Tablet Use Patterns and Drivers of User Satisfaction: A Gender Approach

Marta Calderón and Gabriela Marín

School of Computer Science and Informatics, University of Costa Rica
{marta.calderon,gabriela.marin}@ecci.ucr.ac.cr

Abstract. Understanding what for, when and where Computer Science students at the University of Costa Rica use tablets and identifying gender differences in their use were our goals. An online survey, which included closed and open questions, was conducted. Results show that women use their tablet more for leisure and appreciate it for its usability. Non-working men use tablets also for leisure but value their functionality. Finally, working men are more interested in tablets as support to their work, and value usability more than non-working men.

Keywords: tablet use, gender, Costa Rica.

1 Introduction

Tablets, as well as smartphones, are becoming more popular in Costa Rica. Currently telecommunications operators offer packages including a tablet at relatively low prices. This change in the market place has motivated a higher rate of tablet purchases. According to [1], by November, 2011, 3.7% of the Costa Rica Internet traffic total share corresponded to non-computer devices, and 27.1% of the non-computer device traffic share was generated from tablets. By November 2012, Google presented an Internet traffic study which reveals that 30% of searches generated in Costa Rica using its web searcher came from mobile devices, particularly smartphones and tablets [2]. This fact represents an increase of 142% in only one year.

Around the world, people have adopted tablets as a new mean of interaction, using them for searching in the Internet, interacting with other people, downloading applications, watching videos, and playing, among others. Currently market research is the source of the most frequently published information about tablet ownership and use. Pew Internet & American Life Project has reported on percentage of adults owning tablets in United States (US) since summer of 2010. By September, 2010, 4% of US adults owned a tablet, but by August 2012 this percentage had grown to 25% [3]. In Spain, the Interactive Advertising Bureau (IAB) reported that in 2011 only 8% of the Spanish population owned a tablet, but it reached 23% by 2012, which made tablets the device with the highest rate-of-ownership growth in that country [4]. The 2012 IDG Global Solutions (IGS) Mobile Survey mentions that Information Technology (IT) professionals are especially prone to purchase and use mobile devices and, as

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with other technologies in the past, are key decision-makers when selecting mobile devices, operating systems, and applications [5].

Little have been published on what for, when and where are tablets used. Even more, gender differences have not been considered. Given this lack of information, we defined as our goal to create a picture of how Computer Science students at the University of Costa Rica use tablets today. We chose this target group because they are or will soon become decision-makers. We also want to identify whether there are differences between men and women use habits.

The structure of this paper is as follows Section 2 describes related work. Section 3 presents the methodology followed. Section 4 shows results obtained: general usage pattern results, usage patterns by gender, and usage satisfaction by gender. Finally, Section 5 describes the conclusions of this research study.

2 Related Work

According to [4], in Spain by September 2012, the most common tasks done using a tablet were using e-mail, accessing social networks and reading news on line, most of the times at home. From March to May 2012, IDG Global Solutions (IGS) conducted a global survey on mobile Internet use, in which more than 21,000 persons around the world participated [5]. According to data gathered, 92% of respondents are using tablets for web browsing, 81% for reading emails, and 77% for using tablet applications. These activities require a screen larger than the one smartphones have. They conclude that tablets became personal devices mostly used for personal activities [5].

In the academic field, Müller *et al.* [6] show the results of a research project in which 33 people participated. The three most frequently activities reported by participants are checking emails, playing games, and using social networks. Predominantly, tablets are used for personal activities related to fun and relaxation, which is consistent with the fact that users are within their home (couch and bed) when using tablets.

Previous research shows that there are differences among men and women when interacting with computers for solving problems or following instructions. [7-8]. None of the identified studies on tablet use consider differences between female and male users. What for, when and where each gender use them are open questions and their answers will very likely reflect each gender´s interests and concerns.

3 Methodology

In order to gather information about how students use tablets, we designed an on line questionnaire using Lime Survey. This instrument contained 18 questions related to personal use, work related use, software tools used, place of use, use time, and degree of satisfaction. The survey included closed and open questions, and was validated by three professors who are tablet users. Participants were recruited through e-mail and the Computer Science School Facebook page. In total, 44 students volunteered to participate. The criteria for participating were: being a Computer Science student at the University of Costa Rica (undergraduate or postgraduate) and owning a tablet.

When the survey was online, the 44 volunteers were invited to respond it. The survey resulted in 42 complete responses, which means a response rate over 95%.

Of all 42 participants who took part in the survey, 78.57% (33) were men and 21.43% (9) were women, which is representative of the distribution of female and male students studying Computer Science at our University. Their age range is from 16 to 51. While 61.9% (26) of participants study and work, 38.1% (16) only study. Half of the participants have used a tablet for one year or less and the other half from 13 months up to 3 years. Their average daily use time is 4.15 hours.

In order to find explanations to some of facts found through the survey, we additionally did follow up interviews to five students (3 women and 2 men).

4 Results

Survey results are presented in Section 4.1 to depict usage patterns for all the respondents. In Section 4.2 and 4.3 results are analyzed by gender.

4.1 General Usage Pattern Results

Figure 1 presents the different activities reported as performed using tablets. Results are organized in descending order by frequency of use.

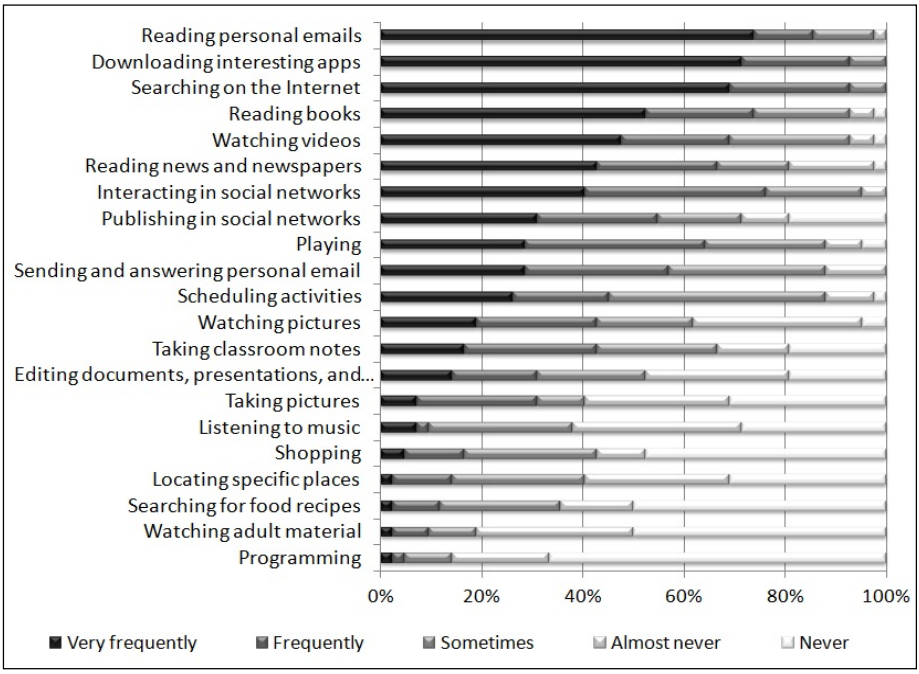

Fig. 1. Tablet personal usage by frequency of activity

The most popular activities are at the top (*reading personal emails*, *downloading interesting applications*, and *searching on the Internet*). These are the same top three most popular activities reported by IDG Global Solutions (IGS) [5]. Activities such as *locating specific places (GPS)*, *searching for food recipes, watching adult material*, and *computer programming* seem to be done very infrequently by the surveyed student population.

Not all students work during their studies (38.1% do not work). From the ones that are currently employed (61.9%), most students report using their tablets at their workplace. *Sending and answering emails*, and *reviewing work documents* are the most popular work-related activities done with tablets.

Another interesting feature of tablet usage is the location or place where tablets are used. They are mainly used in relaxed comfortable locations (*bed* or *sofa*) but rarely used in the outdoors (*swimming pool, beach, at the sun* or *in the car*) except in *buses*.

Results obtained are similar to the ones reported by previous research [6]. This is in itself an interesting result since it highlights that tablet use patterns can be regarded as similar amongst individuals of different countries.

In Sections 4.2 and 4.3 we will analyze whether there are gender differences on tablet pattern usage.

4.2 Usage Patterns by Gender

Figure 2 presents the average frequency of the activities reported as performed using tablets, by gender. The average frequency was calculated using the following scale *Very Frequently* =4, *Frequently* = 3, *Sometimes* = 2, *Almost Never* =1, and *Never* =0. Thus, higher average frequency of use is reflected by greater distance from the center.

Some of the activities reflect similar behavior for both men and women, for example, *reading personal emails*, and *searching on the Internet*. Others exhibit behaviors that are foreseeable (at least in Latin American countries), like men using them more frequently to *watch adult material* than women, or women *searching for food recipes* more frequently than men. Some differences are important to take into account, like men more frequently *reading news and newspapers*, *reading books*, *scheduling activities*, *editing documents*, and *taking classroom notes* than women. This seems to suggest that men use their tablets to review content, and in more formal contexts than women.

Results that are surprising are that women utilize tablets more frequently than men for *playing*, and *listening to music*, and men use them more than women for *interacting in social networks*. Follow up interviews gave some light on these differences. Women argue that they like simple games, like cards and children games which can be easily downloaded as tablet applications, whereas men prefer more sophisticated games, and better sound quality music, deterring them from using their tablets for these activities.

Men´s more frequent interaction through social networks using their tablets can be related to the fact that they use tablets to review content. This was confirmed in follow up interviews.

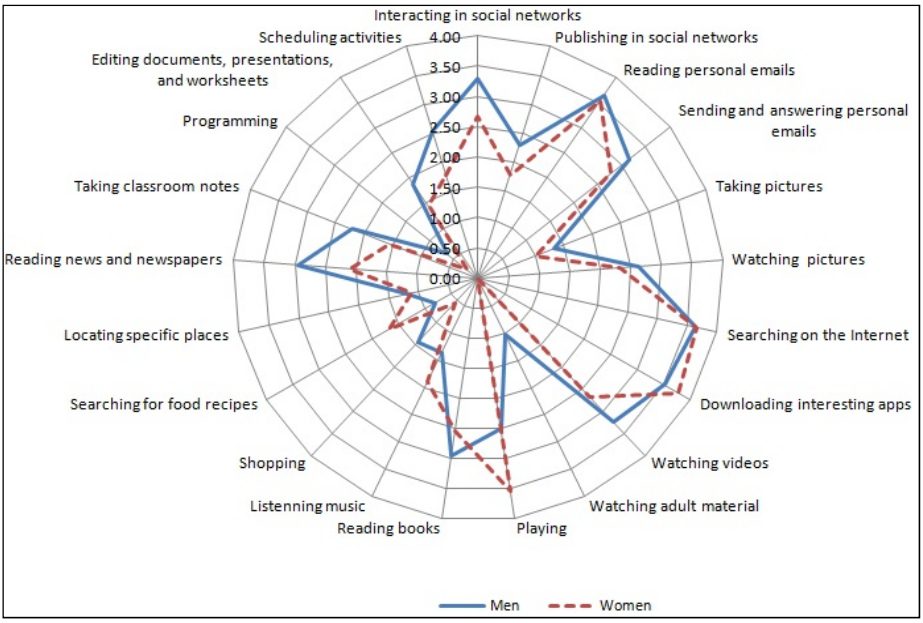

Fig. 2. Tablet personal usage by gender

Similar to results reported by Múller *et al.* [6], *bed* and *sofa* are the most popular places to use tablets. Figure 3 confirmed our belief that women use their tablet more often for relax activities than men. Moreover, men, more than women, use their tablets in more structured settings, like *table*, desk, *classroom*, and *office*.

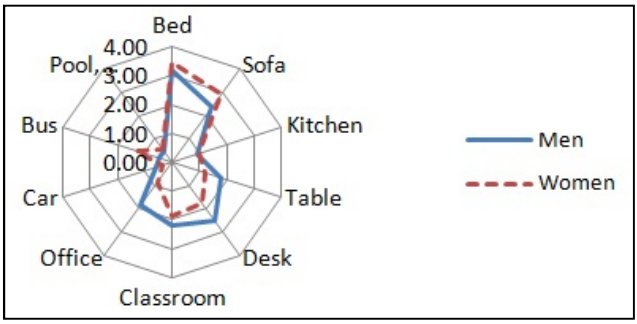

Fig. 3. Tablet usage location by gender

Women tend also to use tablets more at night than during the day than men (see Figure 4) and their average daily use time is slightly, but not significantly, higher (4.33 hours for women against 4.1 hours for men).

As tablet usage patterns are important for their design, drivers of user satisfaction may be valuable sources of information for human computer interaction specialists.

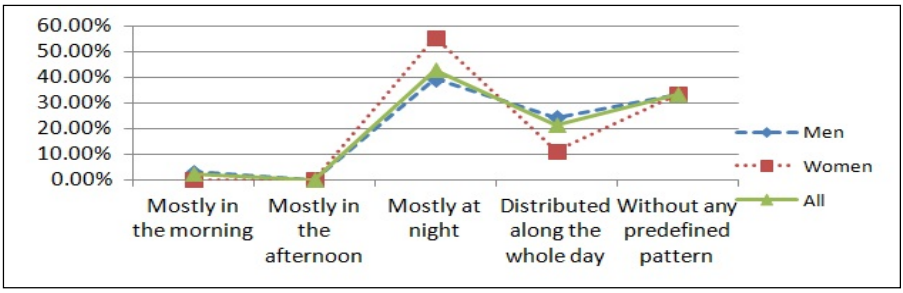

Fig. 4. Tablet daily use patterns by gender

4.3 Usage Satisfaction by Gender

Figure 5 shows that tablet owners are mostly satisfied or very satisfied with their tablet. However, satisfaction is slightly higher for men than for women.

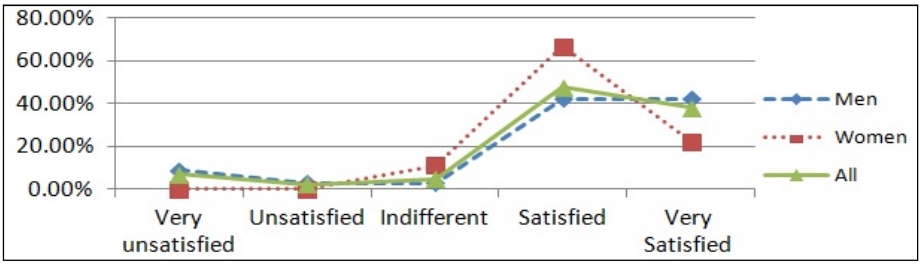

Fig. 5. Tablet user satisfaction by gender

What do you like most of your table? was an open question in our survey instrument. The answers were aggregated into tablet characteristics and the results were tabulated on Table 1, by gender and working status. Data on Table 1 were analyzed using correspondence analysis. Figure 6 shows a perceptual map reflecting graphically the differences among four user groups (represented in red). In a perceptual map, issues grouped together are said to be related. Therefore, *long* distance between user groups represents differences. Statistically, the resulting graph explains 88.69% of the data variation. From it, it can be seen that working women and non-working women are more similar between themselves than working men and non-working men. Moreover, it can be argued, based on Fig. 6, that women and men have different reasons for liking tablets.

After analyzing where characteristics are located in the perceptual map, graph axes were given names: the vertical axis reflecting the dichotomy between **leisure** and **work**, and the horizontal axis between **functionality** and **usability**. Women use their tablet more for leisure and appreciate it for its usability. Non-working men use tablets also for leisure but appreciate their functionality. Finally, working men are more interested in tablet as support to their work, and value usability more than non-working men.

Table 1. Frequency of tablet characteristics, by gender and working status

Code	Characteristic	Working women	Non-working women	Working men	Non-working men
APA	Application availability	1	2	5	3
BAL	Battery life	1	0	1	2
BOA	Book availability/reading	0	0	3	0
EAI	Easy to access information	1	2	0	0
EMA	Email alarms	0	0	0	1
EUE	Enjoyable user experience	0	0	0	1
EUS	Easy to use	1	0	2	0
GAM	Games	0	0	0	1
GPS	Support to geog. location	0	0	0	1
IOD	Integration with other devices	0	0	2	0
MEE	Memory expandability	0	0	0	1
OSF	Operating System Features	1	2	1	0
PRF	Processor features	0	0	4	5
PRI	Price	0	0	2	2
SCI	Screen interface	1	1	1	1
SCR	Screen resolution	0	0	3	0
SCS	Screen size	0	0	1	0
SDF	Software development facilities	0	0	1	0
STW	Support to work	0	0	0	1
TAR	Tablet always ready	0	0	0	2
TRA	Transportability	0	1	6	4
TSI	Tablet size	2	1	6	1
TWE	Table weight	1	0	2	1
VER	Versatility	0	1	4	1

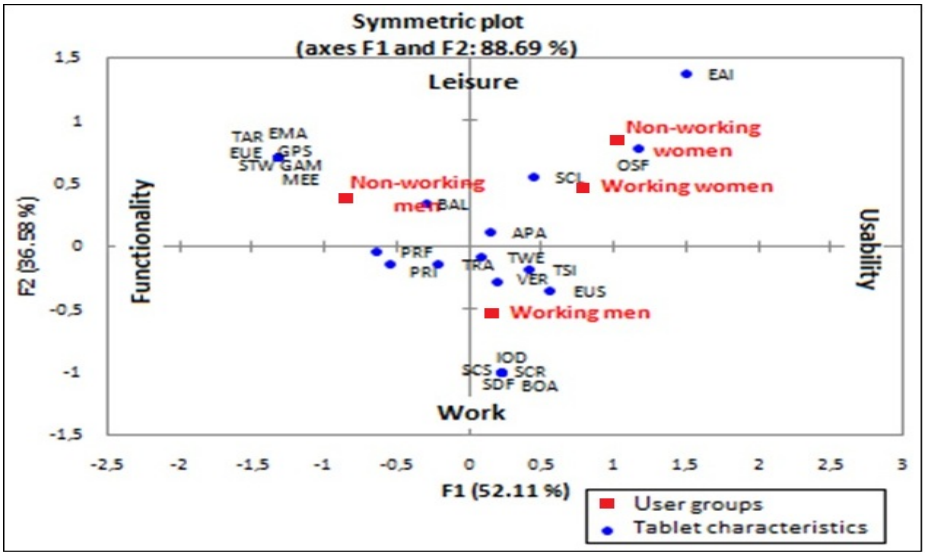

Fig. 6. Perceptual map showing relation among user groups and tablet characteristics

We asked students about what they do not like from their tablets. The three top characteristics they responded are related to *limitations imposed by the tablet operating system* (women 33% and men 21%), *user interface* (women 22% and men 21%), and *short battery life* (women 33% and men 12%). These statistics are congruent with the fact that men are slightly more satisfied with their tablets than women (Figure 5). Only men (6%) complained of poor processor performance and software development limitations, consistent with the fact that men use tablets as a support to work tasks.

5 Conclusions

Computer Science students using tablets follow the same usage patterns reported by previous market and academic research efforts. This in itself is interesting since it can contribute to consolidate results obtained elsewhere. However, our more important contribution is that different tablet usage patterns between men and women were depicted. Women use tablets mostly at home, in bed and sofas, and are more interested in usability and leisure. Men use them more than women at work and in more structured scenarios. They are more interested in functionality and tablets as support to work activities. These findings might be important for future tablet design and human computer interface customization.

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