

Students on the fly: Preliminary data from a year-long ethnographic study of students with a Mobile PC

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Abstract

As part of an ongoing, year-long ethnographic study on laptop adoption and usage, selected families, young professionals, and students in Tempe Arizona and the Puget Sound area in Washington State have been given some form of laptop computer, based on activity maps participants furnished to researchers. These 32 participants, 12 of them students, are being followed for one year as they report on their experiences. Preliminary data after one month reveal some surprises: A quarter of the students expressed desire/need for larger font sizes on their laptops; all students receiving a laptop without a CD/DVD drive complained that it depressed some of their mobile desires; and stylishness, even in a larger device, played a prominent role for some students. After initial excitement over Tablet functionality (rotating screen, pen), usage at this stage for the most part entails using the pen to navigate.

Unknowns about long-term laptop usage

Although we have conducted myriad lab studies on users' first experience with isolated features as well as employed benchmarking studies to assess users' ability to complete major tasks within an acceptable time, fewer longitudinal studies have been undertaken to learn what users' overall experience with their machine— in this case, a laptop— is like for customers over time. Outside of laboratory conditions, what actually happens once people get a new mobile PC? What are their

pain points, areas of pleasure, and usage expectations? How successful is their laptop experience in meeting their expectations? Finally, how can we at Microsoft and our partners who manufacture laptops do a better job serving our customers?

Digital Lifestyle 20/20 Study

To address these questions, three user researchers in the Mobile and Tailored Platform Division at Microsoft have begun a year-long study, "Digital Lifestyle 20/20," following three groups: young professionals, families, and students. Our goals are to deeply understand consumers, provide our product teams with a clear view of the future landscape of mobile computing, create opportunities for direct customer connection, as well as serve as a research platform for our Mobile & Tailored Platforms division groups beyond our own. Of major interest in the student segment are questions surrounding the ways in which PC mobility— or its promise— affects students, both in terms of their learning and their lifestyle.

Who are the student participants?

The twelve students are all in college or graduate school and range in level from freshman through the third year in medical school. Students range in age between 19 and 32, with the oldest a returning student who is currently a sophomore. Effort was made to recruit couples of friends in order to study communication habits throughout the day. Thus, there are four "couples" and four participants who were not recruited in connection with a friend.

Research Design

Given the nature of what the team was seeking, namely to discover what customers' experience would be had *they* purchased the laptop, extreme care was taken to adhere to ethnographic principles of "pure" observation and yet an effort at empathic understanding at the beginning of the study (Schweizer, 1998). Participants at this point still do not know why we are interested in them beyond learning that we are interested in the lifestyles of people like them in order to build better products. Thus, when several student participants asked "What do you want me to do?" they were asked to "Do what you would do if you had bought or were given the laptop. We are interested in what you would do on your own."

Once we have completed collecting data on discoverability and initial usage patterns, however, participants will be asked to perform special tasks by way of helping the product teams understand whether, then when and how customers would use a proposed feature. The plan is for the study to become increasingly "dirty" with these assignments to see which activities are adopted. Overall adoption patterns will also be determined.

The research design encompasses several stages: An interview with potential participants to gather data on their lifestyle and activities. From among this larger group of 30, a sub-set of 12 students was selected for the longitudinal study. We selected what we thought would be the most appropriate laptop to give that individual as a gift. We gave the laptop/Tablet to each participant at their dorm/apartment/or home, observing their out-of-box experience (OOBE); then over the succeeding month, general inquiries were made about how the participant was doing with the new laptop. Data collection methods included a special send-a-smile/send-a-frown application allowing participants to easily screenshots accompanied by comments at any time regarding their experience to a database.

Over succeeding months, increasing requests to fulfill "homework" assignments related to mobility. They will also be interviewed four more

times, using methods of Spindler (2001). Whether participants adopt their machines or abandon them, they will be able to keep them for being so helpful. Moreover, the threat of having the laptops "confiscated" for non-use would seriously compromise the results.

Finally, at a later stage in the study, most participants will be given a second, ultra-mobile PC (7" screen or less) to see whether this form factor will drive behavior, and if so, how.

Limitations of the research design

After some debate it was decided that participants should not choose their devices. The concern was that they would choose more expensive equipment just because it was free and not because it would best fit their lifestyle. For the most part, the participants were very happy with the machines they received.

Another problem is that, with any gift, they may feel that they need to please the researchers by offering favorable feedback. Using the methods of They may want to please us by giving more favorable feedback.

Seeking out differing grade levels and economic circumstances, and deploying different machines are bound to produce different obstacles and pleasurable aspects to our users' experience, though we are finding commonalities even in these varying circumstances.

Finally, it is a subjective study. The findings indicate possible trends rather than final certainties.

Collection Methods

Our data-collection methods include several visits (at approximately 2 month intervals), activity maps drawn by participants, and in-home or in-dorm observation including shadowing for part of one day. Assignments include emails, blogs, diaries, and web surveys. Selected participants will also attend focus groups, with all participants

sending “send-a-smile/send-a-frown” feedback to the company database so that students have an easy way to make their opinions known when the situation is occurring. The aggregate data will offer a view of long-term trends across participants.

Machines deployed to students

Our twelve students received various types and makes of laptop, over half receiving Tablets:

- 3 - Toshiba M200 Tablet PC (12” display; 4.6 lb.)
- 2 - Lenovo x41 Tablet PC (12.1” display; 3.5 lb.)
- 2 - HP (Compaq) TC4200 Tablet (12.1” display; 4.6 lb.)*
- 2 - Acer Ferrari (15.4” display; 6.4lb.)*
- 3 - Sony Vaio
 - 1 - Vaio S380B (13.3 “ screen 4.2 lb. 1280/800 resolution)
 - 2- Sony Vaio SZ240 (13.3” 4.07 lb)

Recently the distribution has changed to one student with HP TC4200 and three with the Acer Ferrari due to one student needing a larger screen due to eye strain and lack of CD/DVD drive in the HP Tablet.



Toshiba M200 Tablet

Preliminary findings about students

At this point, all 12 students are still using their new laptop as their primary computer. Size and weight do appear to be *one* driver of mobility, as would be expected:

“I've been taking my laptop to school every day so far and it's great! It's so light and I bought a sleeve for it so I just carry it in my backpack without it getting scratched! I love how portable it is.” Vy

Surprising problems and misconceptions

Perhaps the biggest surprise to date has been font size. Four out of twelve students reported a strong desire for larger fonts. In fact, one recipient of a Tablet, a petite Junior who lived some distance from the university, opted to exchange it for a much heavier machine with a 17” screen:

“I don’t like hand-held PCs because my eyes aren’t that good; they make my head hurt..... I go to 150% and zoom on graphics..... I’d like a large screen.” Kaimi

Another student spent a lot of time finding a way to enlarge the fonts in Windows.

“The font onscreen is pretty small [on her new Toshiba M200]. You have to squint to read it.” Danielle

The other two students also spontaneously expressed a desire for larger screens for viewing as well as for handling windows:

“[Ideal is] a 17” screen-- It’s just easier to see, not that I have bad eyesight. But sometimes I like to have multiple windows, my desktop icons.” Yvonne

“I bought a small screen [computer a few years ago] and when there are multiple windows open it is hard.” Maegan

Another surprise for the team was the degree of frustration that 6/7 of the students experienced because their machines were not equipped with a CD/DVD drive.

“I feel that it is very odd that such a fancy computer doesn’t have a place for CDs and for that I am ☹.” Tracy

“This is one of those things that you never realized how much you use it until you don't have it. ... I'm able to look up the downloadable

software for things like my printer, but I can't do things like listening to CDs on my new laptop." Erin
Another student complained:

Really bummed that this does not come w/ a CD ROM. I would love to install some of the programs I have (Quicken, my wireless keyboard drivers, screensavers, etc) but cannot do so because they are on disc. Yvonne

One interesting facet is that the students didn't associate greater weight with the inclusion of a CD/DVD drive. When this was pointed out, they all saw that it seemed reasonable in retrospect but it would not have occurred to them on their own.

Hardware pleasures

The superb style of the Ferrari and Vaio machines at first appeared to drive portability for four of the participants. This result occurred even when the laptop was heavy- the Ferrari weighs just over 6 lb!(2)

Hardware problems

A lot of surprising data about users' confusion over the machines emerged during the OOBE. This data will be transmitted to the relevant laptop manufacturers. Many of the participants, even those who had had laptops, still fumbled with the two laptop cords, which connected to each other and then to the laptop. Another area of confusion was finding the Tablet pen.

Noise was also mentioned by three of the participants. One Vaio owner noted:

"Fan on the right side of laptop is kind of loud. It goes on and off every couple seconds and is a little distracting, especially in a quiet area such as a library." Vy

Two of the Ferrari owners grew jaded about the roaring engine sound at start-up, and one finally disabled it.

Clearly noise problems would dampen a number of mobility scenarios, including that of the library.

Software problems

On first launch of the Tablet, a large soft keyboard appears. This was confusing to all who received a Tablet, and did not help any of the participants. One participant was totally stymied and finally had to be helped to dismiss it because it does not have any "close" or "minimize" controls and can only be moved by the pen, not the mouse.

Expected problems

Battery complaints

Even though the machines were a lot newer than participants had owned, they still found battery life of 3 or fewer hours challenging:

"The battery seems to run down a lot more often than the other computer did." Kaimi, who found the Ferrari battery to last less long than the HP 4200 Tablet she had previously been given.

"Worst battery life ever." Destiny

No ubiquitous wireless in Tempe

Getting a new machine connected wirelessly is challenging under most circumstances, but the promise was that Tempe would be different. We were therefore surprised to find it was also challenging in Tempe as well. This has compromised our efforts to compare a wireless city to an area that is not wireless.

Tablet PC owners showed initial enthusiasm

Students were intrigued and excited as they opened the boxes and found Tablets (all participants had read a description of the machine they were to receive before opening the box):

"Ooooooh! This is nice. This is nice for notes..... See? I didn't know when a swivel screen is handy and now you can see why." Danielle:

"I love how the software translates my handwriting into text!!" Alberto

Maegan appeared less enthusiastic during the deployment visit but intrigued enough to take the tutorial during the first week:

"I just did the exercise for getting to know your tablet pc (i.e., how to use the pen) and it was excellent-clear and a manageable "first bite".

"Oh, it'll be fun to try out the stylus... that's nice, cool!... Will the screen swivel so that it becomes flat? Awesome!" Yvonne

The following dialogue occurred between Erin and Tracy, each of whom got a Lenovo X41 Tablet:

Tracy: "I want to see if it turns!

Erin: "It does, goof-ball.... Pretty awesome."

Tracy: "Yeah... Wow, I've never seen anyone use one of those..."

Erin: "This is going to be fun. Wow..."

Tracy: "It's high-tech."

Erin: "Oooh, I'm in heaven already, see what this weighs! From my [old] laptop you can't believe what a change this is."



Tablet usage over time did not match initial enthusiasm

Over the past month, some Tablet usage Remains. Four out of seven Tablet users have used their pen to handwrite or draw, and five of seven used the pen to navigate, if occasionally. It is unclear how many students are using applications supporting Tablet or what those applications are. In any case, there do not appear

to be any obvious difference in mobility between the Tablet and laptop owners.

Next Steps

At the end of October 2006, those without CD/DVD drives will receive them, and we will learn whether having them (at least small, external drives) will produce more mobile behaviors. In November, students will receive their first overt mobile assignments, e.g., to perform a task in a place outside of their normal routine. During our December visit, participants will be shadowed for a few hours in order to fill in some of the blanks about their actual behavior (e.g., what apps they are actually using). Early next year their machines will be upgraded to Vista to learn what effect that may have on their behavior. Decisions are still being made whether to deploy UMPCs (Ultra-Mobile PC) to all or to selected participants. It is still too early to derive assumptive personas (Pruitt and Adlin, 2005), as had been hoped, but themes are emerging and we hope to have several personas emerging by the end of the study in the summer of 2007, along with a much enlarged picture of mobile behaviors and promise.

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