ECS661U

User Experience Design

Coursework 1:

Ethnographic Study & Analysis

Group 3G

Varnika Vaid

Part 1: Ethnographic Study

Introduction

In this section, I will be conducting an ethnographic study of two modules; Module A and Module B. Module A has weekly Lectures and Labs as well as infrequent Tutorials. Module B has weekly Lectures and Tutorials as well as Labs that are both Synchronous (3 Scheduled Labs) and Asynchronous (Unscheduled Labs). For this study, I will gather data regarding the modules across the semester to analyse the effectiveness of the modules as a whole. I will gather this data for several aspects of the modules, including their settings and the impact this has on the attendance of students and interactions between both students and staff, and users with technology to see how this affects the module experience. I will gather this data in the form of observations, informal conversations, interviews and pictures.

Settings

Module A:

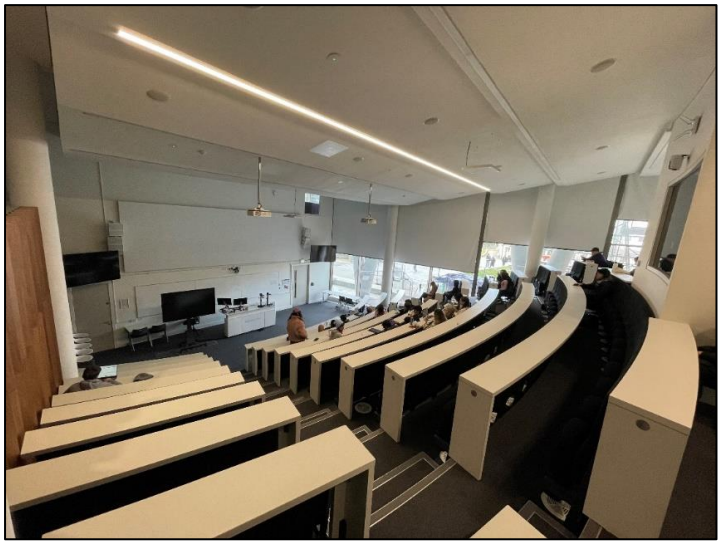

Figure 1: *Lecture Theatre*

Module A consists of 2 settings. The first setting is a lecture theatre located in the Graduate Centre that allows up to 200 students to attend weekly lectures. There are 5 synchronized

screens, spread across the front of the theatre, to allow students to have equal visibility, regardless of their location. The students sit in rows, as can be seen in Figure 1, whilst the lecturer stands at the front of the screens as they teach. There is an option for online attendance. There are recordings of the lecture available since the room is compatible with QReview. Due to this, I have observed that attendance has decreased across the semester since students have the option of viewing lectures either online or viewing a lecture recording afterwards.

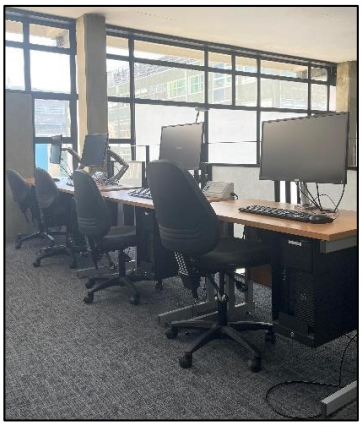

Figure 2: *PC Lab (Picture)*

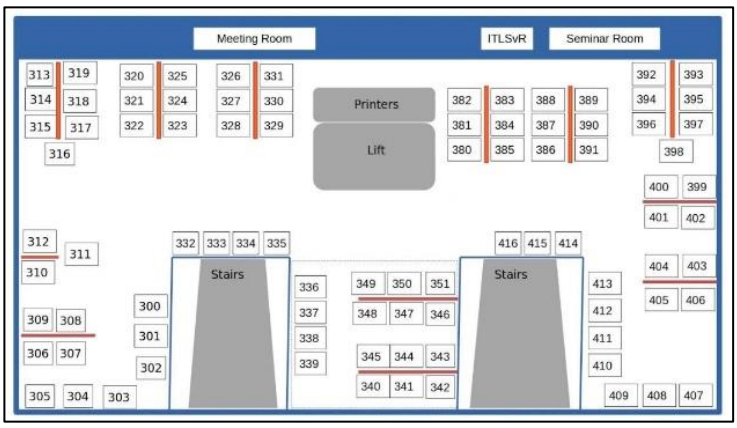

Figure 2: *PC Lab (Floorplan)*

The second setting is a PC Lab located in the ITL Building. Figure 2 displays 4 computers and the entire floorplan, which displays 90 computers that the students can use. Normally, there is a lecturer, 6 demonstrators, and a consistent attendance of between 18 to 20 students for each weekly Lab. According to the lecturer I conversed with, the reason for this amount of attendance is that there are 2 weekly Lab sessions, between which students are divided

equally, and allocated which of the two sessions to attend. The reason behind this division is that demonstrators and students spread out throughout the lab, meaning a student must wait their turn to speak to a demonstrator, after raising their hand. Without dividing the students, this would mean an impractical setup for teaching based on the 90 computers and 6 demonstrators. However, despite the division, students must still wait for a while to speak to a demonstrator during the lab, due to the ratio of students to the demonstrator. Regardless, the room allows for students to sit in groups, allowing for better communication and collaboration for tasks that require such.

As well as weekly lab sessions, the PC Lab is also the setting for an infrequent tutorial that has only occurred once this semester. According to an interactive QMPlus poll, 20 students signed up for this tutorial, whilst 2 refused. However, an observation was made that only 6 of those 20 students attended. This is likely not due to the setting since the demonstrator I conversed with was also unsure of the reason behind this poor attendance. There has not been another tutorial since.

Module B:

Figure 3: *Interactive PC Lab (Front)*

Module B consists of 2 settings. The first setting is an Interactive PC Lab located in the Queen's Building. Whilst Figure 3 shows only the front half, the room consists of 10 tables, with 6 seats per table, housing 60 students. It has 10 synchronised screens, with each table

having its screen to its side, allowing visibility for students regardless of location, whilst the lecturer stands in front of the 2 large screens at the front of the Lab. This is the setting for both the weekly Lectures and Tutorials. The room is not compatible with QReview, as observed, meaning there is no option for online attendance or recordings. This was notified to students in Week 4 by the lecturer via email, following which an observation was made that attendance increased across the semester.

Figure 4: *Electronics Lab (Picture)*

Figure 4: *Electronics Lab (Floorplan)*

The second setting is an Electronics Lab located in the Engineering Building. Figure 4 displays 5 pairs of Computer Screens, with one being a personal screen and one being an interactive screen, for each student. Figure 4 also displays the floorplan for the Lab, which displays 48 pairs of screens that students can use. This setting is used for both synchronous and asynchronous labs. In this Lab, the lecturer stays on a table and uses a projector to provide instructions on the interactive screen. There has been only 1 synchronous Lab till

now in the semester, with the remaining 2 scheduled for later on. It was observed that the attendance for this lab was quite high considering the total number of students in the module. In terms of the asynchronous Lab, attendance is irrelevant for this module since it is not a scheduled lab but rather an opportunity for students to work on their projects on their own time. However, an interview conducted with a student showed no criticisms of this Lab. When asked, "What do you feel about this asynchronous Lab setting?", the student answered, "I'm ok with this schedule.". This indicates that the Lab is a suitable option for students, that caters to their needs.

Interactions

Students & Staff:

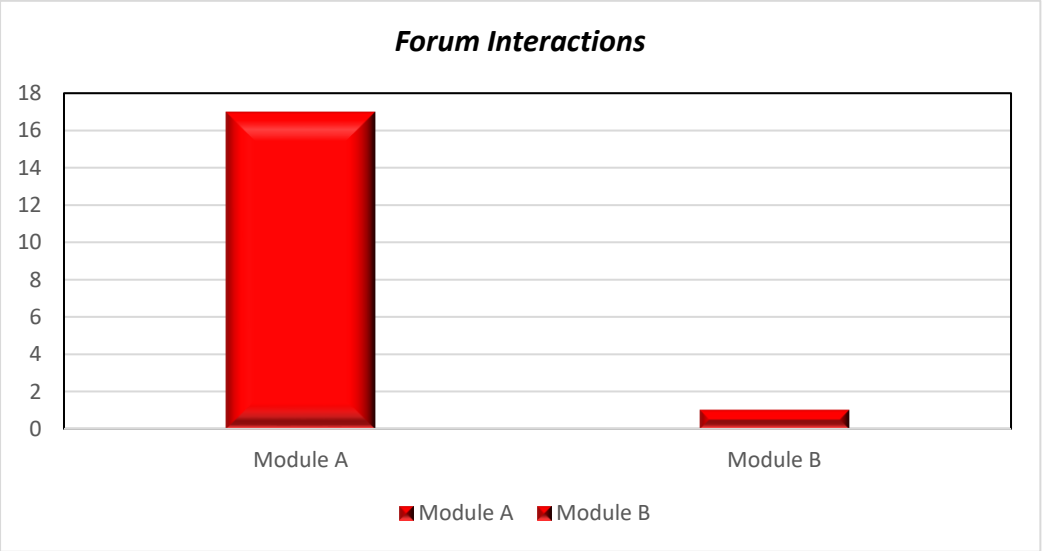

Figure 5: *Forum Interactions Bar Chart*

A form of Online Interaction between Staff and Students occurs on Forums. As such, data was gathered for the number of forums on QMPlus for both Module A and Module B across the semester. The results can be seen in Figure 5. We can observe that Module A has 17 forum interactions, which consist of back-and-forth interactions between students and staff. In comparison, Module B has 1 forum interaction, which consists of a question put forth by a

student that was not responded to by staff. This shows that forum interactions are more impactful for Module A compared to Module B.

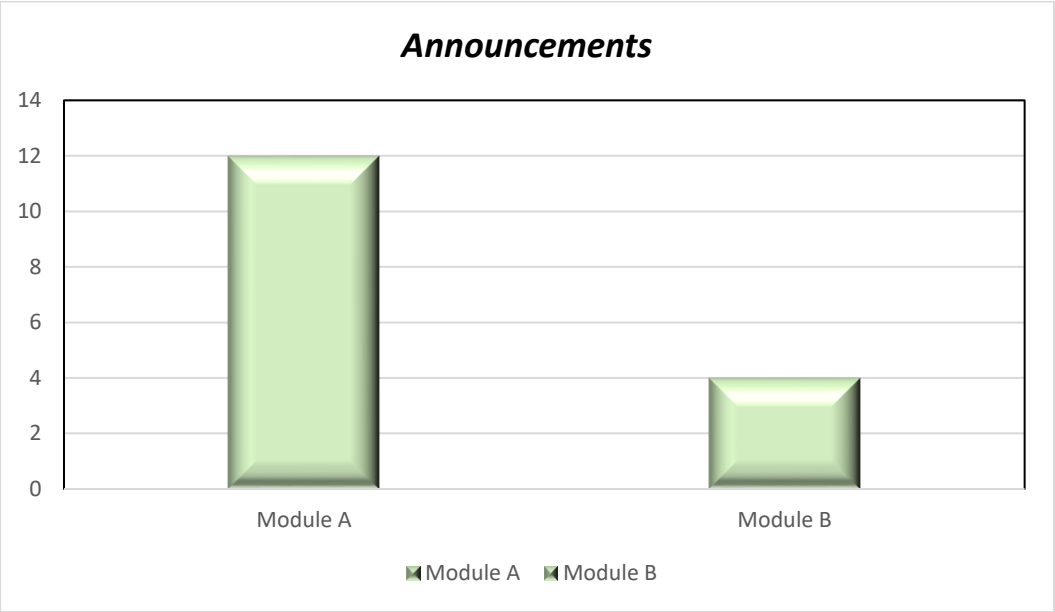

Figure 6: *Announcements Bar Chart*

Another form of Online Interaction between Staff and Students occurs through Announcements. Once again, data was gathered for the number of announcements on QMPlus for both Module A and Module B across the semester. The results can be seen in Figure 6. We can observe that Module A has 12 announcements from staff to students. In comparison, Module B has 4 announcements from staff to students. This shows that Module A keeps students more regularly informed than Module B.

Finally, a form of In-Person Interaction between Staff and Students occurs within Lectures and Tutorials. Here, it was observed that the seating had an impact on the effectiveness of interactions. This was seen when the students sitting closer to the staff during Lectures and Tutorials for both Modules A and B were asking more questions throughout the lecture and taking more vigorous notes, whilst students sitting further back were seldom raising any queries and were using their phones. This shows that the seating is very impactful for interactions between staff and students for Modules A and B.

A form of Online Interaction between Students occurs on WhatsApp Group chats. Data was gathered through interviews with a few students from both Modules A & B. When asked,

“Do you use WhatsApp Group chats to interact with other students within your module?”, most students responded affirmatively. When asked, “How useful are these interactions?”, a majority replied with very positive responses, including “It is useful for when I have urgent questions for next-day assignments.”, whilst a few had neutral responses, including, “I manage to complete my work myself, but it's comforting knowing I have people I can rely on.”. There were no negative responses. This shows that Group chats are effective for interactions between students for both Modules A & B.

A form of In-Person Interaction between Students occurs within Lectures, Tutorials and Labs. Data was gathered through interviews of a few students from both Modules A & B. When asked, “Do you interact with other Students in person?”, most students responded affirmatively. When asked, “Do these interactions help you?”, there was a majority of positive responses, including “I feel relaxed knowing others are going through the same stress as me.” This shows that In-Person meetings are effective interactions between students for both Modules A & B.

Users & Technology:

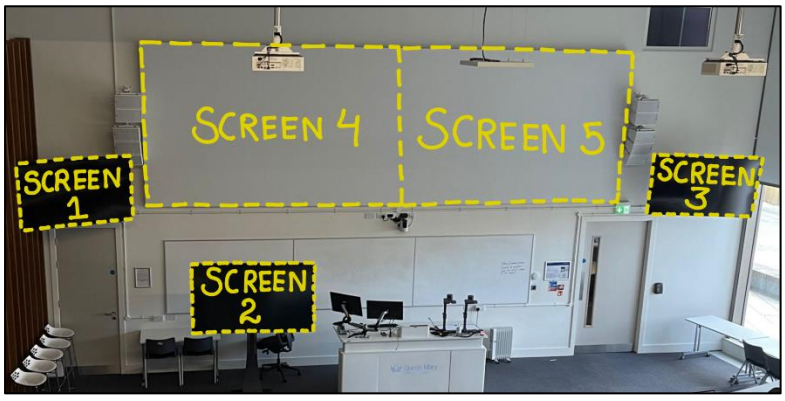

Figure 7: *Module A, Setting 1, Screens*

A technology that delivers module material to Users in Lectures and Tutorials is Screens. Both Module A and B use a variety of screens to deliver module content to students, regardless of their seating location. An interview conducted with a student shows their views on these screens. When asked about the screens across the room they said, “I make use of the

screens as it is not feasible to always sit at the front of the class." This shows the effectiveness of the screens, as seen in Figure 7. However, in relation to Module B Screens, they also said, "Any changes made to the main screen using markers during the lecture are not visible on the display screens.". This shows that the screens can be ineffective when the staff use methods that are limited to showing material on a single screen.

Another technology that delivers module material to Users in Lectures and Labs are projectors. An example observed is in Module B, where the lecturer uses a projector to deliver module content to the interactive screens during Synchronous Labs, as seen in Figure 8. In several informal conversations with students, I found that a majority of them find this an effective technology as it prevents them from having to repeatedly approach the lecturer for repetitive questions. This shows that projectors are effective in delivering material to users.

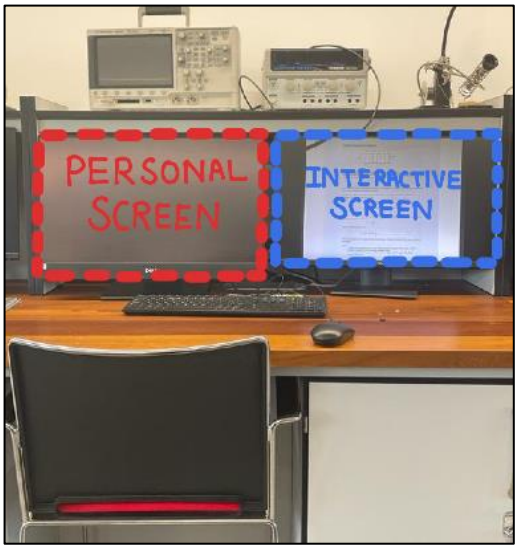

Figure 8: *Module B Setting 2 Solo Screens*

Another technology that delivers module material to Users in Lectures is QReview. Module A uses QReview to record lectures so that users revisit the material at their leisure. However, several students have brought forth issues relating to this during informal conversations. The first is that should the recording stop, the lecturer does not realise and fix the issue, meaning by the time the issue is resolved, most of the material has been missed. Another was that some modules, like Module B, are situated in a room that doesn't have QReview accessible. This shows that whilst QReview is effective, it depends on the technology and the module and whether it functions.

A technology that delivers module content to users online is QMPlus. Both Modules A and B use the platform to inform students of their weekly readings. However, the quality of both

Modules differs when delivering this material. An observation was made that the readings for Module A, in comparison to Module B, are presented in a much neater and clearer manner which allows the user to understand their required task more efficiently. This shows that the effectiveness of QMPlus in delivering module material depends on the specific module.

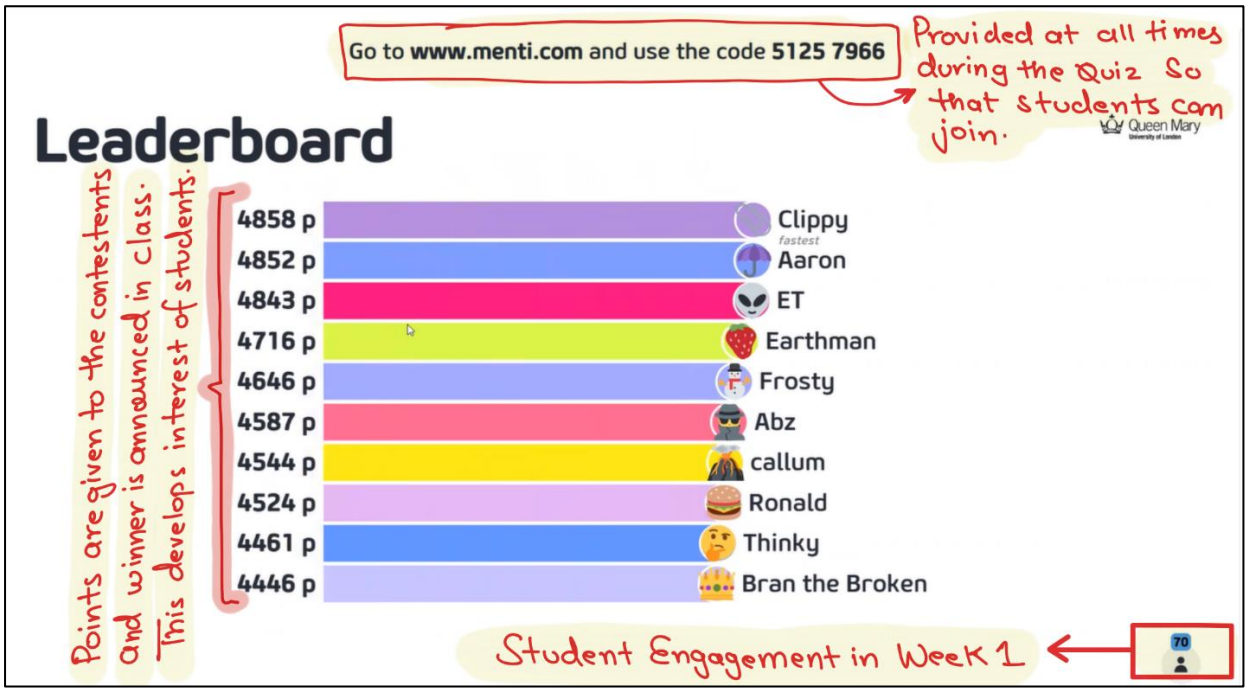

Figure 9: *Module A Menti Quiz Week 1*

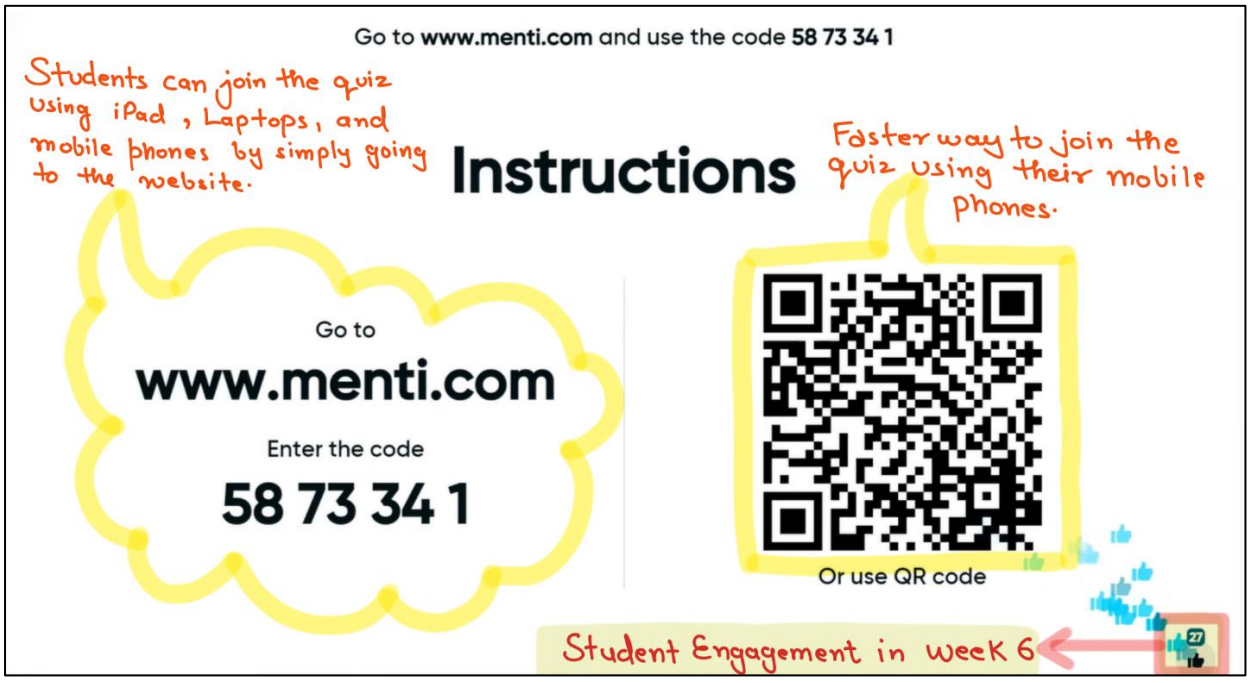

Figure 9: *Module A Menti Quiz Week 6*

Another technology that delivers module content to users online is Menti Quiz. Module A uses this during Lectures to deliver quizzes that both test and educate users simultaneously. Both online and in-person students can join. However, as mentioned before, this means lower attendance as users can use QReview to watch lectures on their own time. This decrease in attendance can be seen in Figure 9. Regardless, the consensus amongst students from informal conversations is an appreciation for the quizzes as they increase both engagement and understanding of the material. This shows that it is an effective technology for delivering module material.

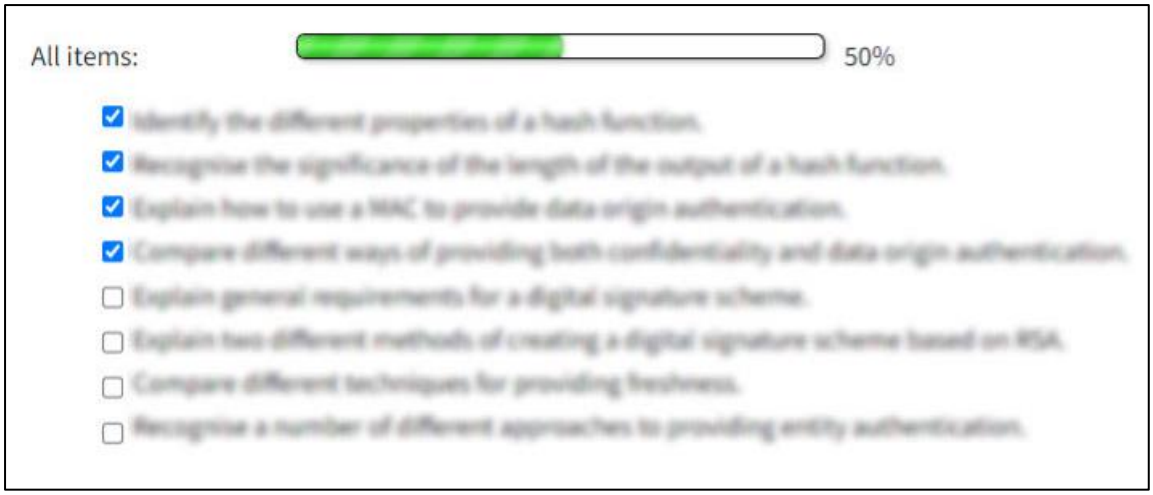

Figure 10: *Module A Progress Bar*

Finally, a technology that allows users to undertake tasks required is the Progress Bar on QMPlus. Module A uses this to allow users to complete tasks and get updated on how far they have gotten, as can be seen in Figure 10. I learnt from an informal conversation with a student from Module A that they appreciate the technology a lot as it allows them to more systematically complete work. However, the issue they had was that it was an option exclusive to Module A and not one that they'd seen on any other module, such as Module B. This shows that whilst this is an effective technology, it is not widely used to support students from a variety of modules to undertake tasks.

Part 2: Analysis

Norman's Design Principles

Donald Norman's developed 3 key principles to keep in mind when designing any form of an interface i.e. computers or devices. These 3 key principles are Visibility, Mapping and Feedback. The purpose of these principles is to allow an interface to not only function correctly but also be intuitive and easy to use. As such, I will be defining each principle and giving a subsequent example of how each principle could be used to solve an issue that was raised in the ethnographic study.

Visibility:

According to Don Norman, the principle of Visibility acts as a good reminder of what can be done and allows the control to specify how the action is to be performed.[1] He explains further that the good relationship between the placement of the control and what it does makes it easy to find the appropriate control for a task, meaning there is little to remember.[2] This means that Users should be able to know just from look at an interface, what their options are and how to access them. An example from the ethnographic study where this principle could be applied to solve an issue is on QMPlus, specifically the weekly readings for Module B. It was previously mentioned that the weekly readings for Module B are not presented in a neat or clear manner. To be more specific, the Module utilises a textbook for its' readings, of which there are two editions. When the convenor instructs which sections must be read using QMPlus, it is not specified which edition is it from, nor the fact that there are separate editions. Both have particular sections that cannot be found in the other so this causes confusion. A solution based off of Norman's principle of Visibility would be to simply specify which edition to use for that week's readings. Additionally a link could be provided for the E-Book, which is available at QMUL's Digital Library, so as to provide easy access to the relevant edition. This principle of Visibility is applied in Module A and has been found to be a more efficient manner of providing readings on QMPlus.

[1] D. A. Norman, *The Design of Everyday Things*, (2002), p.23.
[2] *Ibid*., p.23.

Mapping:

According to Norman, Mapping is a term meaning the relationship between two things, which in this case are between the controls and their movements and the result in the world.[3] He explains further that Natural Mapping leads to immediate understanding.[4] This means that in a good design, the controls for something will closely resemble their effect. An example from the ethnographic study where this principle could be applied to solve an issue is the lack of progress tracking on QMPlus for Module B. It was previously mentioned that Module B lacks any way to track your progress. The issue that arises with this is that the Module Page for each week has many tasks that are given in an unorganised manner. This means that the workload can become overwhelming. As such, when a student completes a task, they would feel accomplishment if they got notified of how much work they have done and how much is left. Yet, despite this expectation, no such result occurs. Thus, a solution using the principle of Mapping would be to have a tick box next to each task that the student checks off after completion. This would lead to a progress bar filling up and displaying the proportion of work they have left. This principle of Mapping was applied by Module A, as can be seen Figure 10, and proved to be efficient in tracking a student's progress.

Feedback:

According to Norman, Feedback is sending back to the user information about what action has actually been done and what result has been accomplished.[5] This is important as it lets the user know after every action whether it was successful or not. An example from the ethnographic study where this principle could be applied to solve an issue is QReview recordings interruptions. As previously mentioned, QReview recordings often stop midway without the lecturer realising, meaning by the time they do, lots of content has been missed. QReview utilises a light that changes colour to indicate the status of the recording, which is located on the lecturer's main podium. They are given details of this before entering the room through a guide on the door, as can be seen on Figure 11. However, this becomes an issue when the lecturers move around the area and fail to notice that the light has changed colour.

[3] *Ibid*., p.23.
[4] *Ibid*., p.23.
[5] *Ibid*., p.27.

A solution that can use the Feedback principle would be to incorporate ‘Beeping’ sounds to the lights. As such, should the action of the QReview recording delaying occur, feedback could be sent to the user regarding the result, which is the recording stopping. This would be an efficient way of using the principle of Feedback to solve the issue of QReview recordings interruptions.

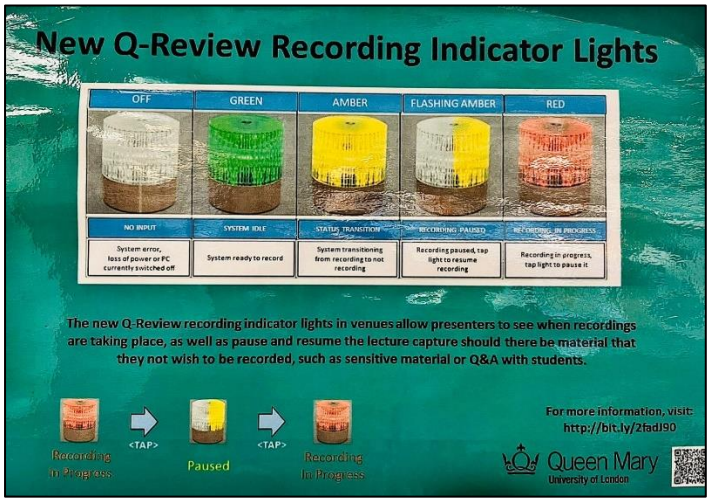

Figure 11: *QReview Lights*

Phenomenology

The concept of breakdown in Phenomenology is a key concept. Generally, in an interface, a user tends to perform tasks using ‘objects’ and ‘properties’ that they unconsciously ignore, making them invisible to the user. The concept of breakdown allows for the ‘objects’ and ‘properties’ to emerge in the interface’s activity. It is through this breakdown that an analysis of the objects, their properties and their place in activities can be done. There are 3 key stages in the Breakdown process. The first is “Ready-to-hand”. This stage is when the user is engaged with the task, having previously ignored the ‘objects’ and ‘properties’. An example of this that was observed in the user interactions was during a Module B lecture, wherein the lecturer was using the large screen to present whilst his material was synchronised to the screens that were to the side of each student. The next key stage is the transition between the 2 main stages as the “Ready-to-hand” stage transitions to the “Present-at-hand” stage. In the case of this example, this occurred when a student notified the lecturer that the screen to his side was not working anymore. The third key stage of relevance is the “Present-at-hand” stage. This stage is when the objects become obtrusive as they cause the user to encounter

obstacles to their task. In this example, this stage occurred when the lecturer, the user, now became aware of the screen that was not working, the obtrusive object, which interrupted his task of presenting to the class. Thus, the main stages of breakdown in Phenomenology have been explained.

References:

Norman. D. A. *The Design of Everyday Things*. 2002.