

UNIVERSITY OF SOUTHERN QUEENSLAND

**An exploratory investigation of usage of digital
stethoscope by clinicians in telehealth setting
through Information Systems success model**

A Dissertation submitted by

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ABSTRACT

Telehealth systems have been identified as a means of improving access and quality of healthcare services, particularly those in rural and remote areas. Since physicians are the primary users of telehealth infrastructure in providing quality care, their level of technology usage has an impact on a system's success. This study builds on current research by developing a framework to evaluate the use of DS by clinicians in a telehealth environment.

Three popular digital stethoscopes available in the market were chosen for this study and their technical features identified. A preliminary framework to assess the usage of a new medical technology, digital stethoscope in a telehealth setting was developed, based mainly on specific attributes of IS success model and Technology Acceptance Model (TAM). The study explores the relationship between information quality, system quality, service quality and their impact on clinicians' satisfaction and usage of the system.

The study was conducted in five stages: literature review, small pilot test, documentation review, focus group, and observation. The qualitative case study approach was identified as the most suitable for this study. Documentation review, observations and focus group interviews were adopted as the main qualitative data collection methods within this exploratory study. In total, 19 focus groups in India and three in Australia were conducted in hospitals located in either metropolitan areas or regional networks. The collected data was imported into Nvivo 8 for further analysis and examined for themes relevant to the literature and the development of the subsequent conceptual framework.

The key premise informing this research has been that understanding users' perceptions towards a particular medical technology is required prior to the successful implementation of a telehealth system where Digital Stethoscopes (DS) are deployed. The main finding of the study was clinicians' perceptions toward medical technologies appear to be consistent within both case studies, except for aspects such as cost and design. The information quality, service quality and system quality of a telehealth system where a DS is deployed appears to have an impact on

the level of user satisfaction and, consequently, may influence clinicians' intention to accept and use the DS in their daily practice. The preliminary conceptual model developed for this study based on the literature review to guide the data collection remained relatively unchanged, although additional factors have been included as a result of clinicians' views, thus enhancing Information Systems success model.

This dissertation contributes to the number of existing theories and provides practical outcomes for three different groups: health managers, manufacturers and clinicians.

CERTIFICATION OF DISSERTATION

I certify that the ideas, experimental work, results, analyses, software and conclusions reported in this dissertation are entirely my own effort, except where otherwise acknowledged. I also certify that the work is original and has not been previously submitted for any other award, except where otherwise acknowledged.

19 August 2011

A handwritten signature in blue ink, reading "Layla Porcush", is written over a horizontal line. The signature is enclosed within a light yellow rectangular box.

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