

A Study of Taiwan Mobile Service Website Usability Assessment.

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This study employed task-oriented usability test to explore intangible service features through website design. It was derived from wireless service by users in Taiwan to transmit and search information. First, it identified typical tasks through focus group followed by usability evaluation on emome website interface, which targeted at potential problems via simulated scenario and typical tasks. Finally, expert assessment was conducted for five providers including emome by Chunghwa Telecom, i-mode by Far Eastone Telecommunications, Catch by Taiwan Mobile Co., Ltd, Qma by Asia Pacific Telecom and Inc. in order to realize why customers were not satisfied with the use and service. According to our investigation, instant on-line service offers the positive satisfactory results and lifts the identity toward corporations' service quality. The website is the contact point of service and its design owns aesthetics and function which shift intangible service to physical value. Furthermore, customer service shall be displayed on the central page for quick and convenient access to information that users need. For corporations, the interactivity of their interface facilitates service quality as well as reduces cost. On the other hand, the more complete their service renders, the less frustration the users perceive.

Key words: Service Quality, Service Design, Usability Evaluation

1. Introduction

With the fast development of wireless technology, we can access information at every turn and at any time enjoying the convenience and efficiency of communication. Mobile service is booming in line with fast-growing mobile and free service platform and mass demand. According to Taiwan Network Information Center (TWNIC), survey on the use of broadband in 2011 indicated 70.69% of broadband availability in Taiwan. Corporations provide innovative service via technology resulting in the popularity of integrating

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mobile service. The interactivity for information design transfers information into use experience and perception. Philip Kotler et al. (1999) proposed four service characteristics including inseparability, heterogeneity/variability, intangibility and perishability. Stuart et al. (2004) defined that service design meant experience design for customers. Designing Interactions by Bill Moggridge (2008) demonstrated that designing service involved service design, service ecology and contact point. Under the technology-oriented scenario, reinforcement and communication in terms of service value are added in addition to offering customers value-added service experience.

When it comes to mobile service in Taiwan, there are five sectors including emome by Chunghwa Telecom, i-mode by Far Eastone Telecommunications, Catch by Taiwan Mobile Co., Ltd, Qma by Asia Pacific Telecom and Inc. This study mainly focuses on emome by Chunghwa Telecom. It began with usability evaluation for simulative condition and typical interface analysis followed by an expert team, which reviewed the mobile service websites by five providers and identified any possible defects.

On the basis of above-mentioned motivation and background, the purpose of this study covers: 1. To generalize the usage issue of wireless service through this study test. 2. To explore and evaluate the overall interface function and visual effect by local mobile service as well as to provide suggestions. 3. To improve the current interface as a result of the expert team discovery for corporation or designer reference.

2. Research design

According to Jakob Nielsen (1993), usability evaluation was conducted on emome service in three stages. First stage centered on simulated condition. Four website users defined what typical tasks for users were. They found four basic operations. The former three basic operations were for general use while the fourth one defined the latest text online service. For stage two, 10 users who didn't use "emome" were invited to test this website in order to tag any potential problems. Over the stage three, six webpage design and usability experts made evaluation. Finally we summarized our findings and proposed suggestions.

2.1 Page Size

On each page your material (including the page number) should fit within the type area of 16.2 x 24.2cm, positioned on A4 size, with a 30 mm top-margin, 25.4 mm bottom-margin and 24 mm margins left and right. On an A4 page, use a text area of the same dimensions (16.2 x 24.2 cm.), again centered. Right margins should be justified, not ragged. Beware, especially when using this template on a Macintosh, Word can change these dimensions in unexpected ways.

2.1 Participants

The participants were familiar with the Internet who had owned such experience over five years. They had been interviewed and tested. For the first stage, set a focus group comprising four participants to identify the typical tasks. For the 2nd stage, 10 participants who had surfed the Internet over 1 year without using emome were selected to test the targeted website. For the 3rd stage, six usability specialists conducted non-structural heuristic assessment.

2.2 Procedure

After current website service investigation and focus group discussion, identification of typical task was processed on the basis of possible operation context and motivation by general users using mobile service.

Thus, the procedure included : 1. Context analysis, 2. Typical task, 3. Browsing and test, 4. Expert evaluation and the details are as follows:

- (1) Context analysis: Hsiao-tien is an industrious employee who heavily relies on the Internet. Aside from answering & making calls, he often surfs the Internet to update any information with his cellphone. So he would like to use 'emome' to check out if his recent bill has been paid up. Also, he wants to try a new ringtone to make the caller impressive. Moreover, he wonders if there is any new incentive or promotion. He hence leaves a message online to request if his cellphone contract is due. Hsiao- tien hopes that his cellphone usability is the newest so that he can make decent impression on customers.
- (2) Typical task: four routine tasks were arranged as follows: (1)inquire about the latest bill (2)try a new ringtone indicating incoming calls, (3)inquire any promotion (4)leave a message for renewal.
- (3) Browsing and test: The participants used thinking aloud method when browsing websites. They were observed, recorded, and further analyzed concerning the possible typical task problems they encountered.
- (4) Expert evaluation: There were six experts, who engaged in webpage visual design, programming, and usability, to conduct heuristic evaluation. All of them enjoyed practical work experiences who either worked for the academia or information industry so that their evaluation results were directly associated with mobile service usability and service quality from five providers.

2.3 Equipment

This study categorizes its equipment into two parts:

- (1) Hardware : 1 desktop with 17" LCD monitor owning 1280*1024 Pixels was used for testing website usability.
- (2) Software: POWERCAM 5.0 can capture the screenshots. While recording the process, the mouse track and operation time was videoed for further analysis.

3. Results and discussion

Over the stage of context, focus group made up of six participants discussed and set up the context analysis. As a result, they identified the top 3 common typical tasks:1. Inquire about the recent statement, 2. Listen to a favorite ringtone, 3. Inquire about the latest promotion. Moreover, the fourth typical task was added which addressed inquiry about renewal via online service. Following are typical tasks and operation procedures:

3.1 typical tasks and operation procedures

1. Description of the 1st typical task "Inquire about the recent statement" and its operation procedure.

Table 1. Operation procedure to inquire about the recent statement

Typical task	operation procedure	
Inquire about the recent statement	Method 1	Title bar "my emome" top -click "my statement"-log in account and password-click "month of the statement"-Yes-task complete(regular users)
	Method 2	Web counter in the middle part-click the statement information-- log in account and password- click "month of the statement" -Yes-task complete

2. Description of the 2nd typical task “Listen to a favorite ringtone” and its operation procedure.

Table2 Operation procedure to hear a favorite ringtone

	operation procedure	
Listen to a favorite ringtone	Method1	Browse the website- Title bar above “music graph &ring”-click ringtone-search songs-listen to the chosen songs- log in account and password–download the song- task complete (first users)
	Method2	log in account and password–hit at the bottom-click ringtone- search songs-listen to songs - task complete (regular users)
	Method3	Billboard right-pop songs download-enter the ringtone page- search songs-listen to songs- task complete (visitors attracted by ad)

3. Description of the 3rd typical task “Inquire about the latest promotion” and its operation procedure

Table3 : Operation procedure to inquire about the latest promotion

Typical task	operation procedure	
inquire about the latest promotion	Method1	Title bar “product and fee” top -“basic rate”-task complete
	Method2	Web guide top-“basic rate”-task complete

Table3 : Operation procedure to inquire about the latest promotion

Typical task	operation procedure	
inquire about the latest promotion	Method1	Title bar “product and fee” top -“basic rate”-task complete
	Method2	Web guide top-“basic rate”-task complete

4. Description of the 4th typical task “online customer service” and its operation procedure

Table4 : Operation procedure for online customer service

Typical task	operation procedure	
Online customer service concerning renewal	Method1	Browse the website–title bar “customer service center”-click big left button “online customer service”–message window pops out-close reminder window and click yes-close questionnaire and click yes/no-login account and password-start dialogue-task complete
	Method2	login account and password-title bar “customer service center”-click big left button “online customer service-message window pops out-close reminder window and click yes-close questionnaire and clicking yes/no-login account and password-start dialogue-task complete
	Method3	Left bottom “online customer service”--message window pops out-close reminder window and click yes-close questionnaire and clicking yes/no–start dialogue-task complete
	Method4	Click middle part “contact use”-forward “contact us”-click “online customer service”--message window pops out-close reminder window and click yes-close questionnaire and click yes/no–start dialogue-task complete

(1)Typical task: Try a favorite ringtone

- a. The ringtone request webpage was different from the front page so users may have misunderstanding.
- b. After asking a ringtone, no download and hearing webpage appeared which frustrated users. After returning to the front page and clicking the ringtone icon again, ringtone request page displayed simply. The problem remained unsolved.

- c. Some options between music graph & ring and value-added service were the same, but sub-option results were different. This makes newcomers confused.
- d. Instead, if users clicked "hit" at the bottom on its front page, they could search their favorite ringtone right away. Users can decide to buy after listening to the song which costs NT\$30. Therefore, for a charged service, it will be a more smooth process if users have the opportunity to listen prior to purchasing a ringtone.

Table5 Operation mode for favorite ringtone trial

tester	operation procedure	Number of node	Task time
tester1 tester2 tester3 tester4 tester6	Click top "music graph & ring" and then "ringtone", ringtone request webpage appeared. Fail to have a trail song after long search. Click ringtone description and back to the front page. Click again title bar "music graph & ring" and "value-added service", select "ringtone".	10-30	tester1 (78seconds) tester2 (44seconds) tester3 (118seconds) tester4 (fail) tester6 (60seconds)
tester5	Click top "music graph & ring"-click "music"-click left "ringtone"-listen to songs-task complete	3	tester5 (27seconds)
tester7 tester10	Click top "music graph & ring"-click "ringtone"-search for songs-listen to songs-login account & password-download songs-task complete (first users)	2	tester7 (70seconds) tester10 (60seconds)
tester8	login account & password -click bottom "hits"-click "ringtone"-search for songs-listen to songs-task complete (regular user)	3	tester8 (20seconds)
tester9	Right "Bulletin board"-click and download pop music-enter "ringtone"- search for songs-listen to songs-task complete (visitors attracted by ad)	5-10	tester9 (50seconds)

(2)Typical task: inquire about cellphone charge

- a. Some of the texts in the title bar "product and fee" and "promotion zone" confused customers, yet most users could click the title bar and found the basic cellphone rate and made inquiry.
- b. While clicking the title bar "product and fee", various promotion packages displayed instead of targeted rates. Some testers would be attracted to click the promotion further so they watched the rate and completed the task. Their time was thus delayed. Others moved the title bar "product and fee" and clicked sub-option "basic rate" to complete the task. Though they never visited this website, they were familiar with website usability and quickly reacted to find their targets.

Table6 : Operation mode for inquire the latest cellphone rate

tester	Operation procedure	Number of node	Task time
tester1.2.3.6.8.10	Top title bar "product and fee"- "basic rate"-task complete.	2	tester1 (4seconds) tester2 (8seconds) tester3 (16seconds) tester6 (30seconds)
tester7	The top "website guide"- "basic rate"-task complete.	2	tester7 (16seconds)
tester4 tester9	Click top title bar "product and fee"-product advertisement showed-click any offer ad-enter the	3-5	tester4 (58seconds)

	“rate” page-click the desired page-task complete (Whether click the title bar directly and move & click the sub-option, the webpage varied) .		
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(3)Typical task: online service

Online service by typing texts is quite different from tradition call or face-to face service. There is no voice instruction, but communicate through online, as if a customer uses MSN to have instant talk. Following are our opinions:

- For regular website users, they will consider the use of online service because it not only saves time but also avoids facing the service staff.
- After starting dialogue, troubleshooting is provided. For example, the service staff offered customers instant direction. The staff could inform the correct website address and shift the window so that the user would not click again and saved their time. The tester enjoyed such fresh operation and felt satisfaction.
- When the screen displays the service line is busy, text “you may cancel if you cannot wait. Please decide if your reply will be sent by text message or E-mail.” runs on the screen. Our test indicated prompt reply received either by text message or E-mail. The users were satisfactory.
- Though the paths to online service are diverse to trace easily, but waiting in line occurs. This same issue troubles call service as well. Other alternatives may be needed to lessen waiting customers’ impatience.
- Online service is different from traditional medium, yet service is the same in essence. It is necessary to take reliability, visibility, guarantee, responsiveness and empathy into consideration. The service medium varies with different corporations, but it is agreed that instant service provision indeed lifts customers’ recognition.

Table7 : Operation mode for online service

tester	Operation procedure	Number of node	Task time
tester1.2.8.9.10	Customer service center-contact us-online service-task complete	3	tester1 (18seconds) tester2 (23seconds)
tester3 tester6 tester7	title bar “Customer service center”-click right button online service-message window pops out-close reminder window and click yes-close questionnaire and click yes/no-start dialogue--task complete	2	tester3 (36seconds) tester6 (30seconds) tester5 (31seconds)
tester4	Down left bottom “online service”--message window pops out-close reminder window and click yes-close questionnaire and click yes/no-start dialogue-task complete	2	tester4 (36seconds)
tester7	Click the middle part “contact us”-“forward contact us”-click “online service”--message window pops out-close reminder window and click yes-close questionnaire and click yes/no-start dialogue-task complete	3	tester7 (50seconds)

3.2 Procedure

During the 3rd stage, six experts evaluated mobile service websites targeting at “visual design performance”, “operation interface design performance” and “service information quality performance”. Two

experts specialized in visual design, two in industrial design and the other two skilled in information management. All of them had instructed webpage design or website usability design. With respect to five providers, analysis and suggestions made by the experts are as follows:

- (1) emome by Chunghwa Telecom : The path is not well-designed so it is not easy to find the significant information; the interface is not smooth enough to operate; the title bar is wiggling and hard to operate. However, it provides comprehensive information.
- (2) i-mode by Far Eastone Telecommunications : corporate identity is precise ; the layout shows systemic structure for easy access ; hot cellphone number animation shows proper duration as its flash or swift moving won' t cause distraction or eye fatigue.
- (3) Catch by Taiwan Mobile Co., Ltd : The contents are complete with clear webpage options ; graphs are clear and identifiable ; icon buttons correspond to text options ; fonts are proper for reading with clear texts ; layout displays consistency.

4. Conclusion and suggestions

By means of literature review, focus group and usability evaluation (heuristic method and thinking aloud); this study makes the following conclusion:

- (1) With the advent of digital age, corporation websites provide various channels and render instant service for customers in addition to necessary information. Such efficiently reduces complaints. Though online service renders positive response, counter-response time is crucial.
- (2) The website interface represents service contact point. The smoother it is, the more service quality recognition is lifted.
- (3) The service contact point offers good ideas in terms of interface design and innovative service. They transform intangible service into physical value as well as increase identification toward corporation through design.
- (4) Interface function performance and visual performance are closely and directly related to service quality. Accordingly, corporations effectively lift service quality and reduce cost.
- (5) For service-driven interface, interactivity is essential for sight and function. Avoid excessive information. The customer service shall display on the front page and the most popular service can be displayed by list box or drop-down list.
- (6) When users search for information, the services that the website provides are the niche to attract users' attention. The more delicate services a corporation offers, the less frustration the users face. It is thus the guideline for any corporation to set up and research for their future service system.

5. Examples Citations

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