing, and/or evaluating information gathered.</li></ul>
<b>Three:</b> Embed new thinking and learning strategies	<ul style="list-style-type: none"><li>➤ Collaborate and interact with others;</li><li>➤ Develop higher level thinking skills;</li><li>➤ Stimulate critical thinking skills through discussion and debate.</li></ul>
<b>Four:</b> Evaluate and revise information and knowledge strategies	<ul style="list-style-type: none"><li>➤ Effectively analyse and justify information and knowledge;</li><li>➤ Feel more confident and comfortable in the decisions they make.</li></ul>
<b>Five:</b> Lifelong learning	<ul style="list-style-type: none"><li>➤ Enhance knowledge and decision making abilities.</li></ul>

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