Homework 5: TAM, TPB Questionnaire and Tech Topic Literature Review & Hypothesis

Summary

This exercise explores the process of operationalizing conceptual frameworks that are used to evaluate assimilation of technology. (Ajzen, 2006) This evaluation is performed at a psychological level using factors like attitude, behavior control, perception of control, behavior itself, intention to understand and accept, acceptance and assessment of continuous evaluation of likes or dislikes. The two frameworks and associated theories that are evaluated in this exercise are Technology Acceptance and Theory of planned behavior. A literature review of the technology topic is performed to analyze the areas that help to formulate the research questions for the hypothesis.

Technology Review

The concepts in the theories above are used to analyze and investigate the acceptance of ***touchscreen*** technology with behavior and intention factors associated with its procurement by individuals. Smart phones have very quickly become a key part of essential technology for every individual to carry out even the simple tasks on a daily basis. While the Black Berry brought the main part of the change by converting hand held phones into smart phones by bringing general office software at user fingertips. Smartphone keyboard was a very efficient feature with very easy to use trackball. But as black berry was steadily gaining market share in the smartphone industry, Apple Inc was very patiently studying and building on the behavioral aspect of touch screen technology and its perceived usefulness and perceived ease of use.It carefully studied the behavioral factors and intent of the users who were deeply rooted with keypad based mobile devices.

In all the changes in technologies that were adopted by users in daily activities closest to their behavior and needs the smart phones were one of the fattest adopted technology. The use of touchscreen accelerated this acceptance and attitude towards the technology and early adopters of this change very effectively and efficiently drove this adoption in the society. The younger generations were more quicker in accepting the change in technology and lifestyle that this technology was bringing along with it.

Technology Acceptance Model

Using the Technology Acceptance theory (TAM) for mapping the smartscreen technology through the controls and perceived factors established by the conceptual framework. It will help to determine specifically how the technology was accepted by individuals using questionnaires and scaled responses related to the controls for **Perceived Usefulness** and **Perceived Ease of Use**.

Perceived usefulness

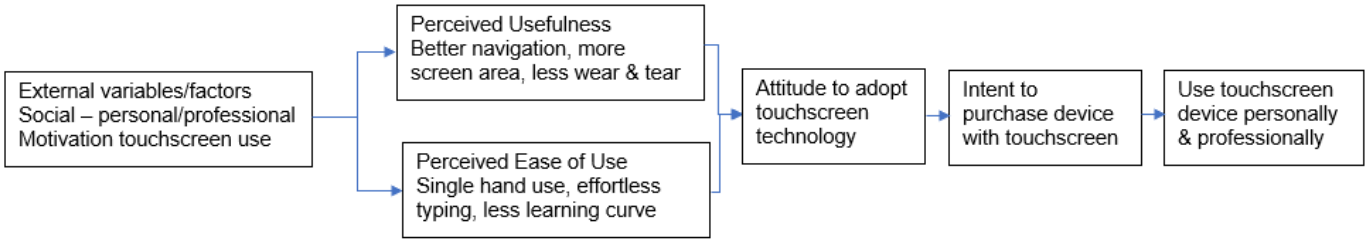
Is related to the perceived benefit the new touchscreen technology offers to the individuals using it with external social factors, personal or professional motivating or providing an opportunity to use it. There is perceived positive impact associated with the use of the touchscreen such as better navigation, more screen area, lesser wear and tear.

Perceived ease of use

Is related to perceived efficiency the touchscreen technology offers to its users to make it easy to adopt to address the external factors to deliver effectively and enjoy the technology benefit easily. The ease of use is related to a lesser learning curve needed to use the technology just by touching the screen to navigate, the typing can be performed with lesser effort using just one hand also its easier to read the content on the screen due to increase in size.

Overall these factors would influence the users **attitude** towards adopting the smartscreen technology. Also its **perceived usefulness** and **perceived ease of use** motivating and strengthening the behavioral intention of the user to actually purchase and use the technology.

The diagram below (Rocker, 2010) is an adoption of the Technology Acceptance Model for touchscreen technology.



Source (Rocker, 2010), Applying Technology Acceptance Model to Touchscreen technology

Technology Acceptance Model - Questionnaire and scale:

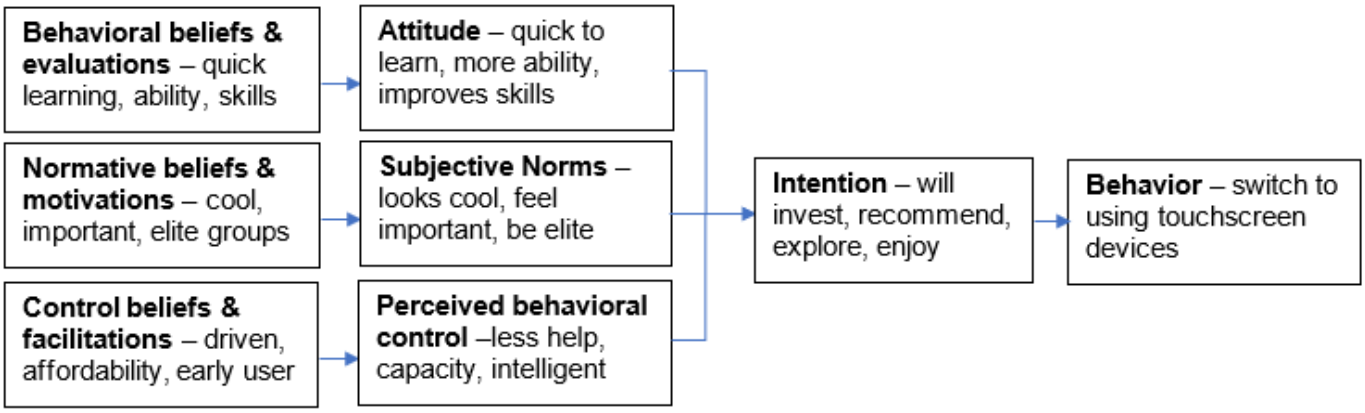
Perceived Usefulness of Touchscreen Technology	
Scale point Items	**Scale Anchors**
Navigation Using Touch?	1-Complicated 2-Confusing 3-Neutral 4-Easy 5-Efficient
Increased Screen Area?	1-Crowded 2-Lot of info 3-Neutral 4-Useful 5-Delightful
Miss the Keyboard?	1-Everytime 2-Sometimes 3-Neutral 4-getting-over 5-Not at all
Accomplish work?	1-Dragged 2-Slow 3-As Usual 4-Better 5-Faster-than-ever
Job Performance?	1-Ridiculous 2-Poor 3-Fair 4-Exceeds expectations 5-RockStar

Perceived Ease of Use of Touchscreen Technology	
Scale point Items	**Scale Anchors**
Effort needed?	1-Complicated 2-Confusing 3-Neutral 4-Easy 5-Efficient
Learning curve?	1-Too Hard 2-Significant 3-Neutral 4-Minimum 5-Too Easy
One Hand Use?	1-Unpleasant 2-Clumsy 3-Neutral 4-Effective 5-Pleasant
Understandable?	1-Not-at-all 2-Sometimes 3-Neutral 4-Easy 5-Very Easy
Cumbersome?	1-All-time 2-Most-time 3-Sometimes 4-Rarely 5-Never

Theory of Planned Behavior

The touchscreen technology is evaluated with Theory of Planned Behavior considering the factors that define the perceived control and how they affect the dependent variable associated with behavior. In this evaluation the dependent variable is the behavior of **switching to devices with touchscreen technology**. (Azjen, 2006) According to the Theory of Planned Behavior (TPB) the human behavior is influenced by behavioral beliefs that evaluate the tasks and behavior to develop an attitude towards the evaluated control of the subject in this case is the touchscreen technology. The behavioral beliefs evaluated were **quicker learning** associated with the technology, the **ability** of the user to understand the use of technology and **willingness to use skills**. These behavioral beliefs help form an attitude towards the technology that helps to **quickly learn** its use, imparting **more ability** to use various input control devices and it **improves skills** to interact with technology.
The Normative beliefs help evaluate the expectations further from the subjective norms for the technology being **cool advancement** to better input technology for the device, mainly used for **important** functions and people that are part of **elite** society or group.
Further on the perceived behavioral control facilitates control beliefs of being **driven** to self evaluate the technology with **affordable** investment as an **early adopter** or an early user of new technology. These controls further influence the **intention** of the user to **invest** in the technology, **recommend** it to other users and also **enjoy** the benefits of the positive outcomes. This leads us back to the dependent variable on these control factors for the user to switch to t**ouchscreen devices**.

(Azjen, 2006) The figure below is an application of the conceptual model for constructing a planned behavior questionnaire. With scale anchors and scale points to evaluate user feedback and finally hypothesize on the perceived behavior of the user to adopt new technology.



Source (Azjen, 2006) Application of conceptual model of the Theory of Planned Behavior to touchscreen technology.

Theory of Planned Behavior - Questionnaire and scale:

Behavior - Dependent Variable: Switch to Devices with Touchscreen Technology	
Scale point Items	**Scale Anchors**
Needs Help	1-Everytime 2-Sometimes 3-Neutral 4-getting-over 5-Not at all
Switchover efficacy	1-Complicated 2-Confusing 3-Neutral 4-Easy 5-Efficient
Resource availability	1-Stringent 2-Minimal 3-Neutral 4-Fair 5-Abundant
Switch more devices	1-Not-again 2-Not-yet 3-May-be 4-Soon 5-Very-Soon
Time on touch devices	1-Less-than-usual 2-Not-as-Usual 3-Usual 4-More-often 5-Very-Often

Intention variable of Touchscreen Technology	
Scale point Items	**Scale Anchors**
Intent to invest?	1-Not-Likely 2-Unlikely 3-Maybe 4-Likely 5-Most-Likely
Intent to recommend?	1-Not-at-all 2-Not-often 3-Sometimes 4-Often 5-Very-Often
Intent to explore?	1-Never 2-not-soon 3-Maybe 4-Soon 5-Very-Soon
Intent to enjoy?	1-Never 2-Rarely 3-Sometimes 4-Most-time 5-All-time
Intent to repeat?	1-Not-again 2-Not-yet 3-May-be 4-Soon 5-Very-Soon

Perceived Behavioral Control of Touchscreen Technology	
Scale point Items	**Scale Anchors**
Chances of using Touchscreen?	1-Complicated 2-Confusing 3-Neutral 4-Easy 5-Efficient
Capacity to explore?	1-Stringent 2-Minimal 3-Neutral 4-Fair 5-Abundant
Intelligence to understand?	1-Not-ready 2-maybe 3-Neutral 4-Definitely-try 5-Absolutely
Are you motivated?	1-Not-at-all 2-Not-often 3-Sometimes 4-Often 5-Very-Often
Choice of device?	1-Not-here 2-Dont-know 3-Maybe 4-Yes-please 5-Specs-ready

Literature Review

As per the reviewed literature for both the technology topics and concepts evaluated through various methods. The approach was based on different technologies and environments evaluated from computer input devices to online learning to better understand the TAM and TPB models.Technology Acceptance Model is based on the concepts associated with behavioral perceptions of controls associated with, barriers and comforts of the technology and its perceived enjoyment with its usefulness to from a behavioral intention.

The TPB literature too evaluated the conceptual model across various scientific disciplines to evaluate behavioral belief evals in adapting to new technology or market segment or use of computers for online learning shows that the attitude is based on these continuous evaluations. The social norms help with setting the baseline expectations for driving the motivational factors. Also the perceived behavioral controls facilitated the factors affecting the intent significantly. The intentions of the user finally helped define the outcome of the dependent variable to influence the behavior.

Hypothesis

The main motivational areas that helped define the hypothesis were related to the process of theoretically defining the key elements that were evaluated from the conceptual models. The key advantage of organizing the evaluation process helped define the construct in the models to validate the factors per the following points which would be validated using the questionnaires.

- Behavior is a dependent variable in the Theory of planned Behavior and is associated with Actual Usage of a Technology Acceptance Model for touchscreen devices.
- The Intention is significantly influenced by attitude of the use to explore new input technology
- The subjective norm influences perceived behavioral control and attitude setting expectations for validating the beliefs associated with touchscreen technology

- Social norms are key factors that lead to intention of enjoying the touchscreen on the devices
- Perceived behavioral control also leads to perceived usefulness of touch screen technology

Literature review Articles & References:

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