Exploring Consumers' Trust Difference between Shopping on Website and Mobile App Service Process

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In a time of developed mobile services and mobile internet, consumers now can shop online easily via mobile phone in replacement of physical stores and desktop computers. Hsu, Xiao Yu (2015), mentioned in “Mobile commerce dominates purchase; three things the marketers must remember,” 56% of consumers consider mobile shopping as very convenient. However, the size of mobile phone screen hinders consumers who are used to shopping via desktop computers of laptop computers since the consumers receive more complete information from bigger screens and better shopping security. Therefore, the subjects of the study shopped online via web and App before completing the questionnaire. Research result reveals that the journey map of the web is the same as Apps, however with some trust difference between shopping on web and APPs.

keywords: journey map; mobile shopping app; online shopping sites; trust

Introduction
Institute for Information Industry IDEAS-Team FIND collaborated with Mobile First in a research investigation and discovered that 8.9% of the people aged over 12 years (inclusive) in Taiwan use 4G mobile internet services. Most frequent applications used by 4G users include “Map Location and Navigation,” “e-mail,” and “mobile shopping” (Institute for Information Industry FIND, 2014; 2015). The result suggests a great potential of mobile shopping in the consumer market under the availability of mobile devices and mobile internet.
Moreover, the investigation conducted by Institute for Information Industry FIND (2015) shows that 53.9% of consumers have an experience of shopping online via mobile devices between January and July in 2015. Findings suggest that consumers are changing their habits as consumers are now more willing to shop online via mobile devices.

Nonetheless, Nielsen NetWatch (2014) suggests that the majority of users still prefer to use desktop computers and place order via web interface; only a small number of users use shopping related APPs. Users find APP interface inconvenient to use, which could be related to the higher user familiarity with web process (Nielsen NetWatch, 2014). The investigation conducted by Market Intelligence & Consulting Institute of Institute for Information Industry Market Intelligence & Consulting Institute (2013) reveals the factors affecting some consumers who own mobile devices but never shop via mobile devices, including “inconvenience with web browsing, concerns for transaction security, unstable quality in internet speed, reluctance to reveal personal information.” The results also suggest some concern and insecurity in shopping via mobile devices. Hence, increasing consumers’ purchase intent via APPs will likely provide more convenience for consumers to shop online.

Moreover, Song, Tong Zheng (2014) though that people now expect or pursue more fun, perception or taste in product use or service experience as the economy and technology become more developed. For this reason, service providers will outperform in the mobile market if they can improve consumers’ trust in APP shopping and consequently consumers will constantly such shopping APP. Furthermore, service design is a people-oriented design idea developed from tangible targets to the intangible world in this information society. Service design also shifts towards emphasis on interactive design, experience design and service design (Mager & Sung, 2011). Service providers will need to emphasize more on the service experience of customers according to the study motive. The study will investigate on the trust difference and active conditions for online shoppers between different platforms and then apply the viewpoint on service design for trust difference between touchpoint and e-commerce.

**Literature Review**

In the past, consumers always went to brick-and-mortar stores to purchase commodities. However, consumers can online shopping now. As mentioned above that everyone shopping on online, but customers usually order the product on the website not APP. Therefore, the study talks about three topics of literature, including mobile commerce, service design and trust.

**Mobile Commerce**  
According to "Mobile Commerce Research Status and Trends of Doctoral Dissertations and Master Theses in Taiwan" written by Ying Feng Kuo and Ching Wen Yu (2008), it is mentioned that due to the intensely speedy development of wireless network and mobile phone mobile communication technology nowadays, the use of both the characteristics on electronic commerce, innovative thoughts of mobile commerce(MC, Mobile Commerce) is generated. In the meanwhile, mobile commerce brings a huge business with more focus on electronic commerce and thus turns into the target of competition. In addition, the study related to electronic commerce was increasingly gradual. Academic
journals and conferences worldwide pay more attention on related topics. Moreover, there are also journals mainly talking about electronic commerce. For example, the International Journal of Mobile Communications talks about electronic commerce. In conclusion, it is foremost important to focus on development of mobile commerce in the future.

**Definition**

In the article of "Mobile Commerce Research Status and Trends of Doctoral Dissertations and Master Theses in Taiwan", Ying Feng Kuo and Ching Wen Yu (2008) mentioned that now is just the beginning of development of mobile commerce but the definition of mobile commerce is not consistent. There are different views of points in the different area, and the range of definition is different as well.

Forlik and Chen (2004) propose mobile commerce as "wireless of electronic commerce". Companies apply the latest information technology and infrastructure to achieve business activities. Mennecke and Strader (2002) define the use of mobile devices (for example: cell phone, PADS) for electronic commerce activities as a mobile commerce. In other words, mobile commerce (Mobile Commerce, M-Commerce) suggests that receive resources on the internet from wireless network via mobile device at anytime and anywhere for commercial transactions.

**Application**

Comparing with personal computer, mobile device is different from it in essence. Therefore, it is difficult to simply compare the difference between mobile device and personal computer, which leads to various applications. There are many kinds of electronic commerce, the transaction partner can be divided into three different kinds of types: the first type is Business to Consumer (B2C), the second one is Business to Business (B2B), and the last one is Consumer to Consumer (C2C) (Tang Zhen, 2007).

**Service Design**

Industrial structure gradually changed in Taiwan. Today it becomes a service-oriented society, and the industry is changing from "manufacturing-oriented" to "service orientation" (Lin, Zhang Qing, 2010). Therefore, from a design viewpoint, it becomes increasingly important to focus on service-oriented design thinking. Taiwan should begin to understand the importance of service design as well.

**Definition**

Service design is a multidisciplinary subject which not only engages in a wide range of different methods and tools but also applies to the design processes. It is a new way of design thinking but not a new and independent academic field. (Marc Stickdorn, 2011) In addition, Birgit Mager (2009) states that services design aims to ensure that the content of the services used by consumers with feasibility and needed by the customer. At the same time, the service providers take consideration of the efficiency, effective and feature of the service in the book that called This is service design thinking (2011).

There are various options in defining service design. Although it is hard to talk about service design briefly, service design can be divided into five important principles, including user-oriented, co-creative, sequencing, evidencing, and holistic. User-oriented
means that service must be based on customers’ experiences. Co-creative refers to all positions are related in service provided and require the users to join the service design process. Sequencing is a series of interrelated actions, and evidencing turns intangible services into physical entity. Holistic refers to the consideration of overall environment.

Although there is no one single definition of service design, Marc Stickdorn (2011) thinks service design is a constantly repeated process, which consists of four important steps that need to be constantly repeated. These steps are exploration, creation, reflection and implementation. The four steps will lead to a service-oriented result. This study will use a services design tool to implement the step in “exploration” in addition to compare the journey map and trust.

Customer service Journey map

Grocki (2014) believed that a customer service Journey map is the overall visual or graphic interpretation of the story from an individual’s point of view. The relationship between organizations, services, products and brands may change due to time and different field. Sometimes it is necessary to have more descriptions based on text to describe and customer experience related nuances and details. The concept could be told from a customer perspective it emphasizes on the importance of user expectations and the key business crossroads. This is service design thinking: Basics - tools - cases (2011) suggests that customer journey map is like a the personal of story book and its function is to construct realistic and construct user experience data. Consequently, consumers can interact with the touch point of service. As seen from the "journey" of schemes, the details of the service interaction become clear and are accompanied by emotional link.

Touchpoint

A touchpoint is defined as a kind of contact or interaction, in particular appended between business and its customers or consumers, and also mention that each touchpoint must reflect, stress, and repeat company’s core brand strategy’ in the Oxford Living dictionaries (2016). Wiki (2016) suggests that in marketing communications, touchpoints are different ways to interact and display information between a company, prospective customers and current customers. Touchpoints allow consumers to have experiences at any time when they contact with any part of the product, service, brand or organization, and through multiple channels and several points in time, in brief, touchpoint is that points of customer or consumer is contacted in the company’s whole service process.

Trust

Allen C. J and Merrill. W (2004) suggested that companies that couldn’t develop successful customers’ trust would face with great impediment in maintaining long-term electronic commerce success. Sebastian Shepard (2015) showed that 94% of online customers worry about their security online, according to a survey conducted by Harris Interactive.

Definition

Trust means the belief in the reliability, truth, or ability between someone or something (Oxford Living Dictionary , 2016). Trust is defined differently in each area and in various academic viewpoints because of its own particular perspective ( D. Harrison McKnight & Norman L. Chervany, 2002 ). McKnight and Chervany (1996) believed that trust is needed for conception, and conception of trust could be interdisciplinary in nature. McKnight and
Chervany (2002) also stated that trust is a important relationship concept between someone or something and trust requires explanation because interdisciplinary researchers have specified trust in many different ways. McKnight and Chervany (2002) claimed that trust belief means that one believes in the other group has one or more special benefits for oneself. Under the premise that has special benefit for customer, the customers would like the e-vendor to be willing and able to act on the customer’s interest, honesty in transactions. In business, customers are expected to predict and transfer as promised to e-vendor. Therefore, customer will trust e-vendor when e-vendor was give customers what they prefer. In addition, Jui Yen Yen, Mei Liang Chen and Chia Chun Chou (2007) also indicate that purchasing online is a risky business for consumer and it is also related to trust. Hence, they use the structural equation modeling (SEM) to test and verify the relationship among the service quality and trust in the online store. In electric commerce, Jui Yen Yen, Mei Liang Chen and Chia Chun Chou (2007) state from their study that there is a positive relation between service quality and trust. Jui Yen Yen et al. (2007) who adopted also cite the study questionnaire consisting of four constructs, including e-service quality, store image, trust and customer loyalty. According to Yen’s et al. (2007) study, this study modifies the questionnaire content for subjects to answer the question.

**Trust and Business**


In McKnight and Chervany (2002) opinion, the categorization of trust should be interdisciplinary as mentioned in many pre-academic research papers in the aspect of electronic commerce. In traditional business, trust appeared relationship between two different people and the people in contact with consumers and vendors as well in the electronic commerce (D. Harrison McKnight & Norman L. Chervany, 2002). In The Online Consumer Trust Construct: A Web Merchant Practitioner Perspective of article, Allen C. and Merrill W. (2004) mentioned the kind of modules that have influence on eMerchants’ trust: eMerchants’ website design and management principles, Trade journals and magazines, peer website elements, hardware and software vendors, self-training, practical books, e-store host guidelines, previous experiences. Above all, eMerchants’ website design and management principles become the templates for website development. These principles were based on the culture and philosophies of the business and also ruled some parts of special web design elements. For instance, eMerchants will use their own store colors, logos and slogans on their user interfaces.

**Summary**

This study mainly aims at the mobile commerce’s shopping of website and APP and service design, followed by analysis and discussion on two directions. Universal Mobile Device and changes in the industrial structure, social and other brands the consumers wish to make a distinction between the commercial or retain customers. The study will develop different shopping channels, as referred to in the literature in the high-tech era, and the community owning smartphone accounting for the majority. Therefore mobile commerce - Shopping related APP will have a potential in consumer market while a predecessor of the mobile
commerce, shopping, both of difference is the use of the different platforms. Consequently the consumer shopping APP coverage will be improved. Moreover, more information on the network shopping operating processes will be revealed so that the experiment object will purchase through the research experience.

In the service design literature that is referred to service design is a new mode of thinking, and it is also mainly based on customer experience. A service provider is a company that wishes to sell products or services to consumers in the past, and easily ignores the real needs of consumers. The study will investigate on the service design between different platforms, differences between operating processes for customers in experience-based and consumers using the web, thereby to comprehend the real needs of consumers.

**Method**

Literature review suggests that as channels for consumers to acquire information become increasingly diverse and technology advances, consumers no longer focus on the quality of products purchased but also the process of shopping experience. Hence, the study investigates on the shopping experience via different platforms and applies five-point Likert scale questionnaire to understand the trust difference in respondents via different platforms. In addition, the study compares the difference of service journey map. Samples of brand e-commerce investigation include three brand companies in electronics products with online shopping and shopping APP functions, namely Apple Store, ASUS Store and etungo.

**Experimental Design**

The experiment was implemented in 31 study subjects (10 males and 21 females), aged 24 years old in average with online shopping experience. The three brands of electronic commerce are required to own both online shopping site and mobile shopping App. The experiment was divided into two sections, using computer for online shopping (Figure 1) and using mobile phones for APP shopping (Figure 2). The subjects completed the questionnaire developed were based on open questions and dimension questions related to trust, proposed by Yen et al. (2007). Prior to the experiment, the respondents with shopping experience were given introduction and instruction on the content of experiments, in order to help the respondents understand the content and process of experiment. Respondents operated different online shopping platforms in random order (Figure 3) and completed the relevant questions on questionnaire each time they have shopped online via web and APP of a brand. Actual tests show that the subjects will forget some content of previous experiment three days after the tests. To prevent influence from previous experiment, the respondents would use different shopping platforms in an interval of three days before taking the experiment and will need to complete the questionnaire of another platform. The experiment process (Figure 4) shows that one task product that needs to be purchased for each brand, which will be returned after purchase. The study records the operation process of each respondent in the experiment with screen shots recording throughout the process.
Figure 1  The prototypes of shopping sites for the experiment include Apple Store (a), ASUS Store (b) and etungo (c).

Figure 2  Shopping APP prototypes for the experiment (from left to right, Apple Store, ASUS Store and etungo)
Results and Discussion

**Difference of Customer Service Journey Maps on Different Platforms**

The subjects must use two different platforms to implement shopping experience in the experiment. The following three online shopping stores on web and APP, including Apple Store, ASUS Store and etungo, have been selected randomly to sketch each customer journey map (Figure 5 and Figure 6) respectively.
The comparison of Figure 5 and Figure 6 does not show difference between the touchpoints of APP and the websites as the shopping process between the two consists of product search, product list query, order confirmation, selection of shipping method, selection of payment method, confirmation of order information, order completion, return, order query, and return completion.

The lowest touchpoint of the mental status for Apple Store websites and APP are both the section on product search. The lowest touchpoints of ASUS website and APP are also different, where the touchpoint of product search in APP operation shows the lowest mental status while the touchpoint of return completion for websites is the lowest. The lowest mental status for etungo website and APP differs, in which the lowest mental status for APP is product search while the lowest touchpoint of website are product search and order query.

The highest mental status of Apple Store website and APP is both order completion. The highest mental status of ASUS website is order query while the highest mental status of APP is confirmation of order information. The highest mental status of etungo website is at order completion while the highest mental status of APP is at return completion.

Regardless of websites or APP, the touchpoint of the lowest mental status includes involves the display of much information and requires selection while the highest touchpoint of mental status involves the display of simple information and pressing the confirm button. Hence, the sections of the interface displaying key information still require improvement.

Comparison of unfriendly touchpoints for different platforms of online shopping

The content of questionnaire completed by respondents not only undergo trust completion but also are responded for the unfriendly sections of each brand, as shown in the following summary:
<table>
<thead>
<tr>
<th>Touchpoints</th>
<th>Apple Store</th>
<th>ASUS Store</th>
<th>etungo</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product Search</strong></td>
<td>Could not find the items for purchase (S.2)</td>
<td>Search column is difficult to find (S.11)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Peripheral products require search and are unintuitive (S.16)</td>
<td>There are too many photos on homepage and it is difficult to find the category menu at the beginning (S.19)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Product category from the beginning is difficult to find (S.17)</td>
<td>The menu on top is over neglected and could not be found (S.22)</td>
<td>“Search” is too small and should be “fixed type” that should not be affected by scrolling (S.24)</td>
</tr>
<tr>
<td></td>
<td>Search columns are too small (S.24)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A little difficult to find the product (S.25)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Product list query</strong></td>
<td>Excessively white background and the fonts too small make reading difficult (S.1)</td>
<td>Few photos of viewing angles (S.10)</td>
<td>Small fonts (S.8,S.10)</td>
</tr>
<tr>
<td></td>
<td>Product name and images quite identical and confusing (S.8)</td>
<td>It is easy to choose the button above the price using the mouse (S.11)</td>
<td>Images too small without detailed introduction but only the instruction of different dimensions (S.9)</td>
</tr>
<tr>
<td></td>
<td>Accessories should be placed under one category (S.18)</td>
<td>Interface buttons are unclear (S.27)</td>
<td>The interface for finding extension cords are confusing and arranged intensely, making it difficult to find the product immediately (S.21)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Too much text for product list, making viewing difficult (S.24)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Webpage viewing requires improvement (S.31)</td>
</tr>
<tr>
<td><strong>Order confirmation</strong></td>
<td>The section of order confirmation is unclear (S.16)</td>
<td>Dislike the page scrolling up after selecting the products. Order information is a little messy (S.28)</td>
<td></td>
</tr>
<tr>
<td>Selection of shipping method</td>
<td>No selection of shipping method (S.28)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------------------</td>
<td>--------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Selection of payment method</td>
<td>Few payment methods (S.2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Confirmation of order information</td>
<td>The website does not display all order information at the final step and pressing the confirmation button is the actual order confirmation (S.21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Order completion</td>
<td>Refund and bills immediately appear after settling the account, so I think it is fast but I may not find it if I were to research later (S.7)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Return                        | To return, the information provided is sometimes incomprehensible (S.6)  
There is not button for return (S.19)  
Return needs more visible buttons (S.21)  
Dislike the method of return (S.20) |
| Order query                   | Order can still be seen after return; return request could not be confirmed before receiving the email (S.7) |

* S = Subject, number = numbers of subjects

**Table 2  Unfriendly Sections of all brand APPs**

<table>
<thead>
<tr>
<th>Touchpoints</th>
<th>Apple Store</th>
<th>ASUS Store</th>
<th>etungo</th>
</tr>
</thead>
</table>
| Product Search | The location of search column not visible (S.15)  
Accessory items are difficult to be searched (S.24) | The first page is unrelated to products and it feels strange (S.16)  
Search is difficult (in terms of search by category) and does not | Could not find product search and accesses the site via strange means (S.4)  
Absurd shopping site portal (S.14) |

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| Product list query | Difficult to find the product while price and products are unclearly labelled (S.11) | Frequently selecting the wrong choice (S.20) | I thought the clicking the button on the | Could not find product (S5) | Product search is difficult (S.11) | Product search requires many procedures (S.10) | Poor presentation of product list and small |
image could add product to shopping cart but it turns out to be the bottom button (S.21)
Selection unclean (S.26)
Product search is difficult (S.29)
Product search is time consuming (S.5)
Unclean selection of product color and could cause wrong selection made by consumers (S.1)
Scrolling item one by one for shopping is required to find the target product (S.2)
The separation line for product photos and quantity and order button confuses consumers with the top or bottom products (S.7)
Product price on the page is confusing (S.8)
Could not view all items and price but needs to scroll down all the way; one 3 items can be displayed each time (S.9)
It is difficult to click on the black mouse (S.14)
Product viewing could not be corresponded to the product and placement into the shopping cart (S.18)
The distinction between price and product photos are not visible enough (S.19)
Poor presentation of product list (S.24)
images make it unsuitable for operation via mobile phones (S.24)
Small fonts (S.7)
Small fonts (S.8)
The content should cooperate with the screen size rather than asking users to constantly enlarge or reduce the screen (S.18)
The description of item specification is too identical and makes it difficult to click an item and purchase (S.9)
<table>
<thead>
<tr>
<th>Order confirmation</th>
<th>Button on the upper right-hand corner is easily neglected (S.11)</th>
<th>The location of button for adding to shopping cart could misguide users (S.4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selection of shipping method</td>
<td>Address input uses additional link input and some could be easily neglected (S.4)</td>
<td></td>
</tr>
<tr>
<td>Selection of payment method</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Confirmation of order information</td>
<td>The confirmation button is similar to the one on websites that requires enlarge and reduction (S.18)</td>
<td></td>
</tr>
<tr>
<td>Order completion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Return</td>
<td>Too many words that are invisible on the return page (S.28)</td>
<td></td>
</tr>
<tr>
<td>Order query</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Return completion</td>
<td>Could not find the return (S.10)</td>
<td>Return is too difficult process (S.12)</td>
</tr>
</tbody>
</table>

* S = Subject, number = numbers of subjects

Table 1 and Table 2 show that most people find the touchpoint of product search most unfriendly on the Apple Store site (Figure 7-(a)) and most respondents find it difficult to locate product search. More respondents find problems with product search on App as respondents believe the location of search and button of order are not visible. The respondents on ASUS Store website (Figure 7-(b)) proposed the most unfriendly sections in product search, such as the difficulty in finding the product searched, excess information on homepage and difficulty in finding the category button as well other similar problems. For the App, most problems occur in the query of product list, where most respondents suggest the poor presentation of product list that leads to wrong selection of products. Most respondents find problems with product list query on etungo website (Figure 7-(c)), where the respondents believe that the text and images are too small while identical products are displayed too close that could lead to wrong selection of products. With regards to App, some respondents propose the most problems for product search. The respondents often could not locate the product desired while messy screen of search makes it difficult for the respondents to use.

The comparison of customer journey map (Figure 4 and Figure 5) in Table 1 and Table 2 reveals that the touchpoint of product search for Apple Store website also has the lowest
mental status among all journeys due to the most unfriendly sections. The App also shows the most unfriendly sections are product search while mental status also has the worse touchpoint. ASUS website shows the most unfriendly problems but the worse mental status is after returning the goods. The App shows the most unfriendly sections in product list query and the worse mental status for query list in the service journey. The product list query for etungo has the most unfriendly sections and also the worst mental status for product list query. The product search on the App shows the most unfriendly problems with the worst mental status at the same touchpoint.

The comparison with customer journey map suggests that the respondents tend to have worse mental status if they perceive more unfriendly sections. In spite of the different results yielded from ASUS website, the respondents show the worse mental status for unfriendly problems in the return process due to the failure to return and the unclear return button. Such mental status could possibly be the dissatisfaction against the products but could not quickly find the return service in need of returning the products, causing poor mental status to increase. In general, respondents tend to move toward low mental status when they encounter more unfriendly problems.

![Unfriendly sections of all brand websites include Apple Store (a), ASUS Store (b) and etungo (c)](image-url)

*Figure 7 Unfriendly sections of all brand websites include Apple Store (a), ASUS Store (b) and etungo (c)*
Trust for Different Online Shopping Platforms

Table 3 shows that the reliability of questionnaire has an Alpha value = 0.847 after completing the task. However according to the viewpoint of DeVellis (1991) against Cronbach’s Alpha value: Reliability is the best when Alpha is greater than 0.80. Hence, the results of trust in respondents for this questionnaire are reliable.

Judging from the average of the numbers, the top three average values include the shopping web and shopping APP. It is known that the consumers’ trust for shopping websites is higher in comparison. On contrary, the last two rankings are shopping APP and hence suggesting lower trust in consumers for APP. According to the study by Yen et al., service quality and trust have positive relationship, so a web mode of online shopping more trustworthy than app mode for consumers. Therefore, if App’s service quality can promote, trust will be increased.

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>Alpha value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple Store-Web</td>
<td>3.91</td>
<td>1.031</td>
<td></td>
</tr>
<tr>
<td>Apple Store-App</td>
<td>3.74</td>
<td>0.872</td>
<td></td>
</tr>
<tr>
<td>My ASUS-Web</td>
<td>3.66</td>
<td>1.032</td>
<td>0.847</td>
</tr>
<tr>
<td>etungo-Web</td>
<td>3.58</td>
<td>0.995</td>
<td></td>
</tr>
<tr>
<td>My ASUS-App</td>
<td>3.21</td>
<td>0.933</td>
<td></td>
</tr>
<tr>
<td>etungo-App</td>
<td>3.04</td>
<td>1.053</td>
<td></td>
</tr>
</tbody>
</table>
Conclusions and suggestions
The abovementioned research results show that in spite of the identical touchpoints between the website and APP, the mental status in customer journey map is not completely identical. Hence, similar to the findings from Nielsen NetWatch, consumers tend to purchase via the web interface on mobile devices rather than APP shopping. The study findings also suggest that more unfriendly problems on the touchpoints will lead to lower mental status while consumers perceive more insecurity. As suggested in the same findings conducted by Institute for Information Industry Market Intelligence & Consulting Institute, mobile shopping is convenient in terms of web browsing and research results show that the unfriendly problems with APP occur at the two touchpoints, namely in product search and product list query. Unfriendly problems are all related to page display. With regards to trust, the comparison between web and APP suggests higher trust in web than the APP. Hence, the factor affecting APP operation mainly lies on the key information displayed on the interface. The study suggests that the future service providers will need to improve APP interface and increase fluency in order to improve the probability of APP online purchase, so that consumers will gain better experience in mobile shopping. For future research, the analysis of relation between APP trust and service experience will produce more factors for APP improvement.

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References
Institute for Information Industry FIND. (2014,31 December). Taiwan populace 4G surfer use popular rate: 8.9% navigation, the shopping, the finance and soon become the 4G user variation the important application. Retrieved June 22, from http://www.find.org.tw/market_info.aspx?k=2&n_ID=8309

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Market Intelligence & Consulting Institute (MIC) (2013, 21 June). The motion shopping opportunity 57% consumer with go through another firm as a middleman moves the instalment shopping


Stickdorn, M., & Schneider, J. (2011). This is service design thinking: Basics - tools - cases (2nd ed.). Amsterdam: Book Industry Services (BIS).


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