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# ADOPTION AND USE OF 'SYMBICARE' APPLICATION AMONGST STUDENTS AT AN INDIAN UNIVERSITY

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#### Abstract

Mobile applications are gaining popularity amongst university students for their health and academic needs. The purpose of this study is to examine the 'SymbiCare' app from the lens of its primary stakeholder – the student users. Through in-depth interviews using semi structured questionnaire, this study interviewed 55 graduate students from a large Indian university. Content analysis was conducted on the qualitative data collected from these interviews. Findings from the study can broadly be classified into three main categories – content and information, interface and design and features and utilities. The findings of this study can be used as input to improving the adoption and use of 'SymbiCare' app. Thus the app can be turned as an initiative for the students by the students themselves.

Keywords: mhealth application; content analysis, qualitative data, SymbiCare, information technology

#### 1. Introduction

"Good health and wellbeing" features as the third Sustainable Development Goal (SDG) out of seventeen such goals put forth by United Nations Development Program (UNDP). In order for societies to grow and prosper, it is of utmost importance that its citizens are healthy both in body and mind. Many organizations as well as governments are taking up this agenda as one of their pivotal goals towards sustainability. Universities must, and in several cases are working towards such goals for the betterment of its stakeholders - students, staff and community. Considering the demographics of university students, management at such universities are constantly reinventing ways to engage with them. The use of mobile based technology has been especially effective in connecting with students and keeping them engaged in healthy practices. Conducting health and well-being studies on mobile devices has become the new norm, especially among young adults. As freshmen, college students face many problems such as new experiences, new relationships, hectic schedules and tight deadlines. According to a study by Baras et al., (2018), a mobile application can help universities reach out to students in a timely fashion, thus providing real time solutions to their problems related to health and academics. While the trend of using mobile applications to interact with students is catching speed, the content on the mobile app determines its usefulness. Another metric that determines the sustainability of such apps are its design or ease of use. This research studies the perceived usefulness and ease of one such mobile application called the SymbiCare app. 'SymbiCare' app is an outcome of the joint efforts by Student Affairs department, Health Centre, University Sports Board, Recreation and Wellness Centre and the Centre for Emotional Wellbeing at a large Indian university. This initiative provides the university students an easy-to-use and easy-to-carry mobile application that will lend support to students beyond academics. It is meant to provide better access to these resources available on campus to the students. This case study provides insights into the universities attempts at listening to the 'voice of the customer' and using it as input in the development of SymbiCare app.

#### 2. Review of Literature

#### 2.1 Mobile applications in Health care

Smart phone applications have permeated into all phases of human life from entertainment, education, health care, to routine affairs like grocery purchase and food ordering. Böhmer et al. (2011) identified the life cycle of a mobile application which involves five stages: installing, updating, uninstalling, opening, and closing the app. It also involves two states; being used or not being used. The fate of the app is determined by the user's perception of the usefulness and usability of the app. The frequency and duration of app usage depends on these two important factors. Mobile health technology (mHealth) applications have become increasingly popular among consumers as well as health care practitioners in the past decade. It is an easy way to increase awareness and to initiate change in behavior (Arrogi et al., 2019). mHealth applications were found to be significantly effective in delivering health information as well as preventive health behavior implementation (Ben-Zeev et al., 2013). mHealth apps have found its application in both physical and psychological health care (Agapito et al., 2018; Stallman, 2019; Wilksch et al., 2018). However, the behavioral change techniques incorporated in health apps were found to be less in number (Carmody, Denson & Hommel, 2019). Krebs and Duncan (2015) in a survey found that the users of mHealth apps tended to be young adults who are educated and believed that the apps were helpful in improving their health. However, young adults also tended to be very assiduous about relevant, good-quality, and targeted information as well as easy-to-use features and options (Milward et al., 2016). Thus there is an increased need to emphasize on the usability and usefulness features of health care apps to improve their visibility and popularity.

#### 2.2 Technology adoption in services

Technology adoption has always been a challenge and the subject of several research enquiries (Davis et al., 1989; Venkatesh and Davis, 2000; Venkatesh et al., 2003; Venkatesh and Bala 2008). One of the earliest work in this space that gained prominence is the Technolog Adoption Model (TAM). TAM is a technology adoption model that theorizes factors essential for new technology adoption and the way in which people begin using new technology (Davis et al., 1989). The theory posits that when new technology is introduced into any system, external factors like social influence shapes the user's perception related to its usefulness and ease with which one is able to use that technology. These perceptions then determine their attitude towards the technology which in turn shapes intention to adopt the technology. This intention then becomes the main catalyst in the adoption and usage of the new technology (UTAUT). TAM 3 is yet another extension of the initial model to explain the adoption and usage of technology involved in e-commerce transactions.

# 2.3 Adoption of mHealth apps

Technology Acceptance Model (TAM) was the first to put forth the factors of adoption of technology apps which lead to users' acceptance behavior (Davis, 1989). Later on, several other models also came up with similar factors that emphasize on factors like usefulness and ease of use (Davis et al., 1989, Thompson et al., 1991, Venkatesh & Davis, 2000). Unified Theory of Acceptance and Use of Technology (UTAUT) integrated the eight existing theories and explained and proposed an integrated model of the acceptance of technology by app users (Venkatesh et al., 2003). Another concept that is defined in this theory is performance expectancy. This refers to the belief of individuals that using a system or app will help improve their efficiency at work. Venkatesh et al. (2003), also defined effort expectancy as "the degree of ease associated with the use of the system", which was first coined as a term in TAM. The UTAUT model were tested and proven that both these variables appeared as important antecedents of intention to use technology; However some of the moderators to this was gender and age. Further to that, numerous empirical studies on users of different gender and age studies have also proven that these constructs have strongest effect on users of various technological systems (Alcivar, Houghton, & Sanzogni, 2017; Nikou, 2019; Tripopsakul, 2018).

Mobile health services (MHS) have eased the process of timely monitoring, tracking and consultation of health conditions of people. As the users of mHealth apps ranges from young adults to older aged individuals, the

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specifications need to be custom made according to the target population. The middle-aged and older adults tended to attach more importance to the ease of use of the mobile health care apps as they are less adaptable to the operating procedures compared to the young adults who have better control over ICT (Zhao, Ni, & Zhou, 2018). This is in line with the findings of UTAUT model, which postulated the moderating role of age in the relationship between perceived ease of use and behavioral intention (Venkatesh et al., 2003). Older adults also tended to implement the positive health behaviors after using the mHealth apps better than young adults. This is because when a person ages, he/she is more likely to suffer from illnesses and deterioration of health conditions (Trainor, 1981).

On the other hand, young adults were keen on trying out the features of the apps but were not consistent with the app usage and behavior change implementation (Dennison, Morrison, Conway, & Yardley, 2013). In the current scenario where chronic diseases are developing in the young age, there is an increased need for attracting young adults to health behavior changes. This is possible through the customization of health care apps to include more useful features that young adults desire. Rabin and authors (2010) found that users preferred apps with automatic tracking of physical activity, goal progress tracking, music features, and well-documented and easy to use features. Dennison et al. (2013) found that reliability and accuracy of the information, effort required to operate the app, security and sudden effects on mood emerged are important influences on app usage. They also preferred timely tracking and recording of their behaviors toward goal attainment as well as advice and information whenever necessary.

Findings from the past research points toward more and more research that requires to be done in order to bring the younger generation towards positive health behavior changes through mobile applications. SymbiCare' app is a health care app developed by Symbiosis International in association with Student Affairs department, Health Centre, University Sports Board, Recreation and Wellness Centre and the Centre for Emotional Wellbeing of the university. The objective of the app is for placing the health and wellbeing needs of students at their disposal. The present study aims at identifying the students' needs and putting forth recommendations for improving the usefulness and usability of the app. Drawing inferences from the past literature, a qualitative study was carried out among students. The objectives of the study are listed below.

1. To gauge the likeability of the app through student feedback allowing to make improvements to the app, before widespread use of the app.

2. To gauge the usefulness of the app, through student feedback allowing to make improvements to the app, before widespread use of the app.

3. To analyze drivers for adoption of the app amongst students.

# 3. Methodology

A qualitative approach was followed for the analysis. Content analysis was performed on the responses from transcriptions of interviews conducted amongst students. Content analysis refers to a series of methods for coding and analysing qualitative data systematically (Bernard & Ryan, 2010). Yet another study defines it as an objective process oriented method of studying qualitative data (Schilling, 2006). Fundamentally there are three distinct approaches to content analysis – summative, directed or conventional (Hsieh and Shannon, 2005). A summative content analysis involves taking a count of the various keywords and then developing interpretations based on the underlying contexts. When the coding begins with a theory, upon which hypotheses are built and then the content is scored for relationships and meaning, this becomes the directed approach. In conventional content analysis, coding categories are derived directly from the text data. This there is an inductive and deductive approach to content analysis. Since this paper uses UTAUT as a base theory to study the perceived usefulness and ease-of-use of the app, it follows deductive content analyses. Here the constructs of Perceived Usefulness and Perceived Ease-of-Use are considered as the base requirements for developing a positive attitude towards the SymbiCare app and the subsequent intention to use and final usage.

55 in-depth interviews were conducted amongst (29 females and 26 males) students, who were identified as the primary stakeholders of the app. The sample represents both UG and PG students to understand points of parity and differentiation in the requirements of these groups. It was also ensured that the data was collected from a pan India audience from across 5 different locations where the university operated. The data was collected using a structured questionnaire.

The questionnaire included questions regarding their demographics such as name, email id, gender, institute and campus, as well as their opinions on the SymbiCare app and suggestions to improve its usability. A qualitative analysis of the responses were undertaken in order to collect valuable inputs for app revamp. The results obtained from the analyses of feedback are given content wise in the below sections.

# 4. Findings

SymbiCare, the mobile application that helps students to stay in touch with their health and wellness needs for placing the health and wellbeing needs of students at their disposal. This mobile friendly app was launched in September 2018 with a simple user interface and various basic features which enable users to get access to the health related services in the University. SymbiCare has gained a significant popularity among its users by hitting a download count of 1000+ in a short span of time. The app has always been open to continuous updating through addition of essential information and utilities in order to ensure its usefulness to the fellow students.

The current app has got 7 major tabs and 3 additional links to its services. The app is loaded with information on various initiatives by the university. However, taking into consideration the tastes and specific preferences of the users, there is a call for incorporating the voice of the customer into the app designing process. Being the primary stakeholders of the app, feedback was collected from students of various institutes of the university. Data were collected for a time period of 3 months (from January 2019 to March 2019). 55 students (29 females and 26 males) from 15 institutes across 5 locations were interviewed for this study.

# 4.1 Content and Information

SymbiCare app provides users with a wide spectrum of information related to the services. Student suggestions indicated that information on the app should be such that it builds interest and curiosity in the users. But some of them found it "too much" for a mobile app. Some students felt that the name SymbiCare was apt as it reflected the 'care' of the university towards its students. However, some others felt that SymbiCare denoted only healthcare where as the app also catered to sports and recreation.

"I liked the name of the app because it connotes the care the university has for its students" said a management graduate with feeling.

A widely repeated suggestion was that the app should provide updated information regarding major events, competitions, and fests happening in and around the institutes. Upcoming health checkup campaigns, donation drives etc. has to be put into notice. Major accomplishments and achievements of the students also have to be included in the newsfeed as a public recognition for encouraging them.

"We are interested in knowing what events happen at other campuses of the university. For instance, I would like to go for sports competitions if I knew about them in advance and if I could participate in them" said a sports buff undergraduate student.

But, repetition of information that is already available in the website has to be avoided. This can also reduce the weight of the app and help it load faster. Gym notifications, daily health tips, Motivational quotes, and easy remedies to certain illnesses can also be made available in less number of clicks.

"Additional information, should be choice based. This means I should be able to choose the information I want to see on my dashboard depending on my interests and block other notifications that I am not interested in" said a male management graduate from a top b-school.

Contact information of medical personnel and formally approachable student representatives in case of emergency was another suggestion made by students. Precise headings and a better clarity regarding objectives of Student affairs section are suggested.

"Since the student affairs tab only deals with out-of-class issues, it has to be mentioned clearly so there is no confusion. Generally students go to student affairs for in-class issues as well" suggested a male telecommunications student.

#### 4.2 Interface and Design

The current app has a basic one-way interactive user interface. Students felt that this should be transformed into a better interactive and user friendly interface. The app has got a simple basic layout. It has got a red and white

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background colour scheme with the university logo. A vector and simpler logo for the app, which stands out from the usual signature is suggested. It was pointed out that it can add to creating a unique identity to the offering.

"Most of the apps we use today allow us to log in and create my personalized page, which then displays my personal information every time I log in to the app. Facebook, for eg. This personalized interactive feature will make the app more useful to me" said a male undergraduate student of design.

Over 75% of the students also suggested a change in the color scheme. A more appealing design including animations, videos were also proposed. A trendier and structured tabs were also suggested instead of the tile format to avoid the monotonous look. A change in font size, style and alignment was also put forward. Use of Google texts to lessen app loading time is another useful tip for enhancement. One also suggested a need for micro-interactions using ease-in and ease-out transitions to align with the contemporary trends as in 'Tumblr' app. The quality and relevance of institute pictures shown in the home screen is another popular suggestion among the feedbacks. Creating homogeneous custom icons in a proper size and a visual design system that is consistent throughout the app is pointed out clearly. In short, there is a major call for inclusion of an aesthetic layout throughout the app.

"The colours red and white remind me of an ambulance and this app could do with younger colours" said a student from the faculty of media and communications.

"Since this app is for services like sports and recreation, it must have more colourful look" said another female student of media and communications.

Another input came from a student of telecommunications who suggested "use of google texts will reduce app loading time and can lead to a better user experience".

#### 4.3 Features and Utilities

One of the most popularly preferred features to be included is a Personal Sign up and Login. Both in terms of perceived usefulness as well as ease-of-use, a personal sign up or login was highly preferred by all students. Through this portal, they look for detailed and personalized information on their all academic and health related updates. This includes health checkup histories and reports, next doctor's appointment notification, attendance tracking and information on sick leaves. A utility for tracking the time spend by students for their academic as well as health related activities such as, exercising (eg. number of steps taken per day), sleeping etc can provide a personal touch to the app.

"When I open the SymbiCare app, I should feel like it's my page I am opening" said one female student from engineering.

We have to provide history of past visits whenever we visit the health centre. If its readily available on the app, then it can be the main reason why students will keep the app on their phones" said a post graduate student in management.

Inclusion of a Search button for quickly finding relevant information, a 24\*7 Chat box for instant clearing of queries and a Calender for all essential events being marked and notified to the students are other much popular feedbacks. Separate sections for prior online booking of Doctor's appointment, application for issuing medical certificates can serve students from far away institutions better.

"We should be able to make appointments with the doctors using the SymbiCare app" suggested yet another post graduate female student.

Another relevant section suggested to be introduced was a Grievance redressal portal where students can raise their issues such as Sexual harassment remaining anonymous. At the same time, promptness in delivery of redressal when people seek help through the app should also be ensured. A Gym registration section can also be helpful for students. Institute wise customization of features can also be made to reduce the crowding of pooled data from all the institutes. Another student had an opinion that this app has to be made compatible with laptops as well. There was also a call for Facebook like Social interaction chat system for students and alumnus.

4.4 Willing to contribute towards designing and developing the SymbiCare app

Among 55 participants, around 69% (n=38) showed their willingness to cooperate towards improving the app. While 52% (n=20) chose to be a part of close-knit group that gives continuous feedback, 26.3% (n=10) extended

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their support for designing the user interface, 18.4% (n=7) for content development, and 2.6% (n=1) each for developing software and making changes in SymbiCare App and Conducting back-end analytics for generating user information.

# 5. Conclusion

These in-depth interviews provide valuable insights towards the improvement of the app. Feedback taking is required in the similar way in the future also to improve the app according to changing needs. Future research can consider the adoption of the app after modifications. As an extension of this study, a university wide survey could be conducted to corroborate the results. Additionally, changes made to the app, based on the findings of this study can be used for auditing the usefulness and ease-of-use of the app. Co-creating the app along with the key stakeholder – students, will improve the engagement with the app. It will also improve the skills of the students in creating and managing an app. Universities have students with creative and technical dexterity and such initiatives can enhance their expertise in their chosen fields. This is evident from their relevant feedback. Thus the app can be turned as an initiative for the students by the students themselves.

Mobile health apps and other student support apps in universities are be adopted by select universities. It would be meaningful to conduct a study that compares universities with and without such facilities on important parameters like student satisfaction, general health parameters and the ability of the university to curb global pandemics like COVID-19.

This study is limited to one university. Although large and significant in nature, the finidngs of this study is able to inform only this one particular university. Since this is a qualitative study, it is in-depth and insightful in nature. However, a large scale quantitative study can supplement this study to improve its rigor.

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