

Spring 5-14-2015

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Michele L. Heath

Cleveland State University, m.heath@vikes.csuohio.edu

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Recommended Citation

Heath, Michele L., "IT Cultural Conflict, Trust Belief in IT Artifacts, and User Involvement: Conceptual Study of Meaningful Use Resistance" (2015). *MWAIS 2015 Proceedings*. 14.
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IT Cultural Conflict, Trust Belief in IT Artifacts, and User Involvement: Conceptual Study of Meaningful Use Resistance

Michele L. Heath
Cleveland State University
m.heath@vikes.csuohio.edu

ABSTRACT

Barriers to the adoption of EHR (EHR) systems have been well documented. Researchers and practitioners agree that the benefits of EHR systems are contingent on MU (MU) of EHR. However, most research on the barriers to MU (set of standards defined by Centers for Medicare & Medicaid Services) is a theoretical and anecdotal. Despite industry wide agreement on the benefits of EHR and other forms of health information technology, health care providers have moved slowly to adopt these technologies. Whether or not physicians support and use EHRs will have a great influence on other user groups in a medical practice, such as nurses and administrative staff. The research objective for this paper is to understand the impact of IT Culture Conflict on MU Resistance and the direct effect of User Involvement and indirect effect of Trusting Belief in IT Artifacts. Implications for research and practice are discussed.

Keywords

Electronic Health Records, IT Cultural Conflict, Trust Belief in IT Artifacts, User Resistance

INTRODUCTION

The widespread adoption of EHR promises many benefits including improvements in quality and the concomitant reduction in medical error rates, enhanced cost effectiveness, and greater patient involvement in their health care decision making (Ford, 2006). While adoption of EHR, defined as installation of the required hardware and software, is important the potential benefits of EHR adoption depend on the (Meaningful Use) MU of the EHR system (Boonstra, 2010). Acknowledging the importance of MU beyond adoption of EHR, CMS has developed standards for the different stages of MU and has designed an incentive system to encourage MU of EHR systems. From 2009 to 2012, hospital adoption of at least a Basic EHR without clinician notes (MU 1) more than tripled, increasing from 16% to 56% (Hsiao, 2013). CMS sees MU related financial incentives as a primary motivator for physician to adopt and use EHR, projecting that 80 percent of them will do so by 2016, despite the associated challenges and costs (Savage, 2013). However, recent published data on MU shows that the incentives have not been sufficient to encourage widespread MU of EHR systems (Kannry, 2012). The CMS report (2014) also revealed a drop in the retention rate of attesting physicians. Of the 11,578 family physicians who attested to MU Stage 1 in 2011, only 9,188 did so in 2012, a 21 percent drop in participation (CMS, 2014).

Barriers to adoption of EHR systems installation of hardware and software has been well documented. The main barriers include perceived cost, poor project planning, lack of accountability, absentee sponsors, (Boonstra, 2010). However, research on the barriers to "MU" is still evolving. The theory on use such as UTAUT typically provide a good lens to understand use related problems. The key constraint to the UTAUT theory is perceived usefulness and ease of use explains user intention. Therefore, this study seeks alternative theoretical basis to understand resistance to MU. One of the important barriers to MU is the resistance from doctors. Research also shows that doctors resist using EHR systems despite understanding its potential benefits (Flanigan, 2013). Almost three quarters of doctors say they prefer their personal clinician notes over computer based entry and filing systems, and 60 percent of those who have installed EHR continue to keep paper records (Flanigan, 2013). The current literature on EHR fails to provide an explanation of such resistance from doctors. This study argues that understanding and addressing doctor's resistance to MU of EHR is the key to the success of EHR system. This research highlights that incentives are not sufficient to induce MU. Unless the cultural conflict that causes user resistance to MU is addressed, the rate of MU will continue to remain subdued. Further, there are important implications for the hospitals/practices that are investing in EHR implementations.

LITERATURE REVIEW AND PROPOSITIONS

Culture is the collective programming of a group of people (Hofstede 1993). Research shows that values represent a manifestation of culture that signifies espoused beliefs identifying what is important to a particular cultural group. These values answer the question as to why people behave the way they do (Schein 1985). Extending this view of cultural values, the theory of IT culture conflict takes a value based approach to understanding user resistance in the context of IT development, adoption, use, and management (Leidner and Kayworth, 2006). Specifically, it examines cultural values from three perspectives: group member values (values held by members of a group that signify the espoused beliefs about what is important to the particular group), IT values (values that a group ascribes to IT in general), and values embedded in a specific IT (values that are assumed in the work behaviors that the IT is designed to enable) (Leidner and Kayworth, 2006). IT culture conflict theory argues that with mismatch among these three sets of cultural values, three kinds of IT culture conflict arise: system, vision, and contribution. System conflict arises when the values attributed to the new system conflicts with the group member’s values. Vision conflict arises when individual’s IT values are in conflict with the values perceived to be embedded in a particular information system. Contribution conflict is defined as the contradiction between group member values and the group’s IT values Leidner and Kayworth (2006).

After an extensive search on culture and what influence culture, the topic of trust in IT artifacts has piqued interest among researchers, but studies of this form of trust are not definitive regarding which factors influence or contribute to it the most. Schein is one the first researchers to establish a relationship between culture and artifacts. Schein's view focuses on what artifacts and values reveal about basic assumptions. We focus on initial trust that is formed after users have a first experience with such increasingly automated IT artifacts (McKnight et al., 2002b). Despite we are aware of the fact that trust building is a dynamic process, the focus on initial trust can be justified using two reasons (Wang and Benbasat, 2005). First, when users interact with an IT artifact they are not familiar with, their perceptions of uncertainty and risk about using the IT artifact are especially salient (McKnight et al. 2002b). Consequently, sufficient initial trust is needed to overcome these perceptions. Although trust research has shown that initial trust beliefs may change over time (Rempel et al. 1985), users will first rely on initial trust to determine the extent to which future interactions will take place (McKnight et al. 2002b). Consequently, we consider examining initial trust in IT artifacts is important to determining the relationship between culture, user involvement and resistance. The research model is presented in Figure 1.

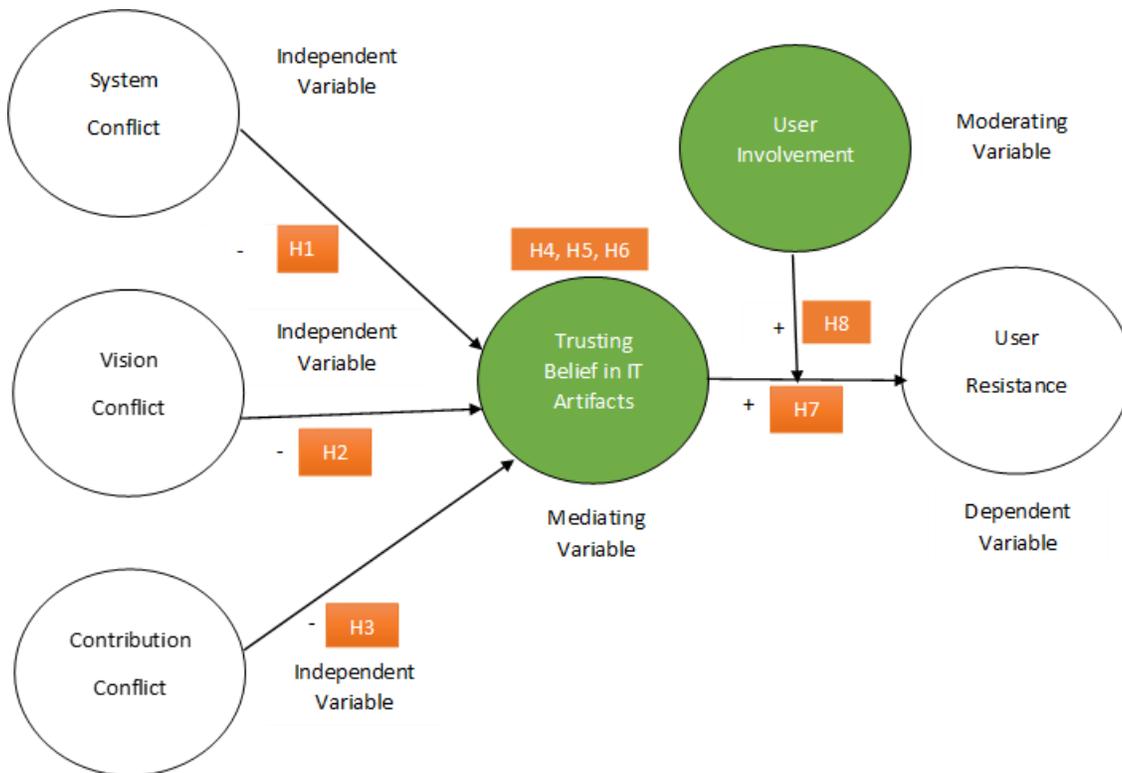


Figure 1: Model

System Conflict

System conflict is likely to arise when an organization implements applications from the market without customizing the applications for its particular user groups. In such situations, the non-customized applications are embedded with values of a different group, coming from a different organization and often a different country (Leidner, 2006). The standard EHR is at odds with the hospital culture and practices yet to customize the applications often increases cost and the likelihood of project failures (Schumacher, 2013). When systems are adopted in spite of the presence of system conflict, one outcome will be that members of the user group will alter their use of the system to support their values. The alteration may be intentional but is more likely to be a natural behavior based upon what is culturally acceptable to the user group. Culture and trust is an important explanatory factor in the use of information systems. It has, for example, been tied to an individual's willingness to become committed to new technologies (Straub, 1994). We therefore suggest that system conflict will negatively affect Trusting Belief in IT Artifacts.

Vision Conflict

Vision conflict requires users to reconcile mixed signals concerning the values they associate with IT in general and the values they perceive to be embedded in a particular information system (EHR in this case). As enterprise-wide systems are implemented, system conflict is unavoidable. The various subunits spanned may not share values, and indeed, during major organizational transformations such as those introduced by IT, value differences among user groups are likely to arise (Wollin 1999). The contradictory signals challenge their perception of IT. Examples of vision conflict include an EHR system embedded with values related to authority and control being implemented for a group that associates IT with professional autonomy, or an IT designed to promote efficiency (such that efficiency is the value embedded in the IT) for a group that perceives IT as a time consuming burden (Leidner and Kayworth, 2006). We therefore suggest that vision conflict will negatively affect Trusting Belief in IT Artifacts.

Contribution Conflict

Contribution conflict is perceived relevance. Perceived relevance is the heart of why people accept or reject technology. An example of contribution conflict might include physicians identifying IT as a tool for isolation in a relationship oriented group (Leidner and Kayworth, 2006). Contribution conflict describes instances when the values of members of a group conflict with the values the group associates with IT in general. Because user group values take precedence in an organization, if IT is not regarded as representing improvement by the users, the use of IT is very unlikely. We theorize that contribution conflict will negatively affect Trusting Belief in IT Artifacts.

Trust Belief IT Artifacts

Researchers have shown that the trust formation process holds even when an IT artifact is the object of trust (Wang and Benbasat, 2005). During the trust formation process, people observe available cues to form trusting beliefs (Gefen et al, 2006). Vance et al. (2008) found that culture directly affects trust in artifacts in relation to technology adoption. We conclude that Trusting Belief in IT artifacts mediate the relationship between IT cultural conflict and user resistance.

User Involvement

In contrast to user participation, user involvement refers to a psychological state. Fishbein and Ajzen's (1975) defines user involvement as a belief and refers to the extent to which a person believes that a system possesses two characteristics, importance and personal relevance. According to Fishbein and Ajzen (1975), beliefs link an object or behavior to some attribute, characteristic, or outcome. In this case of user involvement, the system is being linked to importance and personal relevance. Individuals who view the system as both important and personally relevant are also likely to hold positive attitudes concerning the system. We theorize that user involvement will positively moderate the relationship between Trust Belief in IT Artifacts and User Resistance. Therefore, we develop propositions (see Figure 2).

Propositions	
P1	System conflict will negatively affect Trust Belief in IT Artifacts
P2	Vision conflict will negatively affect Trust Belief in IT Artifacts.
P3	Contribution conflict will negatively affect Trust Belief in IT Artifacts.
P4	Trust Belief in IT Artifacts is positively related to User resistance.
P5	Trust Belief in IT Artifacts mediates the relationship between System conflict and User resistance.
P6	Trust Belief in IT Artifacts mediate the relationship between Vision conflict and User resistance.
P7	Trust Belief in IT Artifacts mediate the relationship between Contribution conflict and User resistance.
P8	User Involvement positively moderates the relationship between Trust Belief in IT Artifacts and User resistance.
Figure 2	

IMPLICATIONS FOR RESEARCH AND PRACTICE

Our research hold a number of theoretical and practical implications. There exist a number of papers that examine physician resistance to EHR. However, many investigations of EHR resistance have a limited scope, as they focus on different reasons for physicians s resist EHR (Boonstra, 2010). Furthermore, prior research underestimates the fact that culture and values plays an important role on why and how resistance is formed. This is evident, as scholars have tended to focus on specific reasons for resistance of EHR (Ajami, 2013) rather than a comprehensive look at how IT values create conflict. Although valuable in their own right, such studies offer limited insights about the association between EHR resistance, culture, values, trust and conflict. Some of our key findings support our initial propositions, while other need further evidence.

The most important contribution to this study is to help hospitals understand why physicians are resisting MU. There are numerous benefits to replacing paper charts with EHR (EHR) including, but not limited to, provider integration, record legibility, and other clinical benefits. Some argue these benefits are defeated by EHR detriments, which include the high cost of transitioning to EHR from paper records, the inefficiency of many EHR systems, and the fact that such systems can sometimes be hard to use and difficult to maintain. Given these various pros and cons of EHRs, some physicians have welcomed the change, a substantial number have not. Although the government has offered incentives to encourage physicians to switch to EHRs, and various EHR systems are being heavily pushed by hospitals, there are still physicians who have yet to buy into the value of EHRs. Hospitals appear to be growing frustrated with physicians on their medical staff who refuse to get on board with EHR (Silow-Carroll, 2012). It is important for hospitals to understand and combat reasons for resistance as the government deadline for penalty is approaching.

CONCLUSION

Most research to date has only looked at physician barriers to EHR resistance. This paper set forth to understand how values, belief, and trust play a role in user resistance among physicians and their use of the EHR system. We thus provide a framework that explains the inherent conflicts among values that may accompany the implementation of EHR. We explore the mediating relationship of Trust Belief of IT artifacts as well as the moderating relationship of user involvement. We argue that through the reconciliation of these conflicts, IT subtly exerts pressures on the values inherent in the conflict resulting in a reorientation of values. It is via this reorientation of values that IT, over time, influences culture (Leidner, 2006). We propose IT cultural conflict theory to assess how and why conflict arises. Trust Belief in IT artifact is proposed to mediate the relationship. We also assessed whether user involvement positively moderates the relationship between Trust Belief in IT artifact and user resistance.

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