ISYS3401 IT Evaluation Assignment 2 (30%)

Modelling different aspects of User Acceptability and evaluating their effects on Satisfaction.

(Semester 1, 2023) Due: Monday 22nd May 2023

Background

An Australian rural health facility has begun a 6-month trial of a health technology for remote health management Systems (RHMS) widely adopted in the USA. The goal of this trial is to gain some preliminary evidence of users' satisfaction and more importantly to evaluate a range of measures of acceptability based on user experience (UX) after the first month of use.

The management of the health facility developed a UX questionnaire to collect users' reported experience at the facility. They considered 3 well-known technology acceptance models: (1) TAM, (2) UTAUT and (3) TFA as their potential reference models to adopt.

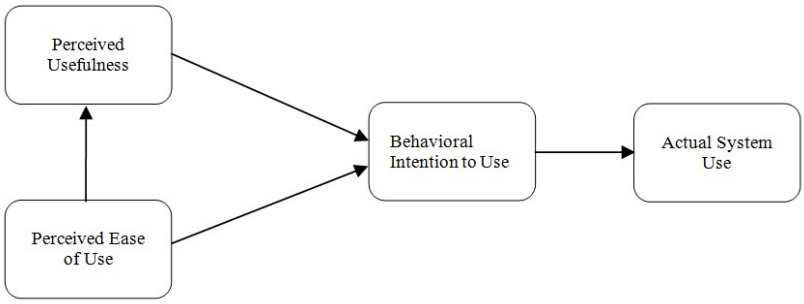
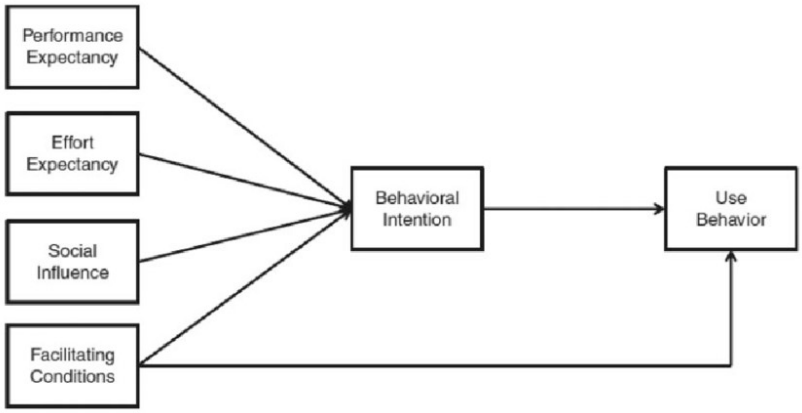
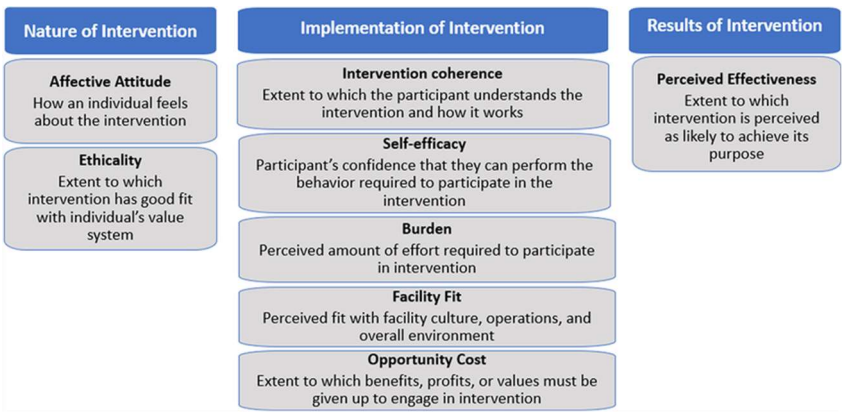
Technology Acceptance Model (TAM) 1989: Reference: https://www.jstor.org/stable/249008	
Unified theory of acceptance and use of technology (UTAUT) 2003 Reference: https://www.jstor.org/stable/30036540	
Theoretical Framework for Acceptability (TFA) 2017 Reference: https://pubmed.ncbi.nlm.nih.gov/28126032/	

Figure 1: Measurement Models under consideration

Furthermore, they have decided to collect data using previously validated questionnaire instruments including:

- NASA-TLX (https://software.nasa.gov/software/ARC-15150-1A),
- SUS (https://www.usability.gov/how-to-and-tools/methods/system-usability-scale.html)
- Digital Health Literacy (https://pubmed.ncbi.nlm.nih.gov/28119275/)
- TAM/UTAUT: … search online

	Question_Details	Scale Range (integer)
PID	Participant ID	integer
1	Age	integer
2	Gender	1 or 2
3	Self assessed of Health MIS knowledge	1 to 5
4	Use the keyboard of a computer (e.g. to type words)?	1 to 5
5	Check different websites to see whether they provide the same information?	1 to 5
6	I found it easy to communicate the system generated readings with other clinicians	1 to 5
7	I felt confident understanding the readings produced by the system	1 to 5
8	How hurried or rushed was the pace of the task?	1 to 100
9	Decide whether the information is reliable or not?	1 to 5
10	Decide if the information you found is applicable to you?	1 to 5
11	I think that I would need the support of a technical person to be able to use this system.	1 to 5
12	Clearly formulate your question or health-related worry?	1 to 5
13	I understand how the system works	1 to 5
14	I felt very confident using the system.	1 to 5
15	How successful do you think you were in accomplishing what you were asked to do?	1 to 100
16	I trust the RHM system perform the required tasks accurately	1 to 5
17	Use the button or links and hyperlinks on websites	1 to 5
18	You lose track of where you are on a website or the Internet?	1 to 5
19	Apply the information you found in your daily life?	1 to 5
20	I understand the benefits of using system for performing the required tasks	1 to 5
21	Make a choice from all the information you find?	1 to 5
22	I would recommend the RHM system to a colleague	1 to 5
23	Use the proper words or search query to find the information you are looking for?	1 to 5
24	Using the system would help identify patients medical condition	1 to 5
25	Decide whether the information is written with commercial interests (eg, by people trying to sell a product)?	1 to 5
26	Use the mouse (e.g. to put the cursor in the right field or to click)?	1 to 5
27	Using the system would improve patient health outcomes	1 to 5
28	I had access to helpful information and resources about the RHM Tool	1 to 5
29	Express your opinion, thoughts, or feelings in writing?	1 to 5
30	I found the system very cumbersome to use.	1 to 5
31	I found it easy to operate on RHM system and take a reading	1 to 5
32	The information provided to me by the system was useful	1 to 5
33	How hard did you have to work to accomplish your level of performance*?	1 to 100
34	Use the information you found to make decisions about your health (eg, on nutrition, medication or to decide whether to ask a doctor's opinion)?	1 to 5
35	I think that I would like to use the system frequently	1 to 5
36	How physically demanding* was the task?	1 to 100
37	You do not know how to return to a previous page?	1 to 5
38	I found the various functions in this system were well integrated.	1 to 5
39	How mentally demanding* was the task?	1 to 100
40	I think using the system puts patient privacy at risk	1 to 5
41	Find the exact information you are looking for?	1 to 5
42	Overall, I was satisfied with the technical support provided while using the RHM system	1 to 5
43	I would imagine that most people would learn to use this system very quickly.	1 to 5
44	I thought the system was easy to use.	1 to 5
45	You click on something and get to see something different than you expected?	1 to 5
46	I needed to learn a lot of things before I could get going with this system.	1 to 5
47	I found the system unnecessarily complex.	1 to 5
48	Overall, I was satisfied using the RHM system	1 to 5
49	How irritated, stressed and annoyed were you during the task?	1 to 100
50	I thought there was too much inconsistency in this system.	1 to 5
51	I felt confident making decisions about patient's condition based on the readings produced by the system	1 to 5
52	Write your message as such, for people to understand exactly what you mean?	1 to 5

Table1: Description of Survey Questionnaire

After completing the unit of study ISYS3401, you have been recruited as an analyst to perform preliminary empirical evaluation study using the data collected from the survey instrument. Total 180 survey responses collected from direct users after 1 month of using the RHM system. Survey data can be found in **studentDataSetRHM.xlsx**.

There are 3 integrated assignment Tasks (10% weight each) with sub-parts:
Before attempting task1, you need to check the raw data and deal with missing values and standardizing the scale for each question.

1. **Perform Exploratory Factor Analysis (EFA).**
   Your goal is to develop your personal "best" measurement model and constructs based on the statistical results. You will need to perform a sequence of EFAs to achieve your goal. Report your final model and provide justification for each construct and related items.

2. **Perform assessment of Scale Reliability and Construct Validity based on the measurement model.**
   Your goal is to assess the internal consistency of the measurement items of EACH construct using appropriate methods. Based on all your analyses thus far, comment on the reliability, convergent and discriminant validity of the measurement items. Justify your conclusions with relevant results from your analysis, and/or perform additional analyses if necessary (for example, if there are other items should be included or excluded based on either empirical or content knowledge).

3. **Perform Structural Equation Modelling (SEM).**
   Your goal is to use Confirmatory Factor Analysis (CFA) to evaluate the quality of measurement model, and then path analysis to test associations between constructs and outcome of interest (i.e. User Satisfaction). Report your final model and provide justifications where needed.

Requirements Details:

1. This assignment is done individually.
2. You have 3 weeks to complete.
3. Submit the following files to Canvas before end of Monday, 22nd May 2023.
4. Submission Pack:
   For Task 1:
   a. Word or PDF file of final model with YOUR comments and all relevant empirical findings
   b. Copy and insert only relevant results from Excel file (if any)
   c. Copy and insert only relevant results from SPSS output file (.spv) (if any)
   For task 2:
   a. Word or PDF file of final model, and statistical results of each association in the model
   b. Report informative findings and relevant interpretation of YOUR empirical results.
   c. Copy and insert only relevant results from Excel file (if any)
   d. Copy and insert only relevant results from SPSS output file (.spv) (if any)
   For task 3:
   a. Word or PDF file of final model, and statistical results of each association in the model
   b. Report informative findings and relevant interpretation of YOUR empirical results.
   c. Copy and insert only relevant results from Excel file (if any)
   d. Copy and insert only relevant results from SPSS output file (.spv) (if any)
5. Prepare a .zip file that includes the following:
   a. Assignment cover sheet with written answers for all 3 tasks in a printed report (in .pdf)
   b. Appendix 1: Excel worksheets and additional analyses in Excel (if any). Label clearly for all tasks
   c. Appendix 2: SPSS outputs and additional analyses in SPSS (if any). Label clearly for all tasks
   d. Appendix 3: AMOS graphical model and outputs, and additional analyses in AMOS (if any). Label clearly for all tasks