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Spring 4-29-2020

# Understanding User Adaptation Responses to Health Information Technology Use in Saudi Arabia: A Coping Theory Perspective

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### Recommended Citation

Abozenadah, Hanof and Connolly, Regina, "Understanding User Adaptation Responses to Health Information Technology Use in Saudi Arabia: A Coping Theory Perspective" (2020). *UK Academy for Information Systems Conference Proceedings 2020*. 2.

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## **UKAIS Submission Abstract**

# **Understanding User Adaptation Responses to Health Information Technology Use in Saudi Arabia: A Coping Theory Perspective**

*Research-in-Progress (Developmental Paper)*

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# Understanding User Adaptation Responses to Health Information Technology Use in Saudi Arabia: A Coping Theory Perspective

## Abstract

*The introduction of a new information technology can cause wide-ranging organisational changes; changes that are perceived by users in differing ways and consequently can result in a wide variety of adaptation responses. Understanding those responses, how they are formed and how they can be positively managed is a complex but worthwhile task that is necessary in order to ensure optimal usage of technology. This paper outlines an in-progress study that examines user responses to a mandatory health information technology that has been introduced in Saudi Arabia. Interviews are conducted at defined data points with nurses and doctors working in four acute care hospitals in Jeddah, as well as with the CIOs and Managers of those hospitals. The study findings contribute to the body of knowledge regarding the key drivers and processes that underpin different types of user response in a mandatory IT use setting, including identifying the factors that can cause those behaviours to transition over time. These findings will provide useful insights for managers seeking to achieve optimal employee usage of health information technologies.*

**Keywords:** Coping Theory, Adaptation response, Health information system

## 1.0 Introduction: A Time of Transformation

The Kingdom of Saudi Arabia (KSA) is going through enormous social change as a result of shifting demographics and economic realities (Moh.gov.sa, 2019). It is predicted that by 2030 the country's population will have grown to 40 million people (United Nations, 2015), the majority of whom will live in urban areas. When examined in more detail, the changing demographic profile is even more unique. For example, sixty percent of the population is under the age of 21 years and approximately 2.93% of the population are over the age of 65 years (General Authority for Statistics, 2019). Citizens are also living longer. According to the WHO 2018 data, the average life expectancy in KSA is 76.5 years for females and 73.5 years for males, which gives KSA a world life expectancy rating of 84 (Life Expectancy in Saudi Arabia, 2018). However, that longevity is also characterised by increased co-morbidities as people develop chronic illness that must be managed over an increased life span. For example, the Ministry of Health in KSA has detected that there is a sharp growth in chronic diseases (Alqahtani et al., 2017), defined by the National Cancer Institute (2019) as a condition with a length of three or more months that may get worse over time. Examples of chronic diseases include obesity, diabetes

and cancer. In fact, work by Saquib et al. (2017) has found that one in four adults in Saudi Arabia are now either diabetic or obese. The prevalence of these health problems allied to an increasing population that is characterised by greater longevity is placing significant strain on healthcare services in particular.

In tandem with these changes, KSA is seeking to diversify its economic policies as part of its efforts to generate greater national and structural resilience. The government's National Transformation Programme (NTP, 2020) seeks to transform the country's economy by diversifying its sources of income from the traditional dominant emphasis on oil. That programme and its vision for transforming the services of each governmental department, including the health service, are articulated in a strategy document titled "Vision 2030" which has the objective of increasing efficiency in public services whilst reducing public expenditure. With an increasing population characterised by increased longevity and co-morbidities, it is understandable that improvement of healthcare services is a primary objective of the KSA government. As a result, significant investments have been made into provision of healthcare technologies that facilitate improved health services for citizens. These include electronic health records and multiple health support and management apps. One such application – called Seha – was launched in 2018. This application facilitates remote visual medical consultation between patients and doctors by enabling all Saudi citizens with a medical problem to obtain a free online consultation from an accredited physician, even if the patient is currently based outside of the country. Communication can be conducted through online chat, video call, email, or simply voice. The use of this system is now mandatory for the general practitioner who works under the MOH system in KSA. However, this does not mean that medical professionals will willingly accept or use it. In a mandatory usage setting, the ways in which resistance manifests is nuanced and the factors that influence individuals' adaptation responses to a mandatorily introduced technology is unclear. Similarly whether, how and why that response may change over time is also unclear.

This paper describes a study that is currently being conducted to examine the coping adaptation strategies of doctors and nurses in the context of mandatory introduction of the health information technology system in KSA hospitals. It starts

with a brief discussion of the factors underlying resistance to technology and proceeds to outline how coping theory can provide us with a valuable lens for understanding user adaptation responses. The research design of the study is also outlined, and the paper concludes with an outline of the study timeline and its anticipated contribution.

## **2.0 Resistance to IT**

In the literature, user resistance to technology tends to be viewed negatively, as an undesirable response that impedes successful technology implementation and restrains organizational success (Kossek et al., 1994; Ansof, 1988). It is considered to result in employee dissatisfaction, low morale and decreased productivity (Hirschheim & Newman, 1988; Markus, 1983). However, research has shown that resistance is more complex than previously thought, it can be nuanced in its expression and therefore conceptualizing it along a binary framework of acceptance/ resistance is both limiting and inaccurate (Lapointe & Rivard, 2005). It may be more appropriate to employ coping theory in order to understand users' responses to mandatory IT.

### **2.1 Coping Responses**

The premise of coping theory is that users tend towards the particular coping response that is likely to be most effective in reestablishing their sense of personal well being (Lazarus & Folkman, 1984). In the context of technology implementations, Beaudry and Pinsonneault (2005) conceptualize those coping responses as manifesting in 4 ways, which they describe as benefits maximizing, benefits satisfying, self-preservation and disturbance handling. Those responses result from opportunity appraisals in conjunction with assessment of the level of control that the user perceives that he or she has over the technology. Subsequent work by Lapointe & Beaudry (2014) also points to four types of user coping response to mandatory IT use, which they describe as acceptance, resistance and IT compliance or non-compliance. More importantly, they maintain that these four forms of response can co-exist within the same organization at the same time and suggest that examining them simultaneously will provide a clearer picture of how users respond to the IT. The work of Beaudry and Pinsonneault (2010) and more recently that of Bhattarjee et al., (2018) has incorporated an understanding of the role of emotions in relation to

mandated IT use. Using a coping theoretic lens, Bhattejee et al they have presented a more detailed taxonomy of four different user responses that can co-emerge during mandated IT implementation. These responses are engaged, compliant, reluctant, or deviant. Each response reflects the user's perception of their perceived control subsequent to their appraisal of the IT as either an opportunity or threat. They advocate for the need to examine whether positive and negative responses towards and] IT can exist simultaneously (such as when an IT is viewed as helpful for task performance, but as a threat for other reasons such as increased transparency) and they also call for research to identify the influence mechanisms that can be used to change users behaviours from reluctant use to engaged used. That is the purpose of this study.

### **3.0 Research Design**

The primary questions that this study seeks to answer are what are the differing user responses that manifest in a mandatory health information systems context in Saudi Arabia; what are the factors that drive the formation of those responses; and what mechanisms cause user behaviour to transition over time. In order to answer those questions, in-depth interviews will be conducted with medical professionals using the EHR system in four major hospitals in Jeddah. Interviews will also be conducted with the Managers and CIOs of these hospitals to provide comparative perspectives. These interviews will be conducted at staggered time points over a period of 12 months in order to determine whether responses have changed over that time. Thematic analysis will be employed to analyse the textual data. As the limited number of previous studies that have employed coping theory in relation to IT implementation obtained data from respondents in North America, the current study will also provide an interesting counterpoint from a cultural comparison perspective.

### **4.0 Conclusion**

This paper has outlined an in-progress study that examines user responses to a mandatory health information technology that was recently introduced in Saudi Arabia. Interviews are being conducted at defined data points with nurses and doctors

working in four acute care hospitals in Jeddah, as well as with the CIOs and Managers of those hospitals. The study findings will contribute to the body of knowledge regarding the key drivers and processes that underpin different types of user response in a mandatory IT use setting, including identifying the factors that can cause those behaviours to change over time. It will also provide practical useful insights for managers seeking to achieve optimal usage of health information technologies.

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