

A Comparative Study of Thai and UK Older Web Users

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Abstract. Numerous studies had pointed out the effect of culture on interactive system design and use. This paper reports on a study on the use and preference of web browsers by 100 respondents aged 50 years old and over from Thailand and UK, who arguably differ in their culture and online developmental curve. The questionnaire explored their online activities, browser manipulations, problems with standard browsers and features required. The study reveals differences in the types of activities these two groups of users performed online and in their preferences. The results of this study points to the need to design a culturally inclusive web browser in addition to an age-friendly web browser when dealing with older web browsers from different countries.

Keywords: web browser, ageing, questionnaire, culture.

1 Introduction and Background

Numerous studies had pointed out the effect of culture on interactive system design and use. For example, a study of cultural differences in the use of Instant Messaging in Asia and North America reported difference in usage and perception of IM e.g. audio-video chat, emoticons, and single vs. multi-party chat [1].

Older population is one of the fastest growing Internet users. According to Department of Economic and Social Affairs, United Nations, from 2000 to 2030, the world's elderly population (60 and older) will grow from 10% to 21%. Older people's adoption of the Internet also rose quite dramatically in the past decade. A survey conducted in February 2006 revealed that 72% of Americans aged 51-59 year-olds, 54% of 60-69 year olds, and 28% of 70-79 years olds went online [2]. So far, however, there has been little discussion about cultural differences in the older population's computer and Internet usage. Thailand and UK were chosen because both countries are diverse in (West/East) and in online development curve (Internet in Thailand and UK was introduced to the general public in late 1995 and 1991 respectively).

This paper seeks to investigate the cultural differences in the use of Internet and web browser by older adults in Thailand and UK.

2 Stimuli and Participants

A questionnaire (in Thai and English) was designed to obtain information about the usage of Web browsers by older population. The sections of most interest to this paper are those focused older persons' usage pattern of their web browsers and problems faced by older persons when browsing the Internet.

The beginning of the questionnaire describes the questionnaire's aims, use of the data and instructions for completing the questionnaire. The main body of the questionnaire comprises both closed multiple choice and open-ended questions. It includes questions on demographics, internet and computer usage such as age group, gender, and duration of computer and Internet use. It also investigates the use of Web browser functions and user preferences. Space is provided at the end for comments on problems experienced when using Web browsers and the Internet, and further needs. The questionnaire was piloted with 2-3 respondents from both countries, after which minor revisions were made.

The questionnaire was printed on standard paper in black Tahoma 18pt. It was distributed during the months of March-April 2006. The requirements for participating are that they were 50 years old or older at the time of the survey.

The respondents consist of 53 Thais (44 Female/9 Male) and 47 UK (29 Female/18 Male). Out of the 53 Thai respondents, 43 were 50-54, 9 were 55-59 and one was 60-64 years old. A quarter of the UK respondents were 70-74, 9 were 60-64, 8 were 65-69 with the remaining four quarters spread equally in other age brackets. Table 1 provides the breakdown of their computer and Internet experience.

Table 1. Respondents' computer and Internet experience

	Thais		UK	
	No.	%	No.	%
Length of Computer use				
Less than 6 months	3	5.7	2	4.3
6-11 months	2	3.8	1	2.1
12-23 months	3	5.7	1	2.1
2-5 years	13	24.5	11	23.4
More than 5 years	32	60.4	32	68.1
Length of Internet use				
Less than 6 months	7	13.2	8	17.0
6-11 months	4	7.5	3	6.4
12-23 months	9	17.0	4	8.5
2-5 years	17	32.1	8	17.0
More than 5 years	16	30.2	24	51.1
Weekly Internet Usage				
Less than 5 hours	29	54.7	19	40.4
5-9 hours	10	18.9	6	12.8
10-19 hours	10	18.9	3	6.4
20 hours or more	4	7.5	19	40.4

3 Results

3.1 Internet Usage

When asked about the location for accessed the Internet (respondent could choose more than one locations, which are home, friend's or relative's computer, library or community centre, work and other location that they need to specify), 41 UK respondents checked home while 23 and 21 Thai respondent checked home and work respectively. Thirty-three (70%) and 16 (34%) UK respondents access Internet via broadband and dial-up respectively. Internet access of Thai respondents distributed closely among dial-up (34%), broadband (36%), and LAN (42%). This is an encouraging finding, as it indicates that older persons are using quite up-to-date connection technology.

One part of the Internet usage questionnaire investigated the purposes/topics for using the Internet. Some of the choices were derived from an article that reported the top 10 reasons of why older persons were online and an article from the Guardian newspapers that reported the online activities that older adults usually performed [3,4]. The most frequently chosen reason for using the Internet was to keep update with news and events. The least frequently chosen reason was to check stocks and investments. Table 2 provide breakdown by country and the whole sample. The most frequently reason for using the Internet of Thai and UK participants was to keep update with news and events and keep in touch with friends and family respectively. The Wilcoxon analysis revealed significance difference ($p < 0.05$) in most topics except hobbies/interests, health information and stocks/ investments.

Table 2. Reason for going online. Number show Mean (S.D.) Options: 1 = everyday, 2 = twice a week or more, 3 = once a week, 4 = once every 2-3 week and 5 = once a month or less (or never).

	Thais	UK	Total	P
Business	2.77 (1.53)	3.70 (1.64)	3.21 (1.64)	.003
Stay in touch	3.68 (1.52)	2.32 (1.51)	3.04 (1.65)	<.001
News/Events	2.26 (1.36)	3.17 (1.65)	2.69 (1.56)	.007
Hobbies/Interests	3.15 (1.52)	2.89 (1.61)	3.03 (1.56)	.363
Health information	3.98 (1.28)	4.06 (1.26)	4.02 (1.26)	.772
Online shopping	4.89 (0.58)	3.91 (1.33)	4.43 (1.11)	<.001
Products/services	4.42 (1.12)	3.94 (1.15)	4.19 (1.15)	.005
Stocks/investments	4.79 (0.69)	4.43 (1.23)	4.62 (0.99)	.094

3.2 Browser, Browsing Devices and Windows

Expectedly as Microsoft Internet Explorer (IE) comes standard with Windows operating system (OS), all of Thai respondents (who know what their browser was

called) and 70% of UK respondents used IE as their browser. Only four respondents (3 Thais/1 UK) did not know what their browser was called. This indicates that close to 30% UK respondents went into extra length to install another browser (or use a different OS).

Significant difference in browsing device was found for the input device the respondents usually used to manipulate their browser ($p=.035$). More than half (58.5%) of Thai respondents used combination of mouse and keyboard to manipulated their browser compared with 38.3% of UK respondents. The percentage of Thai and UK respondents using mouse to manipulate their browser are 39.6% and 61.7% respectively. Only one Thai respondent reported to have used only keyboard for web browsing.

A question was asked about the number of browser window opened at one time, 58.5% and 36.2% of Thai and UK respondents said 2-3 windows; 22.6% and 38.3% of Thai and UK respondents said only one, the rest opened 4 or more windows.

The way for browsing long webpage is quite similar in both groups. Around half of both Thai (48.9%) and UK (50.9%) browsed long pages using the wheel of the mouse. 30.2% and 25.5% of Thai and UK respondents dragged scroll bar to browse long pages. The rest either clicked scroll bar or used Page Up/Down buttons. This indicates that the majority of older persons prefer controllable smooth and continuous page transition rather than fast and a page long transition.

3.3 Browsing Tasks

To investigate the functions in standard browsers that older persons used, the respondents were asked about 27 activities drawn by two HCI experts, who performed cognitive walkthrough of commercial web browsers (both Microsoft IE and Mozilla Firefox). For each activity, we asked whether the respondents had performed it (indicating whether it was performed with a mouse, a keyboard or both in combination) or not. Most activities were performed either using mice or combination with mice and keyboards. The most five functions found frequently used and unused are shown in Table 3.

The most frequently used functions are basic functions in web browsing. The functions used by the two groups are quite similar, except organizing favourite list or bookmarking for Thai respondents and stopping and reloading a webpage for UK respondents. The three similar unused functions relate to advanced functions and setting. The two different ones are setting browser's home and learning from browser's help or tutorial for Thai respondents and changing display language preference and changing text size for UK respondents. There is no significant differences in these 27 activities (Wilcoxon, $p<0.05$) except for six activities: open new browser window ($p=.036$), print web pages ($p=.014$), preview web pages before printing ($p=0.25$), Go back to previous page ($p=.034$), go to browser's default web page (Home page) ($p=.042$), and change display language preference ($p=.022$). The difference of the first five functions cause by a group of Thai respondents used those functions using a combination of mouse and keyboard while most of UK respondents use those functions using mouse only.

Table 3. Top used and unused functions

Thailand	UK
Top used functions	
1. Close web browser	1. Open new browser window
2. Open new browser window	2. Go back to previous page
3. <i>Organize your Favourite or Bookmarks list</i>	3. Go to browser's default web page
4. Go back to previous page	4. Close web browser.
5. Go to browser's default web page	5. <i>Stop and reload a webpage</i>
Top unused functions	
1. Set browser's advanced options e.g. set Java, ActiveX control	1. Set proxy server
2. Set proxy server	2. <i>Change display language preference</i>
3. View HTML source	3. Set browser's advanced options e.g. set Java, ActiveX control
4. <i>Set your browser's home page</i>	4. View HTML source
5. <i>Learn from browser's help or tutorial</i>	5. <i>Change text size</i>

3.4 Users' Mental Models

This part of questionnaire aimed at understanding users' mental model of various components of a webpage/website. In response to the question what gave away which website they were browsing, the most chosen object is the name shown on address bar and the second is a URL shown on address bar. Figure 1 shows country break down of the objects to identify a website and a link. Looking into difference by country, 32% and 47% of Thai and UK respondents chose the name shown on title bar, 36% and 15% of Thai and UK respondents chose a URL shown on address bar. The rest chose logo/banner, contents, and others.

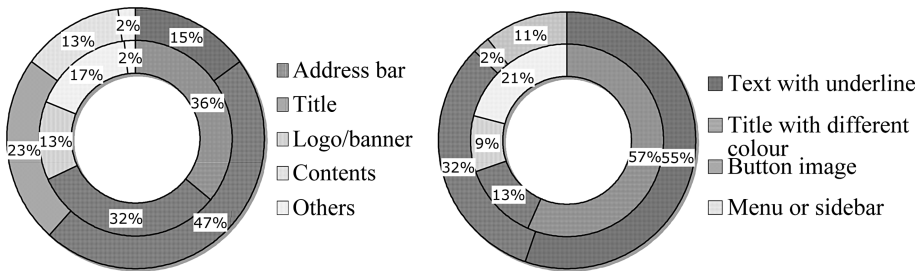


Fig. 1. Entity to identify website and link object (Thai=inner ring, UK=outer ring)

When asked about the object that gave away that an object was a link, more than half of respondent from both countries chose text with underline (Thai 57%, UK 55%), the rest chose text with different colours, button image and text or images in dropdown menu or sidebar. Mental model of users on the page loading status was asked through questions on whether the browser's status bar or the browser's animated logo provides useful information. Most of respondents (Thai 72%, UK 72%)

stated that the browser’s status bar did provide useful information and (Thai 81%, UK 49%) said that the browser’s animated logo provides useful information.

3.5 Problem and Difficulties

In response to the open-end question on problems and difficulties, we received some descriptions of problem and difficulties with web browsing shown in Table 4. As this question was optional, only 25 respondents offered their opinions that were categorized into 4 groups through content analysis. Most problems received from both Thai and UK respondents are related to website design and undesired content that respondents received. The different problems of Thai respondents were related to connection problem e.g. slow speed and cannot connect.

Table 4. Topics related to browsing problems

Thai respondents	UK respondents
<p>Website and design (4)</p> <ul style="list-style-type: none"> • Too much animation and text • Too much text and information. • Too much images and text • text display incorrectly <p>Undesired content (5)</p> <ul style="list-style-type: none"> • marketing, spam, promotion emails • Too much adds • Ads and pop-up • pop-up windows • ads pop-up <p>Connection (3)</p> <ul style="list-style-type: none"> • slow download speed • can not connect • slow speed of internet connection <p>Other (2)</p> <ul style="list-style-type: none"> • Update Version • Get viruses from internet 	<p>Website and design (4)</p> <ul style="list-style-type: none"> • poor web design you come across while surfing. • Freeze Page not available 404 • This page is not available. • Some websites only work with Microsoft browsers. <p>Undesired content (6)</p> <ul style="list-style-type: none"> • aggressive marketing of annoying stuff - like pop-ups only worse • other than browser being slow at times, nothing. • Too Much spam. • All the Adverts blocking any progress • pop ups • Objectionable Content <p>Other (1)</p> <ul style="list-style-type: none"> • Using Password

3.6 Further Needs

To understand older persons’ opinions on some features to assist their browsing more effectively, the respondents were asked to rate, in 5-Point Likert-like scales, from ‘Must have’ to ‘Not needed’.

Figure 2 illustrates the distribution of ratings and comparing Thai and UK respondents. The most positively responded feature was the Pop-up window block with more than 70% rated must have or should have and the second was ads block. The most negatively responded feature was the Reminder (with 32.7% rated do not really need or not needed). The Wilcoxon analysis reveal significant different in most

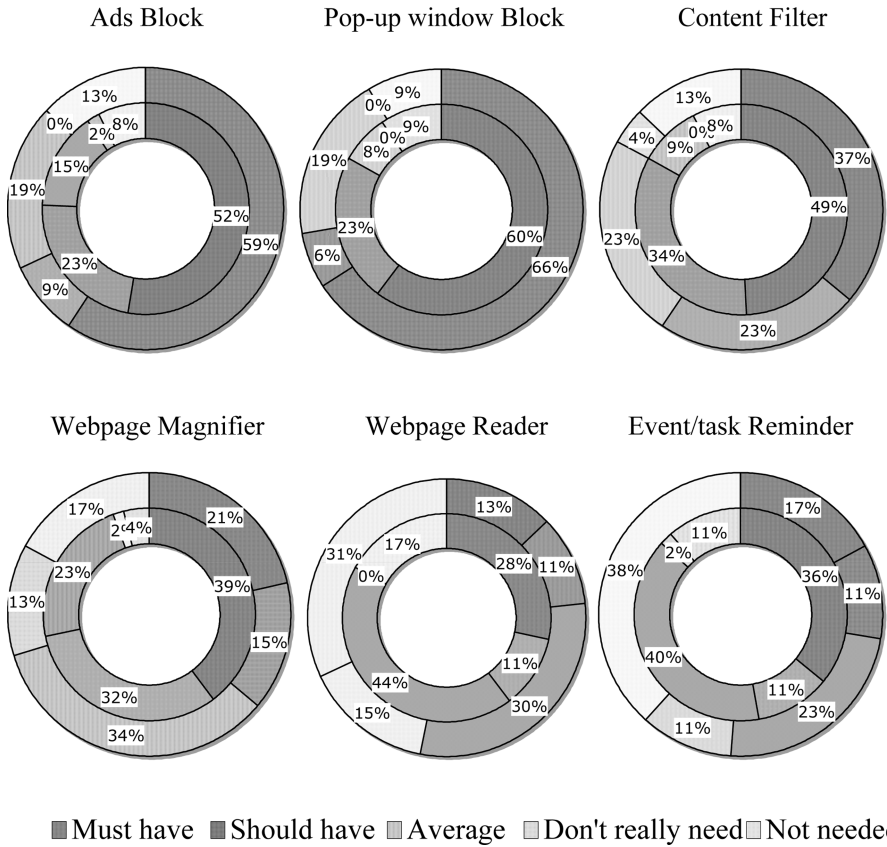


Fig. 2. Respondents' opinions on browser features (Thai=inner ring, UK=outer ring)

feature except Ads block ($p=.906$) and Pop-up window block ($p=0.876$). The need of webpage magnifier is highly significant different ($p<.001$). Upon closer inspection 71% of Thai respondent required webpage magnifier while only 36% of UK respondents require this feature.

4 Discussion and Conclusions

This paper seeks to investigate cultural differences in the use of Internet and web browser by older adults in Thailand and UK.

4.1 Reason for Internet Usage

The findings on Internet usage to keep in touch with friends and family and online shopping show highly significant difference ($p<.001$). The difference in the first reason is due to cultural difference. Thai families and friends (and in general Asian families and friends) usually live in the same area. Thus, the need to communicate via the Internet is less pronounced than in Western culture. Using the Internet for online

shopping is very unpopular in Thai respondents (5.7%) compared to the case of UK respondents (31.9%). This may be because Thai people are still unfamiliar with online shopping due to issues of trust, safety and availability of online store and Internet access. This finding is similar to a Thai Internet user survey in 2005 [5].

Using Internet for hobbies/interests, health information, and stocks/investments are not significantly difference. Those tasks are common reasons for Internet use of older adults in both countries. Checking stocks and investments is similarly unpopular in both groups, possibly because older people have concern about security and are afraid to make errors. In addition, stock trading is not popular in Thailand in general.

4.2 Browser, Browsing Device and Window

Nielsen//NetRatings report on the share of UK browser's market (2006) reported that IE is the main browser for 88% of UK users [6]. The result is somewhat echoed in this study (70% of UK respondents using IE). The Thai internet survey reported 93% of Thai users use IE [5]. The result is much echoed in this study when considering all of Thai respondents using IE.

It is unexpected finding that 58.5% of Thai respondents mainly use a combination of mouse and keyboard during web browsing while 61.7% of UK respondents use only mouse to manipulate their browsers. One possible reason is that the browser interface language is English, which might not be familiar to some users. Remembering and using keyboard shortcuts might be easier for this user group. Further study is required to verify and understand exact reasons.

The findings show that 58.5% and 36.2% of Thai and UK respondents open 2-3 browser windows at one time. This finding contradicts the guideline suggested by Kurniawan and Zaphiris to provide one window for older web user [7]. However, higher percentage of Thai respondents that open 2-3 browser windows might be caused by slower Internet speed. Users may open the second and the third window to allow more time for webpages to load while working with the first window.

4.3 Browsing Tasks

Expectedly, most frequently used function of both Thai and UK respondents are basic functions required during web browsing. The only difference found is the organization of favourite or bookmark list in Thai respondents and the stop and reload webpages in UK respondents. Again, one possible cause is the difference in Internet connection speed. Slower Internet speed in Thailand might cause users to rely on using their bookmarks while UK respondents can start browsing from their favourite search engine like Google or Yahoo!

The three similar unused functions are related to advanced functions and setting. The two different functions are set browser's homepage and learn from browser's help or tutorial for Thai respondents and change display language preference and change text size for UK respondents. Thai user do not set browser's home page because of the same reason we mentioned previously, they mainly rely on their bookmark, so they rarely or never set the browser's homepage. All other unused functions are related to language difference, browser's help are by default presented in English, which renders it unusable for some Thai users. UK users do not change

display language because they may not require to browse webpage in other languages or the browser can change the language preference automatically when browsing webpages in other languages. Changing text size might rarely be required because Latin alphabets are easier to read in their default setting than Asian characters like Chinese, Japanese including Thai are.

4.4 Problems and Difficulties

Problems faced by Thai and UK respondents are quite similar in term of website and its design e.g. page clutter, poor web design and undesired contents e.g. spam and ads pop-ups. The only difference is that some Thai respondents also have connection problem in term of speed and reliability. Software developer might consider special feature to address these problems e.g. giving clearly visible or audible feedback during webpage loading and alert users when loading is done, and alert them when connection problem occurs.

4.5 Further Needs

Pop-up window and ads blocks are clear winners in term of further needs. It indicates that undesired content screeners featured highly, much more than visual aids. It is interesting that 71% of Thai respondents required webpage magnifier compared to 36% of UK respondents, even though the Thai respondents are younger than the UK respondents. One possible reason is because Thai language has the anomaly of not using spaces to segment syntactic units and spaces are used only to delimit sentences. Figure 3 shows an example of Thai text. Thus, small Thai text can be problematic to older people, even after their vision is corrected with glasses.

<p>ภายหลังการเดินทางไปตรวจเยี่ยมโรงงานสร้างดาวเทียม "ซีเอส" ดาวเทียมสำรวจทรัพยากรธรรมชาติดวงแรกของไทย ณ ประเทศฝรั่งเศส เมื่อสี่ปีที่ผ่านมา และการตรวจเยี่ยมศูนย์ดาวเทียมภาคพื้นดิน สำนักงานพัฒนาเทคโนโลยีอวกาศและภูมิสารสนเทศ เมื่อวันที่ 15 ม.ค.ศ.ดร.ยงยุทธ ยุทธวงศ์ รัฐมนตรีว่าการกระทรวงวิทยาศาสตร์และเทคโนโลยี เปิดเผยว่าขณะนี้ดาวเทียมซีเอสได้สร้างแล้วเสร็จ และกำลังอยู่ระหว่าง</p>

Fig. 3. An example of Thai text

4.6 Summary

In summary, there are cultural differences in the use of Internet and web browser by older adults in Thailand and UK. And as many studies comparing two populations often suggested, the safest bet for developers of systems that would be used by these two populations is to take the lowest denominations. In this study, it means ensuring that all of the further needs are addressed, all of the problems experienced by the two groups rectified, and the simplest design that would allow loading at low connection speed is facilitated. This is not an exhaustive list, just a starting point to a culturally-inclusive design.

5 Limitations of the Study

There are naturally some limitations of this study, mostly related to sample's demographics. The Thai respondents are relatively younger than UK respondents. However, both group of respondents' computer usage and Internet experience are quite similar. This should compensate the age limitation at a certain degree.

The gender split is rather typical of voluntary studies of older adults, with more women than men participating, but would need addressing in further studies.

Using questionnaire for data collections caused difficulty in flexibility of the questions. The questionnaire still lists rather limited set of feature and activities that we could investigate, even we consulted an expert older web user and run a pilot study. Another inquiry method such as focus group discussions or interviews would complement the data collected from this questionnaire very well.

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