

A Model of Information and Communication Technology Acceptance and Utilisation by Occupational Therapists

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Abstract

There is evidence to suggest that health professionals are reluctant to accept and utilise information and communication technologies (ICT) and concern is growing within health informatics research that this is contributing to the lag in adoption and utilisation of ICT across the health sector. Technology acceptance research within the field of information systems has been limited in its application to health and there is a concurrent need to develop and gain empirical support for models of technology acceptance within health and to examine acceptance and utilisation issues amongst health professionals to improve the success of information system implementation in this arena. This paper outlines a research project that will examine ICT acceptance and utilisation by Australian occupational therapists. It describes the theoretical basis behind the development of a research model and the methodology that will be employed to empirically validate the model using substantial quantitative, qualitative and longitudinal data. The theoretical significance of this work is that it uses a thoroughly constructed research model, with potentially the largest sample size ever tested, to extend technology acceptance research into the health sector. The results of this study will have practical and theoretical applications for five major stakeholder groups.

Keywords

Technology acceptance; technology utilisation; information and communication technology (ICT), Unified Theory of Acceptance and Utilisation of Technology (UTAUT); Health IT

1. INTRODUCTION

This paper outlines a research project that will examine information and communication technology acceptance and utilisation by Australian occupational therapists. While technology acceptance research is a mature field in information systems research, its application in the health sector is relatively new. The primary outcome of this research will be the development of a model of technology acceptance behaviour.

2. BACKGROUND

As we move into the 21st century, the way we live is undergoing substantial transformation due to the rapid evolution of information and communication technologies (ICT). The health care system in Australia is undergoing substantial change, and access, adoption, acceptance and use of ICT is gaining increasing importance with advances in information systems and e-health technologies. These technologies will change the practice of occupational therapy and will alter the nature and practice of therapeutic relationships (May et al. 2001; Yellowlees & Brooks 1999), presenting new challenges for the profession. To prepare for these changes, occupational therapists need to be able to utilise existing and emerging ICTs.

2.1 The Current State of Healthcare Acceptance and Use of ICT

Although lagging behind other industries, the use of ICT in health has increased and the administration of many hospitals and healthcare providers are now computerised. Clinical information systems, the Internet, telemedicine, personal digital assistants, electronic patient records and other applications will inevitably become common-place in health (CHIC Ltd 2002; NHIMAC 1999). However, the key players, health professionals, have not fully embraced the valuable resource of ICT (Chismar & Wiley-Patton 2003; Dearne 2003; Murray 2002; Wenn et al. 2002; Western et al. 2001).

User acceptance issues will gain increasing importance as the use of ICT continues to penetrate the health sector. In a recent report on Australia's proposed national health information network, HealthConnect, user acceptance issues were discussed as a risk to successful implementation of the project (Fitzgerald, Aitken & Krauss 2003). This report provided further evidence of the need to increase understanding of acceptance in order to overcome issues of non-acceptance hindering ICT adoption and successful utilisation.

Although research has catalogued the reasons for barriers to using ICT within health (for example: Kaplan & Shaw 2002), there is a paucity of scientifically rigorous research on acceptance and utilisation of ICT within health.

2.2 Technology Acceptance Research Within Health

Technology acceptance research is a mature field in information systems research (Venkatesh et al. 2003), with many models and theories developed and tested. However, despite the large volume of work in this area, very little research has been conducted in a health care context, representing a significant gap in knowledge.

Chau & Hu (2002b) investigated acceptance of telemedicine technology amongst 408 physicians, examining and comparing Davis' Technology Acceptance Model (TAM) (Davis 1989; Davis, Bagozzi & Warshaw 1989), the Theory of Planned Behaviour (Ajzen 1991) and an integrated model. Support was not found for key components of these models, suggesting that healthcare professionals may exhibit fundamental differences from business users and students (commonly used subjects in technology acceptance studies) in their technology acceptance decisions.

A significantly modified version of the original TAM was used to test IT adoption by 101 family physicians (Dixon & Stewart 2000), but the study did not include the enhancements from TAM2 and reported results were poorly linked to the components of TAM. Technology acceptance research drawing on TAM was applied in an Australian community health service, where perceived usefulness was a significant predictor of usage (Jayasuriya 1998), however, a research model was absent from the supporting literature. Chismar & Wiley-Patton (2003) tested the applicability of TAM2 to the acceptance of Internet and Internet-based health applications within 89 paediatric physicians. Results partially confirmed the model, however, a core construct of the model was not supported by the findings (Chismar & Wiley-Patton 2003).

As stated above, it is expected that the use of ICT across the health sector will increase. The ability to identify, predict and manage people's acceptance of technology will facilitate implementation efforts, as the acceptance of ICT by users is necessary for its ultimate success (Al-Gahtani & King 1999; Davis 1989). The need to examine the applicability of technology acceptance models in the health industry marries calls in the health informatics literature for increased knowledge and research on information and telecommunication technologies among Australian health professionals (Kidd & McPhee 1999; Mitchell 1999; NHIMAC 1999). It is these two identified gaps in knowledge that this research aims to address.

2.3 Occupational Therapists

Occupational therapists are allied health professionals who provide support to a wide range of people with physical, psychological or developmental injuries or disabilities. They work with clients across the lifespan, from infancy to old age, and have the common aim to promote, develop, restore and maintain abilities needed to cope with daily activities to prevent dysfunction and promote health (World Federation of Occupational Therapists 2003).

Occupational therapists work in a wide variety of settings including private practice, hospitals, government services, nursing homes, community centres and private industry. The majority work in hospitals (35.8%) and community health services (20.5%), with 7.4% employed in private practice (AIHW 1998). On average, occupational therapists spend over two thirds of their work day in direct client care (AIHW 1998).

According to a labour force report released in 1998, there are over 5000 occupational therapists in Australia (AIHW 1998). Recent personal communication between the author and the OT Australia Associations in each State suggest that the current figure is in excess of 6500. Occupational therapy is a female dominated profession, with males making up only 5.1% of employed occupational therapists (AIHW 1998).

Technology acceptance research in health is limited to nurses and physicians and is yet to be extended to allied health professionals. What little information is known about Australian occupational therapists' use of ICT comes from a report on allied health practitioners in rural Victoria, of which only 42 occupational therapists were included. The descriptive survey found that information technology was not being used sufficiently by allied health practitioners in rural Victoria (CURHEV 1999). The report also confirmed that ICT is a useful and valuable asset in continuing professional development and support (CURHEV 1999).

3. RESEARCH MODEL & HYPOTHESES

Various theoretical models have been devised to investigate technology acceptance in the information systems literature. The research model which will be developed and tested in this study (Figure 1) draws on findings from relevant prior research and is primarily based on the UTAUT model (Venkatesh et al. 2003) and on the generic framework for technology acceptance proposed by Chau & Hu (2002a).

Hu et al. (1999) stated that technology acceptance has three dimensions: 1) characteristics of the individual; 2) characteristics of the technology and 3) characteristics of organisational context. Following this concept, Chau & Hu (2002a) proposed a framework suggesting that an individual's acceptance behaviour is influenced by factors pertaining to the individual context, the technological context and the implementation context. The characteristics of individual users are grouped within the individual context; the technological context refers to the characteristics of the technology itself; while the implementation context refers to the specific professional environment of the user. Chau & Hu's (2002a) framework was applied to the acceptance of telemedicine amongst physicians and was adapted for this research due to its applicability to acceptance within the health sector and for its provision of contexts which assist a systematic examination of technology acceptance that can be targeted for recommendations to various stakeholder groups. As shown in Figure 1, the Research Model incorporates Chau & Hu's (2002a) three dimensions.

The Unified Theory of Acceptance and Use of Technology (UTAUT) was formulated by leading technology acceptance researchers and published in the September 2003 edition of MIS Quarterly (Venkatesh et al. 2003). The model was formulated based on conceptual and empirical similarities across 8 prominent competing technology acceptance models: Davis' Technology Acceptance Model (TAM) (Davis 1989; Davis, Bagozzi & Warshaw 1989); Roger's Innovation Diffusion Theory (IDT) (Rogers 1995); the Theory of Reasoned Action (TRA) (Fishbein & Ajzen 1975); the Motivation Model (MM) (Davis, Bagozzi & Warshaw 1992); the Theory of Planned Behavior (TPB) (Ajzen 1991); the Combined TAM and TPB (Taylor & Todd 1995); the Model of PC Utilization (MPCU) (Thompson, Higgins & Howell 1991; Triandis 1977); and Social Cognitive Theory (Bandura 1986; Compeau & Higgins 1995a; Compeau & Higgins 1995b; Compeau, Higgins & Huff 1999). UTAUT was empirically validated amongst 4 businesses in various industries (the health sector was a notable exception) and cross-validated using data from another 2. UTAUT was able to explain 70% of technology acceptance behaviour, a considerable improvement on previous models which routinely explain over 40% of acceptance (Venkatesh et al. 2003).

UTAUT contains four core determinants of intention and usage – performance expectancy, effort expectancy, social influence and facilitating conditions (Venkatesh et al. 2003). The variables of gender, age, experience and voluntariness of use moderate the key relationships in the model (Venkatesh et al. 2003). As shown in Figure 1, these determinants and moderators have all been adapted for use in the proposed research model. The remainder of this section describes the research model and provides theoretical justification for the hypotheses.

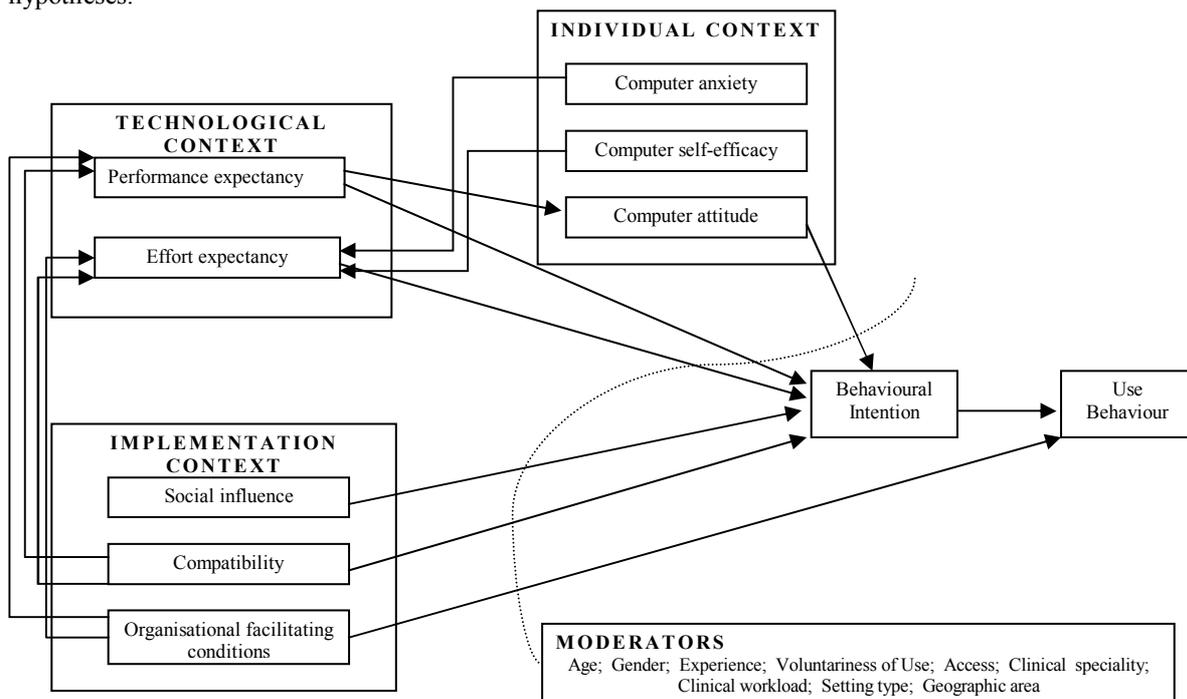


Figure 1: Research Model

3.1 Individual Context

The individual context of the research model encompasses computer anxiety, computer self-efficacy and computer attitude. The empirical evidence from UTAUT suggests that both computer self-efficacy and computer anxiety do not exert a significant influence on behavioural intention, due to the effect being captured by the existence of effort expectancy (Venkatesh et al. 2003). UTAUT also concedes that computer attitude will not have a significant influence on behavioural intention due to the effect being captured by process and effort expectancy (Venkatesh et al. 2003).

Conceivably, occupational therapists, as a group, may exhibit characteristics that are different from other end users, business managers and students who have been the traditional subjects of technology acceptance research. It is also possible that the significance of these individual characteristics on technology acceptance may differ in this group, compared to others. Attitude towards computers was found to play a critical role in the technology acceptance decisions of physicians (Chau & Hu 2002b; Hu et al. 1999), acting as the second most important determinant of acceptance. Attitude was also found to be a direct predictor of behavioural intent in nursing staff (Hebert 1994).

H1: Computer attitude will positively affect the intensity of occupational therapists' behavioural intention.

As supported by UTAUT and research reported by Venkatesh (2000), computer self-efficacy and computer anxiety are expected to have no direct effect on behavioural intention and a direct effect on effort expectancy.

H2: Computer self-efficacy will have a direct effect on effort expectancy.

H3: Computer anxiety will have a direct effect on effort expectancy.

H4: Computer self-efficacy will not have a significant effect on occupational therapists' behavioural intention.

H5: Computer anxiety will not have a significant effect on occupational therapists' behavioural intention.

3.2 Technological Context

The importance of perception in an individual's evaluation of technology and their decision to accept it is attested to in literature from both the cognitive and behavioural sciences. Perceptions rather than objective technology attributes have been found to be more relevant to technology acceptance decision making (Moore & Benbasat 1991), and are the focus of the investigation into technological context in this study. The technological context is made up of two determinants – performance expectancy and effort expectancy.

3.2.1 Performance Expectancy

Taken from UTAUT, performance expectancy is defined as the degree to which an individual believes that using ICT will help him or her to attain gains in job performance (Venkatesh et al. 2003). In previous acceptance studies, the performance expectancy construct is consistently a strong predictor of intention (Davis, Bagozzi & Warshaw 1992; Taylor & Todd 1995; Venkatesh & Davis 2000; Venkatesh et al. 2003). In a health care context, performance expectancy is important to technology acceptance decision making and may influence behavioural intention both directly and indirectly through the determinant of attitude (Chau & Hu 2002a). The significance of performance expectancy to health professionals has been consistently shown in those studies that have examined technology acceptance in health (Chau & Hu 2002b; Chismar & Wiley-Patton 2003; Hu et al. 1999; Jayasuriya 1998).

H6: Performance expectancy will positively affect occupational therapists' attitude toward accepting technology.

H7: Performance expectancy will positively affect the intensity of occupational therapists' behavioural intention.

3.2.2 Effort Expectancy

Effort expectancy is defined as the degree of ease associated with the use of the system (Venkatesh et al. 2003). In stark contrast to technology acceptance studies in other environments, studies completed in the health sector suggest that effort expectancy is not applicable in the health professional context (Chau & Hu 2002b; Chismar & Wiley-Patton 2003; Hu et al. 1999; Jayasuriya 1998). In all these studies, effort expectancy (operationalised as 'ease of use') was found to have no significant influence on intention behaviour. Despite these results, it was decided to include effort expectancy in the research model to limit deviation from UTAUT and due to the need

for further empirical research to validate the significance of effort expectancy on acceptance decisions. Indeed, given the significant time demands placed on clinicians, it could be argued that technologies that are perceived to be uncomplicated or easy to use would have positive influences on behavioural intention, due to the limited time a therapist would need to invest in learning how to use the technology.

H8: Effort expectancy will positively affect the intensity of occupational therapists' behavioural intention.

3.3 Implementation Context

The specific professional environment of the user as outlined in the research model includes the determinants of social influence, organisational facilitating conditions and compatibility.

3.3.1 Social Influence

Social influence, as defined by UTAUT and modified for this research, is the degree to which an individual perceives that important others believe he or she should use a technology. The impact of this construct on behaviour is through compliance, internalisation and identification (Venkatesh & Davis 2000). Through internalisation and identification an individual's belief structure is altered, whereas compliance causes an individual to alter his or her intention based on social influence (Venkatesh et al. 2003). The direct effect of social influence on behavioural intention has been shown in technology acceptance studies (Karahanna, Straub & Chervany 1999; Venkatesh & Davis 2000) but conflicts with those studies that have occurred in the health sector. Social influences were insignificant in the intention decisions of physicians to use Internet-based health applications (Chismar & Wiley-Patton 2003) and in the intention decisions of physicians to use telemedicine (Chau & Hu 2002b).

Occupational therapists are a small community within the health sector and do not generally act as autonomously as physicians. They are often part of an allied health care team so it is plausible that social norms and pressures may be significant in determining their technology acceptance decisions.

H9: Social influence will positively affect the intensity of occupational therapists' behavioural intention.

3.3.2 Organisational Facilitating Conditions

Organisational facilitating conditions are defined as the degree to which an individual believes that an organisational and technical infrastructure exists to support use of the system (Venkatesh et al. 2003). This incorporates objective factors in the implementation context such as management support, training and the provision of computer support. Although this definition was used in the research on UTAUT (Venkatesh et al. 2003), an important distinction in this study is that the concept of compatibility (which was combined in this construct for UTAUT) has assumed its own construct in the research model (discussion below). Support for the investigation of organisational facilitating conditions can be found in the health informatics literature (Anderson 1997; Kaplan 1997; Kaplan 2001) and telemedicine studies (Gagnon et al. 2003) and in the information systems literature (Bergeron, Rivard & DeSerre 1990; Igarria et al. 1997; Thompson, Higgins & Howell 1991; Venkatesh et al. 2003; Yetton, Sharma & Southon 1999).

H10: Organisational facilitating conditions will have a direct effect on effort expectancy.

H11: Organisational facilitating conditions will have a direct effect on performance expectancy.

UTAUT found evidence suggesting the insignificance of facilitating conditions in predicting behavioural intention when both performance expectancy constructs and effort expectancy constructs are present in the model (Venkatesh et al. 2003). However, their findings indicate the influence of organisational facilitating conditions on actual usage.

H12: Organisational facilitating conditions will not have a significant influence on occupational therapists' behavioural intention.

H13: Organisational facilitating conditions will positively affect the intensity of occupational therapists' use behaviour.

3.3.3 Compatibility

The UTAUT does not contain a separate determinant for compatibility and instead combines this construct into its definition of facilitating conditions (Venkatesh et al. 2003). In this research model, compatibility is defined as the degree to which an innovation is perceived as being consistent with the existing practices, values, needs

and experiences of the health care professional (adapted from (Chau & Hu 2002a; Moore & Benbasat 1991; Rogers 1995; Taylor & Todd 1995)). In a health care context, compatibility of a technology with the work practices, values, needs and experiences of the user becomes a crucial determinant in acceptance decision-making. The high value placed on the therapeutic relationship between a client and therapist can not be underestimated as it is a crucial tool in the therapeutic process. An innovation which is perceived to be incompatible with this process or incompatible with the ultimate aim of improved patient outcome, will ultimately lead to rejection of the innovation by health care professionals. This is emphasised by research conducted into telepsychiatry innovation in clinical practice (May et al. 2001). In this instance, health care professionals who were initially championing the virtues of telepsychiatry, eventually found that the technology threatened deeply embedded professional constructs about the nature and practice of therapeutic relationships and was eventually rejected and resisted in a determined way (May et al. 2001).

H14: Compatibility will positively affect the intensity of occupational therapists' behavioural intention.

Compatibility may also influence behavioural intention indirectly through performance expectancy and effort expectancy. Chau & Hu (2002a) found support for compatibility of telemedicine technology exerting a significant effect on perceived usefulness. It is plausible that compatibility will directly affect both performance expectancy and effort expectancy, as a therapist is likely to perceive technology as being useful to their practice, if it is compatible with it; and is likely to believe the technology as easy to use if they view it as compatible with their work practices.

H15: Compatibility will have a direct effect on performance expectancy.

H16: Compatibility will have a direct effect on effort expectancy.

3.4 Moderators

UTAUT identifies four key moderating variables that were found to significantly influence intention and/or use behaviour: gender, age, experience and voluntariness of use (Venkatesh et al. 2003). While age, experience and voluntariness are likely to exert similar moderating effects in this study, the effect of gender is more complex and may differ from previous research on technology acceptance. This is for two reasons. Firstly, the subjects of prior technology acceptance research have been predominantly male, whereas the majority of occupational therapists are female and work in a female-dominated environment. Thus it is possible that gender does not have the same influence as it has shown in male-dominated contexts. Secondly, in a health care context the ultimate aim is the improvement of patient outcome and as employee promotions and rewards are less influenced by job performance than in private industry, it is plausible that gender will not exert the same influence on performance and effort expectancy as found in UTAUT.

The moderating influence of other variables on behavioural intention will be tested in this research. Specifically, the influence of access to ICT, clinical speciality, clinical workload, setting type and geographic area.

3.5 Behavioural Intention

The intention-behaviour relationship is well documented in the technology acceptance literature and has been found to be conclusive when applied to industry and health-care contexts (Chau & Hu 2001; Chismar & Wiley-Patton 2003; Davis, Bagozzi & Warshaw 1989; Sheppard, Harwick & Warshaw 1988; Venkatesh et al. 2003).

H17: Behavioural intention will have a significant positive influence on occupational therapists' use behaviour.

The link between intention to use a technology and actual usage is well-established (Ajzen 1991; Mathieson 1991; Sheppard, Harwick & Warshaw 1988; Taylor & Todd 1995; Venkatesh & Morris 2000) and both variables may be used to measure technology acceptance.

4. RESEARCH OBJECTIVE

The primary objective of this study is to investigate how well prepared occupational therapists are to adapt to the imminent changes in their workplace, and in their interaction with clients, by examining the acceptance and use of ICT by occupational therapists. It is important to note that the focus of this research is on ICT use and acceptance by occupational therapists, not on the ICT used by clients/patients in their therapy. The primary outcome of the research will be the development and validation of a model to explain ICT acceptance by occupational therapists. A research model formulated from the literature will be empirically validated from

data collected in a national survey of occupational therapists. It is proposed to further test this model through its application in a longitudinal field-study of two separate organisations.

5. SIGNIFICANCE

This research will provide evidence on occupational therapists' current utilisation of ICT and develop a model for explaining technology acceptance within the profession. The significance of this research and its associated outcomes will have implications for five main stakeholder groups.

1) Government

With the majority (77.2%) of occupational therapists working in the public sector (AIHW 1998), information on how technology acceptance and utilisation of ICT by occupational therapists can be influenced and improved provides a useful tool for health administrators and managers to assess the likelihood of success for new and existing technology. It also allows employers, health administrators and managers to proactively design and target interventions to increase the success of new innovations. This is particularly pertinent given the government's substantive work on developing an e-health plan for Australia (Fitzgerald, Aitken & Krauss 2003).

2) Educators

Information technology has been identified as a key element driving the future of occupational therapy practice and education (School of Occupational Therapy 2001). Recommendations developed from this research will be aimed at education providers to ensure occupational therapists are well-prepared to adapt to the imminent changes in their workplace, to be able to effectively utilise technological devices and importantly, to be able to critically apply their knowledge to maximise their client's ability to use and accept new technologies.

3) Occupational therapists

Measures designed to extend and enhance the capacity of therapists to utilise the potential of existing and developing technologies is in the interest of the profession. As technology continues to advance and permeate the modern world, it will continue to have significant impacts on work, leisure, self-care and health. Occupational therapists will increasingly find themselves needing to utilise technology both in their work tasks and in their interventions with clients. In their recent editorial, Breines & Pellerito (2003) draw from historical perspectives of occupational therapists and computer use to predict that ... "Occupational therapists will take their place in societies of the future by demonstrating their expertise in technologies that facilitate performance in life's occupations and roles. Scholars, technical experts and consumers who understand these tools will affect this process" (Breines & Pellerito 2003vi). It is thus essential to ensure user acceptance issues do not hamper the continual growth and advancement of the profession of occupational therapy.

4) IS professionals and community

Knowledge created in this research will be of interest to the information system community, as recommendations will be created for IS professionals to improve the acceptance and use, and thus the marketability of their products.

5) IS researchers

This study addresses a need for technology acceptance research in the health sector. Knowledge created will contribute to technology acceptance research by advancing current knowledge and extending the theoretical validity and empirical applicability of existing knowledge to health care professionals.

6. THE PROPOSED RESEARCH

The proposed research will comprise a three-phase study design to collect substantial quantitative, qualitative and longitudinal data on technology acceptance and use amongst occupational therapists.

6.1 Phase I: Model development and revision

Phase I consists of the development of a preliminary research model of ICT acceptance, questionnaire development and pre-testing and conducting focus groups to obtain qualitative data on technology acceptance and use issues amongst occupational therapists. As outlined earlier in this document, a preliminary research model and associated hypotheses have been devised, based on UTAUT and a synthesis of relevant prior studies

reported in the literature. Two focus groups will be conducted with Western Australian occupational therapists, one rurally based and one metropolitan based. This distinction is necessary as previous research has suggested a difference in the needs for and uses of ICT by rural vs metropolitan based health professionals (Buckley et al. 1996; CURHEV 1999). Information gathered from these groups will inform model and questionnaire development.

6.2 Phase II: Studying behavioural intention and acceptance

A survey research design will be utilised in phase II, involving a national survey sent to over 6500 Australian occupational therapists to provide cross-sectional data on behavioural intention and acceptance of ICT and other issues surrounding utilisation of ICT. This substantial quantitative data will be used to empirically test the research model and the associated hypotheses described earlier in this paper.

Behavioural intention will be the focus of phase II of the study, with actual usage being measured in the final phase. This distinction is necessary as the cross-sectional data collected in phase II will not lend itself to accurate, comparable measurements of usage due to differences in the array of, and access to, ICTs amongst such a large cohort of therapists in diverse environments.

6.3 Phase III: Studying actual usage and acceptance

Phase III is a naturalistic inquiry, exploring actual usage behaviour and patterns of usage in two organisations. A longitudinal multi-method field study is designed to apply the research model to two healthcare organisations, providing both quantitative and qualitative longitudinal data on actual usage and acceptance of ICT. This data will be used to cross-validate the research model and to enhance understanding of ICT acceptance and use amongst occupational therapists.

Analysing user perceptions and behaviour longitudinally permits a detailed understanding of technology acceptance and use over time. This is consistent with prior technology acceptance research (Davis, Bagozzi & Warshaw 1989; Venkatesh, Morris & Ackerman 2000; Venkatesh et al. 2003). The combination of quantitative and qualitative methods in information systems research, as opposed to only quantitative, is an important methodology consideration (Kaplan & Duchon 1988), and one that is noticeably infrequent in technology acceptance research. Collecting qualitative data recognises the importance of context, people and organisational issues in the use and acceptance of ICT; and the dynamic interaction between the constructs which may change over time. It will also increase the robustness of results by permitting triangulation of the data and providing a deeper understanding of what is actually occurring (Kaplan & Duchon 1988).

Quantitative data collection will be via the questionnaire used in Phase II, appropriately modified to reflect the specific technology being studied. Qualitative data on acceptance issues will be collected via interviews with employees and through the addition of open-ended questions on the questionnaire, as directed by the content of the initial round of employee interviews.

Multiple case sampling will apply to the organisations selected to participate in the research and within-case sampling will apply to the individuals selected for interviews within these organisations. Both the multiple-case sampling and within-case sampling procedure will be theoretically driven. As described by Miles & Huberman (1994), the sampling frame will be guided by the research questions and conceptual framework. Heterogeneity across technologies, system function, organisations and nature of use (voluntary vs mandatory) will be sought.

Data collection will be longitudinal over a 7 month timeframe, timed in conjunction with the introduction and use of a new technology. The pre-tested questionnaire will be administered at three points in time: 1 week post-training (T1), one month post-implementation (T2) and three months post-implementation (T3). Actual usage will be the dependent variable in this phase and will be measured over the six month post-implementation period, using data from system logs. Experience will be operationalised via a dummy variable of ordinal values (0 at T1, 1 at T2, and 2 at T3) to capture increasing levels of experience with the technology. This is consistent with the methodology employed by Venkatesh et al. (2003) in their cross-validation of the UTAUT model. The interviews will be conducted prior to installation of the new technology, at T1, T2, T3 and 6 months following implementation (T4).

7. CONCLUSION

There is a concurrent need to examine the applicability of technology acceptance models in the health sector and a need for increased knowledge and research on information and telecommunication technologies among Australian health professionals (Kidd & McPhee 1999; Mitchell 1999; NHIMAC 1999). It is these two identified gaps in knowledge that this research aims to address. This research will develop a model of

technology acceptance by Australian occupational therapists, which will be empirically validated by cross sectional data from a national sample and cross-validated by a detailed examination of technology acceptance within 2 healthcare organisations over a 7 month timeframe.

When fully developed, the model will offer a way of examining technology acceptance within the health sector, which can also be further developed and tested in non-health care settings. The research will enhance knowledge of the utilisation of ICT by occupational therapists and of the factors affecting ICT acceptance by therapists. This knowledge and the outcomes of this research will make substantial contributions to conceptual knowledge and practice within information systems and health and be particularly applicable for five major stakeholder groups – namely the public sector, tertiary educators, occupational therapists and information systems professionals and researchers.

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