THE MANAGEMENT OF HEALTH AND FITNESS INFORMATION: STUDENTS' DISSEMINATION OF INFORMATION PROVIDED BY HEALTH AND FITNESS APPS , IN MANAGING THEIR PERSONAL HEALTH AND FITNESS

ABSTRACT

Health and fitness apps can prove to be a useful tool in students' information management of their personal health and fitness. However the efficacy of such apps can only be determined by examining the information dissemination techniques of the students who use them. A select group of students at a Higher Education Institution in South Africa were chosen to participate in interviews and questionnaires in order to establish the techniques they use to disseminate the information provided by Health and fitness apps (MyFitnessPal). Since the acceptance and adoption of such technology is determined by usefulness and ease of use, the Technology Acceptance Model (TAM) was chosen as the basis for determining the reasons why Health and fitness apps are/aren't a useful tool in managing students' personal health and fitness. It was identified that user-friendliness of apps was important in the information dissemination criteria, and significantly impacted the sustainable use of the app by users.

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ABSTRACT

Health and fitness apps can prove to be a useful tool in students' information management of their personal health and fitness. However the efficacy of such apps can only be determined by examining the information dissemination techniques of the students who use them. A select group of students at a Higher Education Institution in South Africa were chosen to participate in interviews and questionnaires in order to establish the techniques they use to disseminate the information provided by Health and fitness apps (MyFitnessPal). Since the acceptance and adoption of such technology is determined by usefulness and ease of use, the Technology Acceptance Model (TAM) was chosen as the basis for determining the reasons why Health and fitness apps are/aren't a useful tool in managing students' personal health and fitness. It was identified that user-friendliness of apps was important in the information dissemination criteria, and significantly impacted the sustainable use of the app by users.

KEYWORDS

Health and fitness, Information Dissemination, Mobile Applications, Perceived Ease of Use (PEOU), Perceived Usefulness (PU), Technology Acceptance Model (TAM).

INTRODUCTION

Students in the higher education sector are part of a generation that frequently uses mobile applications (Gardner & Davis, 2013). These applications (apps) enable the creation, collection and sharing of information. The future of personal health and fitness is in the collection and processing of real-time information to provide insight into personal health and fitness (Price 2015).

Health and fitness apps support the management of personal health and fitness, and encourage sustainable living and physical activity by encouraging users to achieve goals, either set by the App or by the user (Khatri, et al., 2016). These apps provide many features and functionalities to users who wish to track diet and physical activity, as well as manage their weight (Bardus, et al., 2016 and Vashisht, 2016).

The wide range of Health and fitness apps makes it difficult to discern which are useful for their intended purpose and which are not. Armstrong (2015) posits that the two factors that determine which Apps users choose to download are the design quality and ease of use. In this sense, the Technology Acceptance Model (TAM) created by Davis (1989), can be used to explain App usage; as it presents Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) as factors determining whether or not technology is accepted by users.

The following paper will explore the information dissemination techniques by students at a Higher Education Institution (HEI) in South Africa, when seeking to utilize and who currently use health and fitness apps. The students under observation are in their first or second-year of studying Information and Knowledge Management. It aims to investigate information dissemination techniques of the students use to manage their personal health and fitness when looking at a health and fitness app (MyFitnessPal). PU and PEOU will be established by presenting the results of interviews as well as a questionnaire.

HEALTH AND FITNESS APPS

The following section will provide a background and rationale to the research, as well as a literature review to explore what current literature exists on Health and fitness app adoption and usage by higher education sector students.

Health and fitness apps can help people manage their health decisions by providing customised advice and feedback on a regular basis to a large audience (Direito, et al., 2015 and Middelweerd, et al., 2014). Klasnja & Pratt (2012) explain that mobile apps are a useful tool in the management of health and fitness because of the global use of mobile device, also because mobile device users always have their devices close by and these devices contain users' private and personal information.

These apps have the ability to influence the health and fitness decisions of users by providing features such as goal-setting and reviewing, as well as self-monitoring (Azar, et al., 2013). However, Cho, et al., (2015) posit that the acceptance and adoption of Health and fitness apps as a tool for managing personal health and fitness will ultimately be determined by the Technology Acceptance Model (TAM) as created by Davis (1989).

This model states that the acceptance of technology will be determined by Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). Technology will be perceived as useful if it is able to accomplish the desired task of the user; and it will be perceived as being easy to use if the functionality is inherent and does not require a deeper understanding in order to be used effectively. PU and PEOU of Health and fitness apps are both subjective measures and are therefore not possible to determine without gaining the opinions and views of those people who have made use of such apps. The research and data collection will address this.

Although it has been established that students do view Health and fitness apps as useful tools to manage their personal health and fitness (Zhang, et al., 2015), the literature does not explore information dissemination techniques used by students to manage their health and fitness – this research will attempt to address this missing piece. Information dissemination is directly linked to the user's ability to take the information and make it actionable. (Ginige et al., 2016:1) "actionable information refers to such information that will enable a stakeholder to act with least amount of further processing".

METHODOLOGY

The unit of observation for this study was first- and second-year Information and Knowledge Management (IKM) students at an HEI in South Africa. A limitation faced by the researcher was geographical, hence the population and sample sizes were limited to the University of Johannesburg Information and Knowledge management students. Research was conducted within the ethical parameters of the HEI. The unit of analysis was how students select the proper app to manage their health and fitness based on information which is disseminated from Health and fitness apps.

A preliminary interview conducted on the second year IKM students was undertaken to ascertain the how students disseminate information from Health and fitness apps. Nine students were interviewed on their use of Health and fitness mobile apps, which they personally decided to download and use – either currently or in the past. This provided preliminary qualitative data for the development of the quantitative scope of the research.

To validate the opinions and views of these students, a questionnaire was designed to collect quantitative data from the IKM first year students. A single Health and fitness app (MyFitnessPal) was selected and a demonstration was given to students, upon which students were asked to base their answers. The App was chosen based on comprehensiveness, as well as ratings and reviews in the iTunes App Store and Google Play Store. A total of 162 responses were collected.

Research Aims and Objectives

The aim of this research was to establish how university students disseminate information, provided by Health and fitness apps, in order to manage their personal health and fitness. The core of the study was the ability of students to effectively manage health and fitness information.

The objectives that were stipulated were as follows:

- To identify information dissemination techniques of students in managing information from Health and fitness apps;
- To establish the Perceived Usefulness of Health and fitness apps in improving students' health and fitness; and

- To determine how the Perceived Ease of Use influences a student's decision to select and continue using Health and fitness apps.

The reasons why students do not make use of Health and fitness apps in managing their personal health and fitness, as well as success factors for greater adoption of such apps among university students were not investigated as these topics were out of scope.

Research Design

The research was undertaken by means of a desktop study and survey in the form of interviews and questionnaires. Interviews were conducted in once-off sessions over the span of a week, and the questionnaires were completed by students during a single practical session which demonstrated the MyFitnessPal app.

The findings and analysis which will be presented below and will entail interpreting the qualitative data gathered from students during the interview process; as well as tabulating the results from the practical session, during which quantitative data was collected.

It should be noted that the manner in which the data was collected was done so ethically by providing the students with the option to voluntarily participate (with informed consent). This was necessary to ensure the anonymity and confidentially of their participation.

DATA FINDINGS AND ANALYSES

Qualitative Results

The following subsection will present the results of the interview process which was conducted to collect qualitative data. Nine students were asked questions based on Health and fitness apps they have used in the past and/or are currently using. Responses were written in shorthand and all nine interviews were recorded to enable later transcribing.

The following is a summary of the findings that directly address the research aim and objectives:

- Information dissemination techniques were investigated by asking students how the information, provided by the apps, helped them manage decisions they were making regarding their personal health and fitness. Popular responses included keeping track of exercise and calorie intake; setting reminders for meals and workouts; and holding themselves accountable by tracking/logging food and exercise.
- Another question related to information dissemination techniques was about the influence that the apps had on health and fitness behaviour; or more specifically, what changes were made to health and fitness decisions that were previously being made. Students reported exercising more frequently and for longer/shorter durations, depending on the app's recommendations; exercising at certain times and therefore creating routines which aided in time management; limiting intake of 'junk-food' and unhealthy snacks in between meals; and keeping strict count of calories, exercise and weight, thereby enabling the apps to show progress and provide motivation.
- Students reported that daily use of Health and fitness apps was important to properly track progress and reach targets or goals.
- The Perceived Usefulness (PU) of Health and fitness apps in improving the personal health and fitness of students was confirmed in a unanimous response – all interviewed students

believe that these apps are useful to students. Reasons for this opinion include ease of use, the provision of sufficient information and guidelines, the provision of reminders, which are useful for students who are busy with assignments and studying; and being able to work at their own pace.

- While these apps may be considered useful, most of them required Internet connection. It was observed, however, that Health and fitness apps can be more useful to students if more features and functionalities are available off-line. In addition to this, many of the exercises and workouts that the apps provided require gym equipment, which is not easily accessible to students without gym memberships or space/money to purchase their own.
- Finally, the influence that Perceived Ease of Use (PEOU) has on students' decision to continue using Health and fitness apps was investigated by providing a Likert scale on which student could strongly agree/disagree with the following statement: The ease of use of the app influenced my decision to continue using it. All nine students agreed/strongly agreed with the statement. And it was also observed that the ease of use would lead students to recommend these apps to friends/family.

Based on the responses from these nine students, it was decided that the opinions and views expressed needed to be confirmed by a larger group of participants. A simple questionnaire (comprising of six questions) was subsequently designed in order to aggregate agreeance/dis-agreeance with these opinions. The results are presented in Section below.

Quantitative Results

The following sub-subsections will present the results of the questionnaire which was used to collect quantitative data from 162 students. The questions were asked, and subsequently answered, based on a demonstration of the MyFitnessPal (Calorie Counter) mobile application – available from the iTunes app Store and Google Play Store. The questions were designed to directly address the research aim and objectives presented in sub-section 3.1 above.

As the following sub-subsections will illustrate, the quantitative data collectively agreed with the qualitative data presented above. The outlook on Health and fitness apps, therefore, is that they are useful tools in the effective management of personal health and fitness information by students at the HEI.

Question 1: How would you use the information that the app provides?

Students were required to select one or more of the following options:

1. To track my fitness level;
2. To manage my weight;
3. To get advice on health and fitness;
4. To create a health and fitness plan for myself.

Table 1 (below) shows a summary of the results.

Table 1: Information dissemination of information.

Option number	Number of responses	Percentage (%)
1	82	50.6 %
2	88	54.3 %

3	59	36.4 %
4	87	53.7 %

The data from Table 1 implies that more than half of the students disseminate the information provided by Health and fitness apps in similar ways – to track exercise and calorie intake, as well as to create personal health and fitness plans. These results are in agreeance with the qualitative data.

Question 2: How would the app help you manage your decisions regarding health and fitness?

Students were required to select one or more of the following options:

1. It would help me create an exercise plan;
2. It would help me create a meal plan;
3. It would help me to not eat more than what the app recommends;
4. It would keep me motivated by showing my progress;
5. It would help keep me accountable for the decisions I make.

Table 2 (below) shows a summary of the results.

Table 2: Strategic decision making use of health and fitness information

Option number	Number of responses	Percentage (%)
1	84	51.9 %
2	83	51.2 %
3	40	24.7 %
4	94	58 %
5	34	21 %

Table 2 shows that more than half of the students believe that the use of Health and fitness apps would help them create health and fitness plans, and also keep them motivated by enabling tracking and showing progress. These results are in agreeance with the qualitative data.

Question 3: Do you think the app is most useful (in helping you manage your health and fitness) when used [options provided]?

Students were required to select only one of the following options:

1. Daily;
2. Weekly;
3. Monthly;
4. Every now and then.

Table 3 (below) shows a summary of the results.

Table 3: Frequency of app usage.

Option number	Number of responses	Percentage (%)
1	105	64.8 %
2	35	21.6 %
3	6	3.7 %
4	16	9.9 %

Table 3 shows that daily usage is believed to be most effective when using Health and fitness apps to manage personal health and fitness. These results are in agreeance with the qualitative data.

Question 4: Do you think this app is useful for students who want to improve their health and fitness?

The students were required to select only a 'Yes' or 'No' answer.

Out of the 162 students, 160 (98.8%) responded 'Yes' and two (1.2%) responded 'No'. These results are in agreeance with the qualitative data.

Question 5: Do you think this app is easy to use / user-friendly?

The students were required to select only a 'Yes' or 'No' answer.

Out of the 162 students, 148 (91.4%) responded 'Yes' and 14 (8.6%) responded 'No'. These results are in agreeance with the qualitative data.

Question 6: Would you say that the user-friendliness of this app would influence you to start using it?

The students were required to select only a 'Yes' or 'No' answer.

Out of the 162 students, 146 (90.1%) responded 'Yes' and 16 (9.9%) responded 'No'. These results are in agreeance with the qualitative data.

DISCUSSION AND CONCLUSION

This research aimed to establish how university students disseminate information, provided by a Health and fitness app (MyFitnessPal), in order to manage their personal health and fitness.

The data collection processes of interviews and questionnaires resulted in proof that the Technology Acceptance Model explains the acceptance and adoption of mobile Health and fitness apps as tools to help students manage their personal health and fitness.

The research had three objectives, namely to identify information dissemination techniques of students in managing information from Health and fitness apps; establish the Perceived Usefulness of Health and fitness apps in improving students' health and fitness; and determine how the Perceived Ease of Use influences a student's decision to continue using Health and fitness apps.

The key information dissemination techniques identified by the observed students include keeping track of exercise and calorie intake; setting reminders for meals and workouts; and holding themselves accountable by tracking/logging food and exercise. Through data collection, Perceived Usefulness was found to be positive with regards to these apps aiding in the management of personal health and fitness. The data further showed that Perceived Ease of Use was found to have a positive influence on users' decision to continue using Health and fitness apps, as well as on their decision to recommend these apps.

The nature of this research being cross-sectional did not allow for long-term studying of Health and fitness apps in the actual (not perceived) improvement of personal health and fitness management. Future research could therefore be conducted with a start and end date, over which time improvement could be effectively measured or calculated.

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