On the Habits of Students in Digital Media Commons

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ABSTRACT
I present an ethnographic analysis of how technology is used by students in Digital Media Commons at Northeastern University. Understanding the study patterns of these students and how they use the resources available to them will add to discussion of any possible future technological additions to Digital Media Commons, whether they are hardware or software. Challenges in the addition of new materials result from reluctance from students to try and use new systems and inadequate adaptability to every type of laptop owned by these students. These new materials also must meet university standards to ensure that they will not be stolen, compromise network and system security, and/or be overly expensive.

INTRODUCTION
Many different types of students use Digital Media Commons as part of their study routines, and for a variety of different purposes. Some come to utilize the comfortable seating while the work on a laptop. Others come to work on group projects together. Some come to simply read from a textbook. It would be easy to conclude that Digital Media Commons (DMC) is success and leave it alone, but its purpose is to be an evolving space that adapts to students needs. As a static space, it fails and will be left behind. In its current iteration, DMC must accomplish at least some of its goals, because it is occupied. However, as I will detail below, it is not being used to its full potential. Therefore there must be some opportunities that will cause students to use it as more than a place to sit.

Therefore, by studying students operating in this space, we not only learn how to improve DMC, but opportunities for all sorts of hardware and software based study aids that can benefit students and universities nationwide. If certain study patterns are often repeated, they can be automated. We discuss the existing tools that are present in these study patterns and opportunities for new tools.

The Dual Pattern

Without doubt the most common pattern observed was what I have termed the Dual Pattern. It is simply two students working together. Its prevalence indicates that a majority of students prefer studying in pairs. These students would frequently work on two laptops next to each other. There were no tables where they could sit facing each other, but they wouldn't want to. The characterizing attribute of this pattern is that a student would frequently lean over to look at the other's laptop. There were large monitors available, but the students either wouldn't or couldn't use them. In fact, no large monitors were in use during the period of observation. Most students working in this pattern were doing their work individually, but collaborating when confused. They would work independently (and usually silently) for a short time, and then one would ask a question of the other. The other might think for a while, and then search on his computer for a while, and then eventually indicate to the first student that he should read something on the second's screen. They would then resume individual work.

Within the Dual Pattern however, there are many other subtypes. The first subtype is reminiscent of detectives theorizing over a white- or cork-board. They have two large monitors with many windows open and information plastered all over these monitors, but they do all their actual works on a small screen that sits between them. These monitors are actually separate computers, and so these students frequently go back and forth between keyboards and mice. There were few actual places where this pattern could be executed, because it required two independent computers to be relatively close together. There was a counter of Macs against one wall in the back, so no more than 3 or 4 pairs could attempt this pattern at a time.

Another subtype of the Dual Pattern is the tutor / tutee type. One student is clearly knowledgeable about the subject (even if s/he is still in the course).
This is very similar to the regular dual pattern, except that one student does all the question asking. However, the also use an entirely different set of study artifacts. The tutor/tutee work with all the materials spread out over the table. These students aren't just executing the material, one is actively learning it. They both have the textbook for the class open, but the tutor only really flips through the textbook when the tutee asks for help. The tutee might also have a laptop open with additional information, which they occasionally point to. The interaction might look like this: The tutee works on problems in whatever assignment they are doing. Eventually they get stuck. At this point, they stop writing or typing and start flipping pages in the book or typing on the computer. Eventually, they ask a question of the tutor. The tutor then stops working, and begins consulting the book. The first read the place where the student got stuck. Then, they turn to other non-sequential pages without consulting additional aids. Eventually they either start explaining their findings to the tutee or direct them to the page in their book. The tutee then either asks another question or resumes independent work. The subtypes of the Dual Pattern each involve an additional amount of communication, but in very different ways. In the cork-board type, the students work collaboratively. In the other patterns, they work independently. In the tutor/tutee type, there is a contribution imbalance. In the others, both students contribute relatively equally.

**The Solo Pattern**

Solo pattern students prefer to work alone. However, they each use very different materials. Some solo pattern students used a laptop. Some used a pen and paper. Some used a textbook. Most used some combination of the above. The students with a laptop and pen and paper could probably have benefited from a two-monitor display, but for whatever reason chose not to use it. One student I observed had a laptop open to some kind of blog, but was doing all her work with a book and highlighter. One solo pattern student, whom I interviewed, that working on a laptop said to me that she comes to DMC because she “likes working at the high tables. Otherwise I usually just go to the third floor.” She was a Computer Science and Business student working on accounting homework. She was sitting at a monitor, but wasn't using it. When asked she said, “I'm not used to big monitors. My laptop is fine.” She wasn't the only one sitting with a laptop at a workstation and not using the big monitor. The monitors are roughly 24” monitors. They have a variety of input cables including a VGA. I did not notice a Mac input cable. There was even one student at a workstation using only his smart phone. He was listening to music by seemed to be working. There were also canopied desk available so that solo students could garner additional privacy. Solo pattern students on the whole used the space only for the desks and the outlets, likely due to unfamiliarity with the technological solutions or lack thereof.

**The Group Pattern**

The remained of the students formed groups of three or more. These students were frequently working on projects rather than homework or studying. Sometimes there was a leader but most of these groups preferred “round table” discussion. Some of the students in the round table were equipped with laptops, while others carried pads of paper or simply talked. There were rooms available for groups of students to occupy. These had to be “checked out” from staff. A student from the group would go up to a staff member at the desk, request a room, and be assigned a room. The group would then fill that room, where they would sit in chairs around a square table. There was a television sized monitor available, but often unused. Sometimes laptops would be rotated or passed around to display information to other members of the group, ignoring the display. This indicates that the display is probably not intuitive or would require resizing to display readable text. The groups also used rings of sofas around a central table. This proved the preferred solution to the round table problem, as all sofa rings were in use.

**Opportunities for Solutions**

There are many opportunities to craft solutions for some of these students. First, we cater to the
majority, the Dual Pattern students. These students need quick, efficient ways of sharing an information with another student without losing control themselves. They need a solution that will allow them to quickly and temporarily mirror their display onto a central monitor. Some of this is implementation dependent on their laptop, but a simple merge cable with a controller that can be changed in a single motion should result in more used monitors. The students will have to lean less, which can contribute to back problems. When finished sharing then, they can return to work on their individual laptops. A similar system would work for the cork-board types, but it would involve switching keyboards and mice to the central laptop instead of monitors. All of these Dual Pattern students, but especially the tutor/tutee type could use a solution where they can point to a monitor and have the monitor highlight the sentence that they are pointing to. In fact, the tutor/tutee type could benefit from a Microsoft Surface style table where they can work individually but “pass” things to the other.

There are also some opportunities for solo students. The student with the textbook and highlighter needs a way to highlight her e-books, either on a laptop, table, or kindle-type device. All of the low-seated workstations were also fairly abandoned, so it's safe to assume that the high tables are preferred by the majority. There should be more of them so that students aren't forced out of DMC.

Finally a round or lazy-Susan style Surface computer would be very useful for the group students. They tend to need to pass information between themselves, but don't use the space as more than a gathering place.

CONCLUSION

As a living space, DMC has definitely improved since it's last iteration. However, there is still more room for improvement to better target the needs of the students in it. In addition to the current observations and areas of improvement, we should be aware of trends of students in order to better predict what students will want next. If DMC is solely a reactive space, it will always be behind the students study culture. It should also be noted that this was a non-finals week observation of the space. Finals week could dramatically change the use of the space making some design decisions justified.

However, it is this researcher's opinion that many students stick to tried and true study methods during finals, and so providing more of recommended space will cause more pleasurable and efficient studying rather than forcing students into an uncomfortable or inefficient state. After all students that study efficiently have more time to do non-class related activities, which leads to happier students. Happier students is good for the whole university community.