SMART ACADEMIC LIBRARIES WITH SMART MODEL OF MOBILE TECHNOLOGY APPLICATION

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Abstract

India is undergoing a digital revolution with penetration of SMART phones has bought a generational change in way of providing services. Academic libraries in India are still in old mode of doing things with a card based catalogue method. There is a need to reform the academic libraries in tune with present technological advancements .Government of India's Digital India Programme has further provided impetus in reinvigorating the libraries .The purpose of this paper is to investigate the primary roles of interactivity, perceived usefulness and ease with which user uses' and   user attitudes and intentions to use mobile library apps. Additionally, with the advancement of mobile library services, the current study employs techniques such as user satisfaction factors as antecedents of intentions to use mobile library apps and this proposed model helps to build quality in digital libraries (DLs) which is grounded framework of digital libraries ie.,4 S Spaces, Structures Scenarios, and Societies.

Keywords: Library Mobile applications, Mobile Technology, Mobile Communication System, Smart Phone.

1.0 Introduction:

Mobile library services are developing at a rapid rate to meet recent user trends. Concurrent with these library services, academic libraries have built mobile library applications (apps), in order to provide a convenient way for users to approach a library's services. Users can search a library's catalogue, view library events, reserve library facilities, and request interlibrary loan services. location-based services are also available in mobile library apps. Despite the efforts of libraries, potential users may not use mobile library apps. Given the resources invested in developing systems and improving functional performance, library and information science researchers have noted that digital libraries are often overlooked by students or seriously underutilized in spite of their availability, therefore there is need to bring about structural as well as functional change in order to stimulate the intent amongst the users to use mobile library apps.

Few studies have aimed to investigate the effects of multiple factors on user acceptance of mobile library apps based on the technology acceptance. The proposed TAM (Technology Assisted Model) explores factors that affect behavioural intentions to use information or computer systems and suggests that two key variables—perceived usefulness and perceived ease of use—determine the intention to use particular systems. In earlier studies the TAM has been applied to studies in order to evaluate on adoption behaviour related to various information technologies and systems. The advantage of applying the TAM to an understanding of mobile library apps in academic libraries is further highlighted from three aspects. First, the model primarily takes users' perspectives into account Designing and building appropriate mobile library apps from users' perspectives is important to the success of mobile library services. Second, the model allows for testing the effects of various factors, such as perceived interactivity and satisfaction, on usage of mobile library apps. Third, many previous research studies associated with adoption of the TAM have been conducted and included in library environments.

This paper asks two questions in order to investigate the causal relationships with the proposed library app model: First, what kinds of factors affect user attitude and intention to use mobile library apps in academic libraries? Second, can the TAM be applied to user acceptance of mobile library apps in academic libraries?. the current study employs user satisfaction factors as antecedents of intentions to use mobile library apps.

2.0 Literature Review

Various models drawn from various disciplines, such as geography ,psychology, sociology, and management, have been employed to explain people's intention to adopt new technology. TAM has been widely used to identify the determinants of technology acceptance in many contexts, and especially for predicting people's acceptance of information technology.

TAM has been continuously studied and has expanded two major theories, TAM2 (Venkatesh & Davis, 2000) and UTAUT (unified theory of acceptance and use of technology) (Venkatesh, Morris, Davis, & Davis, 2003). TAM is built on the theory of reasoned action (TRA), which suggests that an individual's behavior is initiated by his or her behavioral intention, which is determined by one's attitude and subjective norms regarding the behavior in question (Fishbein & Ajzen, 1975). According to the TRA, the intention to act directly determines behavior because people generally behave as they intend to. TAM was initially proposed by Davis (1993), and is based on two beliefs that affect attitude and behavioral intentions: perceived usefulness and perceived ease of use.

Park et al. (2009) examined the factors that influence people's adoption and use of a digital library system in the context of developing countries. They found that the library system's perceived ease of use had a significant impact on perceived usefulness, which ultimately led to behavioural intention to use. Additionally, the study identified the similarities and differences in significant predictors of the digital library's acceptance across countries and continents.

Miller and Khera (2010) posited some of the features that relay user acceptance of a digital library system implementation at agricultural universities in two developing countries: Kenya and Peru. They found that the TAM worked well in describing factors that affect the usage of digital libraries in developing countries, with perceived usefulness as the primary predictor of intent in using this system.

Xu et al. (2010) built a structural model combining perceived usefulness, perceived ease of use, user satisfaction, and intention to use in digital library based on user cognition and TAM. Further, they added four dimensions: external environments, such as online environments and retrieval requirements; individual, such as retrieval and computer capabilities; system, such as system content and system function qualities; and a servicing factor.

Joo and Choi (2015) explored multiple factors affecting undergraduate students' online resource selection. The study found that both usefulness and ease of use positively influenced the undergraduates' intention to use online library resources. Five resource quality constructs—accessibility, credibility, coverage, currency, and format—were also found to be determinants of online library resources' use intention.

Additionally, two studies have adopted the TAM (Sheikhshoaei & Oloumi, 2011; Aharony & Prebor, 2015). Sheikhshoaei and Oloumi (2011) studied determinant factors in the acceptance of information technology (IT) by librarians in Iranian engineering faculty libraries. They that found all independent variables (perceived usefulness, perceived ease of use, attitude to use, and behavioral intention to use) in the TAM framework affect the acceptance of IT. Aharonyand Prebor (2015) examined librarians' and information professionals' perspectives toward discovery tools, and confirmed that the TAM, cognitive appraisals, openness to experience, and importance of discovery tool features affect respondents' satisfaction with discovery tools. the TAM, cognitive appraisals, openness to experience, and importance of discovery tool features affect respondents' satisfaction with discovery tools.

UTAUT has also been applied in library settings. As an extension of the TAM, the UTAUT was proposed by Venkatesh et al. (2003), and this model identifies a range of factors such as, performance expectancy, effort expectancy, social influence, and facilitation conditions, which impact both behavioural intention and use behaviour. Chang (2013) examined the integration of UTAUT with task technology fit to explain behavioural intention of users toward library mobile apps in university libraries. He found that performance expectancy, effort expectancy, social influence, and facilitation conditions determine behavioural intention toward library mobile apps. The moderating effect of task technology fit is also significant as a determinant in the UTAUT model.

Saravani and Haddow (2011) investigated the current state of staff preparedness at libraries across Australia and New Zealand, regarding delivering services through mobile technologies. A modified version of the UTAUT was tested as a predictor of behavioural intention and use behaviour. This analysis revealed a range of themes relating to technical functionality, management, service delivery, and adaptability as important to staff skills and knowledge.

As discussed in the literature review, researchers have contributed greatly to investigations of the multiple factors affecting user behaviours based on the TAM in library environments. Prior studies showed that perceived usefulness, perceived ease of use, and user satisfaction are important determinants of user acceptance of digital libraries. Despite all these efforts, there is an inadequacy of research specifically focused on the use of mobile library apps by undergraduates in academic libraries. This limitation illustrates the need for research regarding user acceptance of mobile library apps based on the TAM in academic libraries.

3.0 Research Hypotheses

Based on the theoretical components of the TAM, this study proposed the following hypotheses with regard to the use of mobile library apps. Fig. 1 graphically summarizes the research hypotheses.
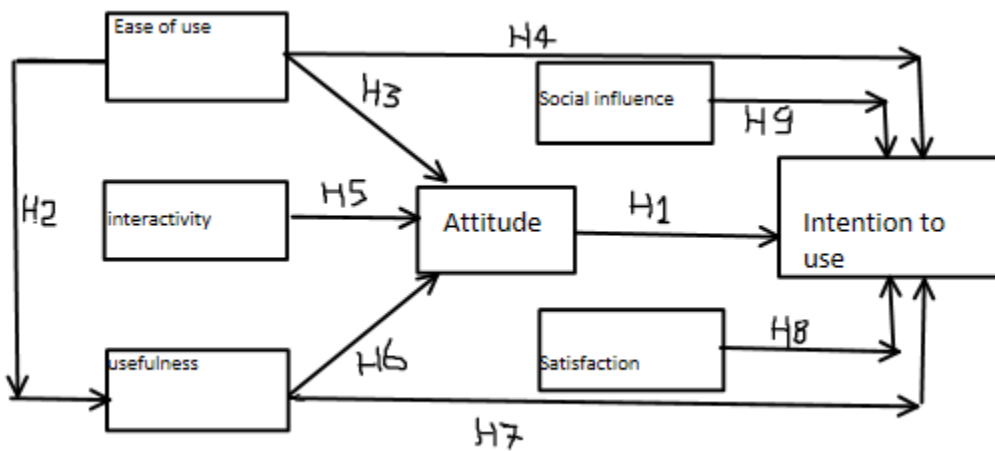

Fig. 1. The proposed research model.

4.0 Attitude

An individual's attitude in TRA is referred to as "the perceived degree of positive and negative feelings about doing target behaviour" (Ajzen, 1991). This theory has been also used in the TAM (Davis, 1989, 1993). This study introduces the definition of attitude introduced by Ajzen (1991), which defines attitude as "the degree of positive feelings about using mobile library app." This theoretical research provides a basis for the relationships between user attitude and intention to use, which can be applied to mobile library app research.

H1. Attitude has a positive effect on intention to use mobile library apps.

4.1 Ease of Use

Ease of use was introduced as a TAM construct, and is defined as "the degree that using a specific technology will be free from effort" (Davis, 1989, 1993). Applying this definition to this research, perceived ease of use is defined as "the degree to which individuals feel free from engaging in mental and physical efforts for using a mobile library app." Prior studies have supported the notion that there are positive relationships between perceived ease of use and attitude, perceived ease of use and usefulness, and perceived ease of use and intention to use. Joo and Choi (2015)

found that perceived ease of use is a notable determinant of perceived usefulness and attitude in undergraduates' selection of online library resources when performing academic tasks. Further, a positive relationship between perceived ease of use and intention to use has been confirmed in mobile library services (Kim, 2014). Additionally, Sheikhshoaei and Oloumi (2011) found that perceived ease of use has an effect on perceived usefulness and attitude to use for librarians' IT acceptance. Thus, consistent with previous studies.

H2. Ease of use has a positive effect on the perceived usefulness of mobile library apps.

H3. Ease of use has a positive effect on user attitudes toward mobile library apps.

H4. Ease of use has a positive effect on intention to use mobile library apps.

4.2 Interactivity

Interactivity has often been assumed to be associated with positive attitudinal and cognitive responses (Rafaeli & Sudweeks, 1997) and James (1989) defined interactivity as "the extent to which the communicator and the audience respond to each other's communication needs and proposed playfulness, choice, connectedness, information collection and reciprocal communication as five characteristics of interactivity." Wu (2000) indicated in his dissertation that perceived interactivity manifests in three dimensions: (1) perceived control, (2) perceived responsiveness, and (3) perceived personalization. Perceived interactivity has been operationalized differently in various studies, and is comprised of three characteristics: responsiveness, personalization, and connectedness, as noted in the current study. Several studies have found that perceived interactivity has a positive effect on attitude.

H5. Perceived interactivity has a positive effect on user attitudes toward mobile library apps.

4.3 Usefulness

Usefulness was introduced by Davis (1993) as a TAM construct, defined as "the perceived degree to which an individual believes that using a specific service or system will improve his or her task performance" (Davis, 1989, 1993). Davis' definition focused on the aspect of an "individual performance." Chang (2013) recognized perceived usefulness as performance expectancy. He confirmed that with the help of mobile library apps to find university libraries' data, users can improve their work performance. Therefore, their use intention is stronger. Sheikhshoaei and Oloumi (2011) found that perceived usefulness has an effect on the attitude toward librarians' IT acceptance. Kim (2014) noted that positive relationships exist between perceived usefulness and intention to use in mobile library services. Xu et al. (2010) indicated that perceived usefulness positively influences the active intention to use digital library services.

H6. Perceived usefulness has a positive effect on user attitudes toward mobile library apps.

H7. Perceived usefulness has a positive effect on intention to use mobile library apps.

4.4 Satisfaction

Previous studies have indicated that satisfaction is positively related to intention of using the service (Bhattacherjee, 2001; Xu et al., 2010). For instance, Xu et al. (2010) found that user satisfaction positively influences the active intention to use digital library services. Similarly, Bhattacherjee (2001) demonstrated that initial satisfaction with an information system has positive effects on the intention to keep using the system. Additionally, Park and del Pobil (2013) found that service and system satisfaction has a significant effect on the behavioural intention to use mobile communication services.

H8. Satisfaction has a positive effect on intention to use mobile library apps.

4.5 Social Influence

Social influence is the change in behaviour that one person causes in another, intentionally or unintentionally, as a result of the way the changed person perceives themselves in relationship to the influencer, other people and society in general. Three areas of **social** influence are conformity, compliance and obedience.

H9. Social influence has a positive effect on intention to use mobile library apps.

5.0 Conclusion

A survey needs to be conducted in order to confirm the suggested variables for investigating undergraduates' acceptance and use of mobile library apps. A panel of library experts reviewed the questionnaire items to investigate its content validity. And there is a need to test the proposed model with descriptive analysis, convergent and discriminate validity and reliability analysis. Therefore the development of a mobile app should be an important part of ensuring accessibility to information held by the university library, permitting competitiveness with external sources of information. Perceived ease of use indirectly affected attitude and the intention to use via perceived usefulness, which indicates that students tend to consider mobile library apps as less useful if they find them difficult to use. Therefore, librarians must attend to designing both useful and easy to use mobile library apps thereby bringing a revolutionary change by adopting and adapting to the new technologies.

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