

2016

The influence of personal knowledge management on individual decision making in health care medical treatment

Yi-Mei Huang
Massey University, yimei.hiini@gmail.com

David Pauleen
Massey University, d.pauleen@massey.ac.nz

Shane Scahill
Massey University, s.scahill@massey.ac.nz

Nazim Taskin
Massey University, n.taskin@massey.ac.nz

Follow this and additional works at: <https://aisel.aisnet.org/acis2016>

Recommended Citation

Huang, Yi-Mei; Pauleen, David; Scahill, Shane; and Taskin, Nazim, "The influence of personal knowledge management on individual decision making in health care medical treatment" (2016). *ACIS 2016 Proceedings*. 42.

<https://aisel.aisnet.org/acis2016/42>

This material is brought to you by the Australasian (ACIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in ACIS 2016 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

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

Yi-Mei Huang

School of Management
Massey University
Albany, New Zealand
Email: Y.Huang2@massey.ac.nz

David Pauleen

School of Management
Massey University
Albany, New Zealand
Email: D.Pauleen@massey.ac.nz

Shane Scahill

School of Management
Massey University
Albany, New Zealand
Email: S.Scahill@massey.ac.nz

Nazim Taskin

School of Management
Massey University
Albany, New Zealand
Email: N.Taskin@massey.ac.nz

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.

5 References

Achora, S. (2014). *School-based sexuality education in Uganda: a grounded theory approach* (Unpublished doctoral dissertation), University of South Africa

- Al-Khouri, A. M. (2014). Fusing Knowledge Management into the Public Sector: a Review of the Field and the Case of the Emirates Identity Authority. *Journal of Knowledge Management, Economics and Information Technology, IV*(3).
- Aldridge, D. (2000). *Spirituality, healing, and medicine: return to the silence*: Jessica Kingsley Publishers.
- Andrews, L., Higgins, A., Andrews, M. W., & Lalor, J. G. (2012). Classic grounded theory to analyse secondary data: reality and reflections. *The Grounded Theory Review, 11*(1), 12-26.
- Barker, D. P., Broadbent, R. S., Gosai, S., Jackson, P. M., & Wheeler, B. J. (2014). Medical and midwifery attitudes towards vitamin K prophylaxis in New Zealand neonates. *Journal of Paediatrics and Child Health, 50*(7), 536-539.
- Benitez, E., & Pauleen, D. (2009). *Brainfiltering: The Missing Link Between PKM and PIM?* . Paper presented at the *Proceedings of the 15th Americas Conference on Information Systems* (pp.1-12), San Francisco, California, USA Press.
- Benitez, E., Pauleen, D., & Hooper, T. (2013). From Information Gatherers to Knowledge Creators: The Evolution of the Post-Graduate Student. *Electronic Journal of Knowledge Management, 11*(2).
- Bergman, O., Boardman, R., Gwizdka, J., & Jones, W. (2004). *Personal information management*. Paper presented at the Chi'04 extended abstracts on human factors in computing systems.
- Bin, A. S., D.M, Chew, B. C., & Shin, L. H. (2015). QUALITY FUNCTION DEPLOYMENT FOR BIO PLASTICS ADOPTION IN MALAYSIAN INDUSTRY. *Journal of Technology Management and Business, 2*(2).
- Boehnke, K., & Bar-Tal, D. (1998). *Political psychology*: Taylor & Francis.
- Boyett, J. H., & Boyett, J. T. (2003). *The guru guide to marketing: a concise guide to the best ideas from today's top marketers*: John Wiley & Sons.
- Cheng, E. C. K. (2015). Nurturing Teachers' Personal Knowledge Management Competencies *Knowledge Management for School Education* (pp. 49-58): Springer.
- Christopher, W. (2013). Managing Information Overload to Reduce Stress and Make Better Decisions in Green Building. Retrieved from: <http://insight.gbig.org/managing-information-overload-to-reduce-stress-and-make-better-decisions-in-green-building/>.
- Clayton-Molina, C. (2016). *Information Literacy and Critical Thinking: The Power of Success*. Paper presented at the National Youth-At-Risk Conference, Savannah, US.
- Costa, G. J. M. d., Prior, M., & Rogerson, S. (2010). *Why link knowledge management, organizational culture and ethics: analysing empirical inquiry*. Retrieved from <http://repositorio.ual.pt/handle/11144/372>
- Cowan, F. M., Dowie, J., French, R. S., & Wellings, K. (2013). The development of a multi-criteria decision analysis aid to help with contraceptive choices: My Contraception Tool. *Journal of Family Planning and Reproductive Health Care, jfprhc-2013-100699*.
- Dick, B. (2010). *Action research theses*. Thesis resource paper. You want to do an action research thesis.
- Douglas, D. (2003). Inductive theory generation: A grounded approach to business inquiry. *Electronic Journal of Business Research Methods, 2*(1), 47-54.
- Fagerlin, A., Wang, C., & Ubel, P. A. (2005). Reducing the influence of anecdotal reasoning on people's health care decisions: is a picture worth a thousand statistics? *Medical Decision Making, 25*(4), 398-405.
- Fathizargarán, R. (2012). *Personal Knowledge Management: An Analysis of Benefits and Challenges of Using Web 2.0 Technologies at the Individual Level*. Unpublished master's thesis, Victoria University, Wellington, New Zealand.
- Ghad, G. (2015). Personal Knowledge Management (PKM) Part 4: Seek and Filter Information Flows. Retrieved from <http://www.gmnetwork.org/personal-knowledge-management-pkm-part-4-look-and-filter-information-flows/>.
- Gorman, G. E., & Pauleen, D. (2011). The nature and value of personal knowledge management. In D.Pauleen, & G. Gorman (Eds.), *Personal knowledge management: individual, organizational and social perspectives* (pp. 1-16). London: Gower.
- Greenall, P. (2006). The barriers to patient-driven treatment in mental health: Why patients may choose to follow their own path. *Leadership in Health Services, 19*(1), 11-25.
- Guillemette, M., Laroche, M., & Cadieux, J. (2014). Defining Decision-Making Process Performance: Conceptualization and Validation of an Index. *Information & management*.
- Iannuzzi, P. (2000). Information literacy competency standards for higher education. *Community and Junior College Libraries, 9*(4), 63-67.
- Jain, P. (2011). Personal knowledge management: the foundation of organisational knowledge management. *South African Journal of Libraries and Information Science, 77*(1), 1-14.

- Jefferson, T. L. (2006). Taking it personally: personal knowledge management. *VINE*, 36(1), 35-37.
- Jones, M., & Alony, I. (2011). Guiding the use of Grounded Theory in Doctoral studies—an example from the Australian film industry.
- Kamath, V., Rodrigues, L. L., & Desai, P. V. (2014). The dynamics of knowledge management and innovation in the Indian manufacturing sectors: A systems perspective. *International Journal of Engineering and Innovative Technology (IJETT)*, 3(7), 125-130.
- Keown, P. (2009). The tale of two virtual teacher professional development modules. *International research in geographical and environmental education*, 18(4), 295-303.
- Kerr, K. (2006). *The institutionalisation of data quality in the New Zealand health sector. Unpublished doctoral dissertation, The University of Auckland, New Zealand. ResearchSpace@ Auckland.*
- Kolstad, J. T., & Chernew, M. E. (2009). Quality and consumer decision making in the market for health insurance and health care services. *Medical Care Research and Review*, 66(1 suppl), 28S-52S.
- Kulyk, O., Kosara, R., Urquiza, J., & Wassink, I. (2007). Human-centered aspects *Human-Centered Visualization Environments* (pp. 13-75): Springer.
- Kumar, P. N., & Sharma, S. (2014). Study on Cost-Benefit Analysis of Computerised Tomography (CT) Scan. *International Journal of Health Sciences and Research (IJHSR)*, 4(8), 205-211.
- Mcalpine, K. (2014). *Using grounded action as a learning process*. Retrieved from <http://www.doingtherightthing.co/using-grounded-action-as-a-learning-process/>.
- McGinnis, J. M., Saunders, R. S., & Olsen, L. A. (2011). *Patients Charting the Course:: Citizen Engagement in the Learning Health System: Workshop Summary*: National Academies Press.
- McKenzie, J., van Winkelen, C., & Grewal, S. (2011). Developing organisational decision-making capability: a knowledge manager's guide. *Journal of Knowledge Management*, 15(3), 403-421.
- Metaxiotis, K. S. (2011). Healthcare Knowledge Management. In D. G. Schwartz & D. Te'eni (Eds.), *Encyclopedia of knowledge management* (2 ed., pp. 204-210). the United States of America.
- Pauleen, D., & Yoong, P. (2004). Studying human-centered IT innovation using a grounded action learning approach. *The Qualitative Report*, 9(1), 137-160.
- Ranaweera, P. (2008). Importance of Information Literacy skills for an Information Literate society. In *Proceedings NACLIS, Colombo (Sri Lanka)*. Retrieved from: <http://eprints.rclis.org/archive/00014146>.
- Riazi, A. M. (2016). *The Routledge Encyclopedia of Research Methods in Applied Linguistics*: Routledge.
- Safar, A. H., & Alkhezzi, F. A. (2014). PKM tools for academia:Ingredients for success in the global knowledge society. *TOJET*, 13(3).
- Schaffhauser, D. (2015). 6 in 10 millennials have 'low' technology skills. Campus Technology. Retrieved from <http://campustechnology.com/articles/2015/06/11/report-6-of-10-millennials-have-low-technology-skills.aspx>.
- Schmuck, R. A. (2008). *Practical action research: A collection of articles*: Corwin Press.
- Sher, P. J., & Lee, V. C. (2004). Information technology as a facilitator for enhancing dynamic capabilities through knowledge management. *Information and Management*, 41(8), 933-945.
- Siminoff, L. A., & Step, M. M. (2005). A communication model of shared decision making: accounting for cancer treatment decisions. *Health Psychology*, 24(4S), S99.
- Świgoń, M. (2013). Personal knowledge and information management—conception and exemplification. *Journal of Information Science*, 39(6), 832-845.
- Vahdat, S., Hamzehgardeshi, L., Hessam, S., & Hamzehgardeshi, Z. (2014). Patient involvement in health care decision making: a review. *Iranian Red Crescent Medical Journal*, 16(1).
- Vroom, V. H., & Yetton, P. W. (1973). *Leadership and decision-making*: University of Pittsburgh Pre.
- Wood, N. L. (2012). *Individual differences in decision-making styles as predictors of good decision making*. Bowling Green State University.
- Zhou, Y., Wang, B., & Ju, C. (2014). The cultivating of information literacy and information technology in a classification talent training system. *World Transactions on Engineering and Technology Education*, 12(1).
- Zuber-Skerritt, O. (1995). Models for action research. *Moving on: Creative Applications of Action Learning and Action Research*, ALARPM Association, Brisbane, 2-29.

Appendix A Training Program

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

Copyright

Copyright: © 2016 Huang. This is an open-access article distributed under the terms of the [Creative Commons Attribution-NonCommercial 3.0 Australia License](https://creativecommons.org/licenses/by-nc/3.0/), which permits non-commercial use, distribution, and reproduction in any medium, provided the original author and ACIS are credited.