A CRITIQUE OF MY LITERATURE REVIEW

-Anson Gift

June 1st, 2017

**LITERATURE REVIEW**

Information Technology has become an inherent component of all aspects of modern life as human beings seek better ways to improve their civilization. The healthcare field has historically been among the last industries to implement technological innovation but if the adoption rates of Electronic Health Record Systems are any indication, Henry, Pylypchuk, Searcy, and Patel (2016) have presented evidence of tremendous progress since 2008. The relevance of healthcare information technology has increased exponentially with the advent of strong demand for improved quality of patient care, associated documentation and resultant efficiencies encapsulated in the Affordable Care Act (ACA) (Strudwick, 2015). The way that medical office administrators and managers can meet these demands involved the adoption of newly developed and improved technological and logistical methods of managing patient care records.

As healthcare information technology researchers develop and present evolving technologies, the interaction between users of these technologies and the technologies is key in the success or failure of these various initiatives (Asan & Carayon, 2017). Exploring the interaction between technology and technology users, the goal of this literature review was to first, consider health care reform, which drives healthcare technology evolution. Second, examine the antecedent business implications of the current state of healthcare reform and the resultant legislature and requirements. Third, explore the Technology Acceptance Model, as it exists today. Fourth, investigate and report about the origins and evolution of the model. Fifth, present related theories that have predated, and precipitated from the Technology Acceptance Model. Sixth, correlate users’ acceptance of new technology acceptance and changes in business success.

In support of my doctoral study, I have reviewed a number of academic presentations regarding the Technology Acceptance Model and the applications of this theory and similar aligned theories in the Healthcare Information Technology field. The ABI/INFORM Global, EBSCOhost, ERIC, ProQuest Central, PubMed, and SAGE Publications are excellent resources to gather reference information associated with a variety of topics including the central theme of my doctoral study. I used search terms, such as *patient protection and affordable care act, affordable care act, origin of healthcare reform, MACRA, technology acceptance, technology acceptance model, unified theory of acceptance and use of technology, theory of reasoned action, innovation readiness, organizational dynamics, health information technology, HITECH, ARRA, CMS, EMR, EHR, technology adoption, and change process*. Using these terms, I titrated the mass of available information to elicit content considered relevant to the focus of the theory and the associated theme echnology Acceptance Model. As an additional method of identifying relevant resources, I reviewed the citation listing of each article for sources that contained information germane to the focal theory. I excluded articles published prior to 2013 with the exception of resources that delivered foundation constructs that are critical to the introduction of the theory to the academic and scientific communities. I gathered reference information from XX resources of which XX% were published prior to 2013, and XX% were published between 2013 and 2017.

**The reform of healthcare standards**

**The business of healthcare**

**The Technology Acceptance Model**

 As researchers compared successful technology evolutions and implementation with the mass of abject failures, they recognized that the cooperation of the users of the technology is a primary limiting factor for success or failure. In 1985, the most relevant theory to explain the how members of an organizational dealt with change was the theory Ajzen and Fishbein (1975) postulated called the Theory of Reasoned Action (TRA). These researchers posited that in the event of impending change, how users feel about the change, combined with how they believe others expect them to act in the situation weigh heavily on their behavior and actions. This framework was the incubator for the Technology Acceptance Model (TAM) that Fred Davis (1985) advanced in his dissertation. He designed the model to incorporate specific analysis of how members of an organization respond to the introduction of new technology initiatives.

One of the greatest challenges in business operations is to remain relevant and maintain, or increase, competitive advantage. In a widely commoditized business environment, one of the few ways to stay relevant, meet new challenges, or achieve competitive advantage is through the development and incorporation of technological solutions. The inherent cost of technology and technological development is an excellent reason why organizational leaders try to gather knowledge not only about how new technology functions. It is also important to understand the potential challenges in promulgating the technology among organizational users who the leaders need to make the new processes financially successful. The Theory of Reasoned Action and the Technology Acceptance Model are important to organizational leaders who are trying to understand how to implement technology and the possible hindrances to successful adoption among organizational users.

**The origin and evolution of the Technology Acceptance Model**

Researchers sought to provide an explanation for users’ actions and behaviors when faced with changing demands in the workplace. Prior to the genesis of the Technology Acceptance Model (TAM), academics widely accepted Ajzen and Fishbein’s Theory of Reasoned Action (TRA) to explain users’ behavior in business situations (Davis, 1985 (Fador, 2014). The researchers postulated an explanation for how people are motivated to perform particular actions in general settings demonstrating that behavioral intention is a driving factor behind the way a person performs a particular activity (Fador, 2014). In a more granular analysis, the researchers indicated that a person’s attitude and subjective norms influence behavioral intention, providing an opportunity to predict how users would react in a variety of situations. Administrators and managers began to seek out this information to help predict responses to continuing, or new, technology stimuli in many different arenas, including business, academia, and healthcare.

For this study, an emphasis on the healthcare industry hones the focus of the associated research question and the relevance of theories discussing new technology in that arena. In healthcare, demands for improved levels of reliability, portability, interoperability, and efficiency to improve the quality of patient care, compound general business (Ducey & Coovert, 2016; Strudwick, 2015). Therefore, despite the general focus of the TAM and the variety of precipitated, antecedent concepts, the central focus of this doctoral study is the acceptance of emerging technology by users in the healthcare field.

The TRA discussion helped administrative managers understand the psychology associated with users’ motivational drivers but the approach was general to actions within any organization. Expanding on this theory, Davis (1985) began to look for specific variables and causal relationships among different aspects of the motivational and execution spectrum specific to the introduction of information technology. Many administrators and managers had begun to recognize technology as the means to enhance and develop their entities by a variety of technology-enhanced methods. These methods included improvement of standard operating procedures, better marketing processes, and more efficient tracking and evaluation of key performance indicators. In an attempt to quantify and predict successes of technology initiatives, researcher Davis identified two main constructs called the Perceived Usefulness (PU), and the Perceived Ease of Use (PEOU) as parts of what he named the Technology Acceptance Model. Davis specifically identified and acknowledging the concepts of the Theory of Reasoned Action as the source to clarify the association between the two constructs of the TAM (Abdullah, Ward, & Ahmed, 2016; Davis, 1985). Davis postulated his TAM to help explain and predict potential success, or lack thereof, of new technology implementation by identifying pertinent factors that lead to organizational users adopting new technology.

In his postulate, Davis presented a standard for predicting how organizational users will respond to new technology. A theory where researchers and experts from many widely distributed countries have adopted the PU and PEOU, as integral components in the development of new technical platforms and anticipating the strategies needed to foster adoption (Abdullah, Ward, & Ahmed, 2016). As researchers recognized the importance and reliability of the constructs, they widely accepted the PU to refer to the user’s perception of how using the technology would improve his or her job (Fador, 2014). Compounding that perception, users would also reflect on the PEOU to decide how willing they would be to accept new technology (Fador, 2014b). Complimentarily, Davis (1985) presented these two main constructs to help predict the behavior of organizational users when presented with new Information Technology. This predictive strategy is an integral foundation for administrative managers to determine what strategies they can use to foster adoption of new technology within their organizations for compliance or fiscal benefits.

As experts reviewed the tenets of the TAM, they scrutinized PU to develop an understanding of how users analyze the usefulness of a technology system in improving job performance, and therefore apply particular behaviors and usage. With the significant importance of users’ analysis, the constructs of user perception, including pre-conceived notions and individual experiences, compounded with social influences and group acceptance forces are central to the PU (Collazo, Wu, Elen, & Clarebout, 2014; Wallace & Sheetz, 2014). Users all present with their own personal preconceived perspectives and paradigms. Administrative managers may evaluate users’ PU to determine the feasibility of implementing information technology platforms (Wallace & Sheetz, 2014). Administrative managers can incorporate this aspect of the TAM to gauge to the degree to which organizational users consider new technology systems useful in improving job performance when combined with PEOU.

The complexity of determining how to implement new technology is significant. The second concept that is part of the TAM is the PEOU where users interpret the inherent effort needed to learn, or use, a new technology system (Davis, Bagozzi, & Warshaw, 1989). Generally, researchers consider users to be cognitive misers who are unwilling to expend the necessary effort to learn and adapt to new technology in a business environment (Ducey & Coovert, 2016; Gyamfi, 2016). Promoting systems with highly complex user interfaces can cause significant resistance from users and may potentially affect operations by causing distractions, disillusion, disenchantment, and possibly resignation among users. As part of the implementation strategy, administrative managers could seek to make the adoption process as simple as possible for users, improving PEOU, fostering acceptance, and facilitating adoption.

The strategies that managers can use to foster adoption of new technology are critical to the successful operation of business activities. In the implementation of new technology, the TAM successfully addresses the attitudes that precipitate users’ attitudes toward the proposed technology solution (Strudwick, 2015). The attitudes that users develop after analyzing the PU and the PEOU are the genesis of users’ behavior toward the same technology (Figure 1) and form major predictors about the success of new technology initiatives.



FIGURE 1. Technology Acceptance Model (TAM) (Davis, Bagozzi, & Warshaw, 1989)

The importance of predicting how users will react to new technology initiatives is one of the main reasons why managers value the TAM, the TRA and other similar constructs.

References

Abdullah, F., & Ward, R. (2016). Developing a general extended technology acceptance model for e-learning (GETAMEL) by analysing commonly used external factors. *Computers in Human Behavior, 56*, 238-256. doi:10.1016/j.chb.2015.11.036

Abdullah, F., Ward, R., & Ahmed, E. (2016). Investigating the influence of the most commonly used external variables of the TAM on students' perceived ease of use (PEOU) and perceived usefulness (PU) of e-portfolios. *In Computers in Human Behavior, 63*, 75-90. doi:10.1016/i.chb.2016.05.014

Asan, O., & Carayon, P. (2017). Human factors of health information technology. *International Journal of Human-Computer Interaction, 33*(4), 255-257. doi:10.1080/10447318.2017.1282755

Collazo, J., Wu, X., Elen, J., & Clarebout, G. (2014). Tool use in computer-based learning environments: Adopting and extending the technology acceptance model. *ISRN Education*, 1-11. doi:10.1155/2014/736931

Davis, F. (1985). A technology acceptance model for emperically testing new end-user information systems: Theory and results. (Doctoral dissertation, Massachusetts Institute of Technology). Retrieved from https://www.researchgate.net

Davis, F., Bagozzi, R., & Warshaw, P. (1989). User acceptance of computer technology: A comparison of two thoeretical models. *Management Science, 35*(8), 982-1003. doi:10.1287/mnsc.35.8.982

Ducey, A. J., & Coovert, M. D. (2016). Predicting tablet computer use: An extended technology acceptance model for physicians. *In Health Policy and Technology, 5*(3), 268-284. doi:10.1016/j.hlpt.2016.03.010

Fador, A. G. (2014). Innovation and technology acceptance model (TAM): A theoretical apporach. *Romanian Journal of Marketing*, 59-65. Retrieved from f

Fador, A. G. (2014b). The emergence and development of the technology acceptance model (TAM). *Proceedings of the International Conference Marketihng - from Information to Decision*, (pp. 149-160). Retrieved from http://eds.a.ebscohost.com.ezp.waldenulibrary.org

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research.* Reading, MA: Addison-Wesley.

Gyamfi, S. (2016). Identifying Ghanian pre-service teachers' readiness for computer use: A technology acceptance model approach. *International Journal of Educatioin and Development using Information and Communication Technology, 12*(2), 105-122. Retrieved from http://eds.a.ebscohost.com.ezp.waldenulibrary.org

Henry, J., Pylypchuk, Y., Searcy, T., & Patel, V. (2016). Adoption of electronic health record systems among U.A. non-federal acute care hospitals: 2008-2015. *ONC Data Brief, no.35. Office of the National Coordinator for Health Information Technology: Washington DC.* Retrieved from https://dashboard.healthit.gov/

Strudwick, G. (2015). Predicting nurses' use of healthcare technology using the technology acceptance model. *CIN: Computers, Informatics, Nursing, 33*(5), 189-198. Retrieved from http://eds.a.ebscohost.com.ezp.waldenulibrary.org

Wallace, L., & Sheetz, S. (2014). The adoption of software measures: A techology acceptance model (TAM) perspective. *Information & Management, 51*(2), 249-259. doi:10.1016/j.im.2013.12.003