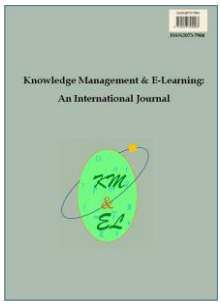
# Editorial: Visualizing user experience and stories: From customer journeys to patient experience mapping

**Andre W. Kushniruk**
University of Victoria, Victoria, BC, Canada
**Avi Parush**
Technion – Israel Institute of Technology, Technion City, Haifa, Israel




**Knowledge Management & E-Learning: An International Journal (KM&EL)**
ISSN 2073-7904

**Recommended citation:**
Kushniruk, A. W., & Parush, A. (2020). Editorial: Visualizing user experience and stories: From customer journeys to patient experience mapping. *Knowledge Management & E-Learning, 12*(4), 380–386. https://doi.org/10.34105/j.kmel.2020.12.020

*Knowledge Management & E-Learning, 12(4), 380–386*

# Editorial: Visualizing user experience and stories: From customer journeys to patient experience mapping

Andre W. Kushniruk*

School of Health Information Science
University of Victoria, Victoria, BC, Canada
E-mail: andrek@uvic.ca

Avi Parush

Faculty of Industrial Engineering and Management
Technion – Israel Institute of Technology, Technion City, Haifa, Israel
E-mail: aparush@technion.ac.il

*Corresponding author

**Abstract:** Patient journey mapping represents a visual approach to documenting and analysing the experiences and stories of patients as they move through healthcare systems. Journey maps can also diagrammatically illustrate how patients interact with other stakeholders, systems and organizations throughout their journey. In this special issue a variety of innovative and scientific approaches to mapping the patient journey are described. The methods range from development of journey maps based on observation and interviews, to developing maps based on results of evidence-based literature reviews as well as from case studies. The outputs of the mapping may include an improved understanding of patient experiences, issues and problems encountered as well as the identification of opportunities for improving the healthcare process, patient experience and health outcomes. In this issue a range of health-related applications are described in order to illustrate the potential of the approach for improving complex domains such as healthcare.

**Keywords:** Patient journey mapping; User journey mapping; Human factors; Health information; Consumer e-Health; Healthcare

**Biographical notes**: Dr. Andre Kushniruk is Professor and Director of the School of Health Information Science at the University of Victoria, British Columbia, Canada. He has published widely in the area of health informatics and is known for his work in the usability of healthcare information systems. Dr. Kushniruk conducts research in a number of areas and he focuses on developing new methods for the evaluation of information technology in healthcare. Dr. Kushniruk has been a key researcher on a number of national and international collaborative projects. His work includes evaluation of systems for use by healthcare providers, patients and citizens.

Dr. Avi Parush is a Professor at the Industrial Engineering and Management Faculty, The Israel Institute of Technology, and an emeritus professor at Carleton University, Ottawa, Canada. He received his PhD in Psychology from McGill University, Montreal, Canada. His current research focuses on healthcare with a particular emphasis on how HCI and usability influence patient experience, safety, and empowerment. He is the lead author of the book: "Human Factors in Healthcare: A Field Guide to Continuous Improvement", he

is the founding editor in chief of the Journal of Usability Studies, and is currently a section editor in the Journal of Medical Internet Research – Human Factors, and on the editorial board of the Human Factors journal.

## 1. Introduction

This special issue of the KM&EL is dedicated to showcasing advances in the use of journey mapping techniques and methods for improving healthcare processes, patient experience and healthcare outcomes. Patient journey mapping holds considerable promise as a method that allows for visualizing and analysing processes involved in complex domains such as healthcare using a variety of diagramming techniques. As described in the papers in the issue, the journey of the patient, their caregiver and their providers as they interact with and move through the healthcare system can be complicated and may be viewed from multiple perspectives, including from the lens of the patient, the caregiver, the health professionals involved and the healthcare system itself. Furthermore, there is much to learn from considering the same journey as viewed through multiple lenses in arriving at a clear description that highlights the complex interactions of different stakeholders in healthcare, as described by Parush and colleagues (Parush et al., 2014; Parush, 2019). The movement towards patient empowerment and increased involvement of patients has spurred work in patient journey mapping in recent years (Eysenbach & Diepgen, 2001). In addition, the move towards a better understanding the needs, understanding and role of patients and citizens alike in their own healthcare processes has become a major research area within the field of consumer health informatics and the study of eHealth literacy (Monkman & Kushniruk, 2015; Kayser et al., 2015).

Patient journey mapping has evolved from work in user and customer journey mapping to multiple other literatures ranging from human factors, to business, marketing and applied psychology (Kalbach, 2016). Although there are now a range of methods employed, the objective of mapping is typically to improve understanding and communication of the processes, feelings and experiences of those involved in journeys through complex domains such as healthcare. Customer journey mapping has been an important aspect of management and has focused on the experiential aspects of customers' journeys (Kalbach, 2016). In contrast, other methods such as service blueprints includes a focus on the end user's experience, but also describe an organization's processes and actors. This broader perspective includes attempting to capture some of the holistic and lived aspects of experience, personal aspects as well as situational and contextual factors, which are essential in understanding complex journeys in areas such as healthcare.

The visual diagrams used in mapping can provide compelling documentation that can be examined to explore new ways of doing things by considering how processes are currently being carried out and how they could be improved. They can highlight where opportunities exist for improvement (e.g., in a healthcare process) or where they may be opportunities for improving the patient or caregiver experience, as well as improving and optimizing the implementation of processes around healthcare. It is hoped this will lead to better patient health outcomes by identifying and rectifying issues identified in the journey (e.g., excessive wait times for cancer patients). The approaches may also allow for visualizing and gaining strategic insights, as well as supporting healthcare organizations in continuing to optimize and innovate care. A general process for mapping

often involves the stages of initiating, investigating, illustrating and then analysing the results of the mapping (Kalbach, 2016). The outputs of this process can be used to help end users (e.g., patients) in anticipating and preparing for healthcare processes (e.g., treatments and management of disease). The outputs can also be used by healthcare decision makers, researchers and management to answer open as well as specific questions, identify bottlenecks, conduct quality improvement efforts and fill gaps in knowledge about what the ultimate "customer" in the healthcare process actually experiences – i.e., the patient.

## 2. A Range of methodological approaches

These methods typically involve explicating and visualizing the experiences of end users, customers and other stakeholders in navigating and participating in sometimes complex journeys over time. Nowhere is this more salient and important than in the area of healthcare, where patients, caregivers, health professionals and managers face complex problems, informational gaps and in some cases potentially life-threatening issues and problems that can occur over time throughout their health journeys. This may be compounded by lack of accurate information, lack of integration of information, lengthy wait times, urgency and the existence of "silos" of information that may not be integrated. In addition, with the focus of healthcare on patient-centric care, the understanding of what the consumers of healthcare (i.e., patients) experience, feel and understand will become increasingly critical. The papers in this issue focus on advancing this field by describing cutting-edge work in the complex domain of healthcare that bridges human factors perspectives with health information science, cognitive psychology, design science and the study of information technology. The papers provide examples of how scientific and methodological advances can be applied to improve the validity, reliability and usefulness of mapping techniques in healthcare.

In the issue a number of the papers have focused on how information technology can be applied throughout the patient journey from a state of being healthy, to the need for health interventions through to disease management and recovery. This has included work on examining how information technology and online information resources (such as the World Wide Web) may be used along the journey by patients to improve their healthcare journey and improve healthcare outcomes and patient experience (Kushniruk, 2019). Methods applied to obtain a scientific basis for developing patient journey maps that are described in this issue include the following: basing the mapping on results of scoping reviews, interviews, case studies and design thinking methodologies.

The applications of mapping discussed in this issue include how patient journey mapping can be used to understand how citizens and patients can be informed about new prescriptions, how the cancer care process can be improved through use of information resources, the application of mapping for medical education, uses of journey mapping in applications supporting assured living at home (allowing elderly and disabled patients to live at home), and the improvement of interventions for the opioid crisis (using innovative technologies). One theme of these papers is how information technology can be better incorporated in the patient journey, as there currently exists a great opportunity to improve healthcare if technology integrates into the patient journey in useful and innovative ways. Another theme is the need to consider a range of stakeholders and interactions when mapping out the healthcare journey, as the journey through the healthcare system invariably is not an isolated experience, but rather typically involves several interactions, multiple actors, many systems and sometimes conflicting objectives and goals. Along these lines, a number of the papers in the issue focus on the perspective

of the patient in the context of collaboration with their providers, technologies available to them and the overall healthcare system itself. Current practices, challenges and future opportunities for applying patient journey mapping to improve both patient experience and health outcomes are highlighted in a number of the papers.

## 3. Preview of papers

In the paper entitled "Patient journey mapping: Current practices, challenges and future opportunities in healthcare" Joseph et al. (2020) present an introduction to patient journey mapping. The authors discuss the variations in the overall approach and types of journey map diagrams that have appeared in the literature in the domain of healthcare. In addition, they focus their discussion in the context of patient empowerment and describe the results of a scoping review of literature from the healthcare literature and provide insight into gaps and opportunities.

The paper entitled "A case study of patient journey mapping to identify gaps in healthcare: Learning from experience with cancer diagnosis and treatment" by Kushniruk et al. (2020), describes a unique case study and example of how patient journey mapping can provide deep insight into gaps and opportunities for improving cancer care, treatment and healthcare. The approach used is novel in considering a range of key factors along the timeline of the entire patient journey, including key patient events, use of a range of healthcare information systems and access to a wide range of online information resources that are publically available to patients.

In considering the use of patient journey mapping to inform design, implementation and deployment of commercial products for supporting caregivers and patients at home, Ahn and Aghvami (2020) describe an approach to supporting deployment of smart home technologies. In their paper entitled "Innovative care: Using 'A day in the life' as a tool to explore opportunities for a tech-enabled home for older Canadians" they show how the activities of caregivers dealing with older family members at home can be visualized using journey mapping. The use of this approach as a collaboration and communication tool to support better understanding of user needs and lead to improved uptake of assistive technology is described.

In the paper entitled "Opportunities for improving how and when Canadians are informed about new prescription medications" Monkman et al. (2020) describe an experimental study of consumers' preferences for how they would like to receive medication information (and what type of media they prefer for presenting this). Based on the results of the study they created a journey map of the typical Canadian prescription process. The authors discuss the implications of this work for improving patient and lay person understanding of medication instructions to improve current prescription processes.

In the paper entitled "The current state of knowledge on mobile health interventions for opioid related harm: Integrating scoping review findings with the patient journey" Aggarwal et al. (2020) describe how they used results from a scoping review and patient journey mapping to inform the targeting of mHealth applications and interventions. They show how these interventions can be focused on the prevention, diagnosis and post-recovery phases of the patient journey.

In a unique approach to the education of medical professional students, Park et al. (2020) describe an online journey mapping exercise involving medical students and physician assistant students. In their paper entitled "Portrait of Ms. Diaz: Empirical study

of patient journey mapping instruction for medical professional students" the authors describe how students worked in small groups to create journey maps for a patient case. The objective was to teach about patient empathy skills, person-centred care and socio-ecological determinants of health. The authors found that the exercise helped students to empathize with patient and identify clinical as well as societal problems in healthcare delivery and design.

In the paper "Initial steps to measurement and improvement of family-centered communication during the pediatric patient journey of bone marrow transplantation" Huber et al. (2020) describe their work in better understanding the needs of patient families. Focussing on an approach known as patient- and family-centered care (PFCC) the authors identify barriers and facilitators to PFCC through focus groups and family participation in daily rounds. Next steps and future work in this important area are described.

Campbell (2020) discusses a new framework for considering usability in the paper entitled "Healthcare experience design: A conceptual and methodological framework for understanding the effects of usability on the access, delivery, and receipt of healthcare". This healthcare design framework was found to be a useful conceptual model and approach for identifying usability problems. The importance and implications of healthcare experience design are discussed in the context of improving usability of systems for consumer adoption.

In the paper "Patient journey mapping: Integrating digital technologies into the journey" Borycki et al. (2020) describe how they developed a patient journey map based on cancer case reporting. The authors describe how the journey mapping can be used as a tool for supporting and decision making about how technologies could be integrated into the patient journey. The implications of considering the entire patient journey for identifying opportunities for integration of information technologies is described. The authors conclude that patient journey mapping can be a powerful tool for guiding the insertion of technologies into the healthcare process for supporting improved healthcare from the patient's perspective.

## 4. Conclusion

In conclusion, we hope this special issue will stimulate new ideas and approaches that journey mapping may offer not only in healthcare, but in any number of complex domains. By visually capturing the experiences, processes and issues involved in healthcare in scientific, replicable and useful ways, it is hoped that methods, approaches and applications described in this issue will motivate and spur further work along these lines ultimately leading to improved experiences (and outcomes) for all stakeholders. This knowledge will become increasingly important in understanding the experiences of all stakeholders and participants involved in complex areas such as healthcare.

## Acknowledgements

The authors would like to thank the Editors-in-Chief Dr. Maggie M. Want and Dr. Stephen J.H. Yang for the opportunity to put together a set of papers on such a diverse, interesting and timely topic area. This issue would not have been possible without their support, guidance and patience.

## Author Statement

The authors declare that they have no conflict of interest.

## ORCID

*Andre W. Kushniruk* https://orcid.org/0000-0002-2557-9288

*Avi Parush* https://orcid.org/0000-0003-4435-8576

## References

Aggarwal, M., Borycki, E. M., Wagner, E., & Gosselin, K. (2020). The current state of knowledge on mobile health interventions for opioid related harm: Integrating scoping review findings with the patient journey. *Knowledge Management & E-Learning, 12*(4), 448–468.

Ahn, R., & Aghvami, S. (2020). Innovative care: Using 'A day in the life' as a tool to explore opportunities for a tech-enabled home for older Canadians. *Knowledge Management & E-Learning, 12*(4), 419–426.

Borycki, E. M., Kushniruk, A. W., Wagner, E., & Kletke, R. (2020). Patient journey mapping: Integrating digital technologies into the journey. *Knowledge Management & E-Learning, 12*(4), 521–535.

Campbell, J. L. (2020). Healthcare experience design: A conceptual and methodological framework for understanding the effects of usability on the access, delivery, and receipt of healthcare. *Knowledge Management & E-Learning, 12*(4), 505–520.

Eysenbach, G., & Diepgen, T. L. (2001). The role of e-health and consumer health informatics for evidence-based patient choice in the 21st century. *Clinics in Dermatology, 19*(1), 11–17.

Huber, J. F., Dexheimer, J. W., Ingraham, H., Desmond, C., Klunk, A., Kusnier, K., Nebrig, D., Flesch, L., Borich, A., Davies, S. M., & Dandoy, C. E. (2020). Initial steps to measurement and improvement of family-centered communication during the pediatric patient journey of bone marrow transplantation. *Knowledge Management & E-Learning, 12*(4), 488–504.

Joseph, A. L., Kushniruk, A. W., & Borycki, E. M. (2020). Patient journey mapping: Current practices, challenges and future opportunities in healthcare. *Knowledge Management & E-Learning, 12*(4), 387–404.

Kalbach, J. (2016). *Mapping experience: A complete guide to creating value through journeys, blueprints and diagrams*. Sebatopol, CA: O'Reilly Media.

Kayser, L., Kushniruk, A., Osborne, R. H., Norgaard, O., & Turner, P. (2015). Enhancing the effectiveness of consumer-focused health information technology systems through eHealth literacy: A framework for understanding users' needs. *JMIR Human Factors, 2*(1): e9.

Kushniruk, A. (2019). The importance of health information on the internet: How it saved my life and how it can save yours. *Journal of Medical Internet Research, 21*(10): e16690.

Kushniruk, A. W., Borycki, E. M., & Parush, A. (2020). A case study of patient journey mapping to identify gaps in healthcare: Learning from experience with cancer diagnosis and treatment. *Knowledge Management & E-Learning, 12*(4), 405–418.

Monkman, H., & Kushniruk, A. W. (2015). eHealth literacy issues, constructs, models, and methods for health information technology design and evaluation. *Knowledge Management & E-Learning, 7*(4), 541–549.

Monkman, H., Kushniruk, A. W., Borycki, E. M., Sheets, D., Barnett, J., & Park, H. (2020). Opportunities for improving how and when Canadians are informed about new prescription medications. *Knowledge Management & E-Learning, 12*(4), 427–447.

Park, H., Monkman, H., Wenger, A., & Lesselroth, B. (2020). Portrait of Ms. Diaz: Empirical study of patient journey mapping instruction for medical professional students. *Knowledge Management & E-Learning, 12*(4), 469–487.

Parush, A. (2019). Designing health information for mutual empowerment in the joint journey of patients and healthcare professionals. *Studies in Health Technology and Informatics, 257*, 341–345.

Parush, A., Levin, M. L., & Campbell, C. (2014). Dual patient-healthcare provider experience mapping and implications for information technology deployment and clinic layout. In V. Duffy & N. Lightner (Eds.), *Advances in Human Aspects of Healthcare* (pp. 389–396). Boca Raton, FL: CRC Press.