Assignment 1
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106CR Designing for Usability
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PACT Analysis and Prototype Design for an Interactive System (CampuTech)
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Scenario 2: Way Finding in the Hub
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People

Introduction

The hub is the life and soul of Coventry University campus. It provides students a place to study and socialize with various services offered during the day (career and employability, spirituality center, counseling, health welfare and disability, food court) and night (bar, cinema and a performing art space) as seen in figure 1.

Fig 1: Services offered at the hub
An essential part of my approach to designing an interactive system in the hub is to make it as user-centered as possible and the people who will be using this system are new students of the university at undergraduate and post-graduate level. Disabled new entrants (mental condition, long standing health or sickness, physical impairment, social communication impairment) will also be considered. All other students will also have a differing characteristics or impact on the interactive system.

Statistics

Coventry University has about 24,000 students, with undergraduate population of 19,700 students and graduate population of 4,300 students (HESA 2012). About 35% of the student population is new entrants and 3.96% of new entrants are with some form of disability (CU Statistics 2011)

Activities

The proposed interactive system is aimed to make it easier for new entrants to find and locate services offered at the hub, use onsite facilities, interacting with people as well as socializing and meeting with friends or course mates. Many characteristics of activities were being considered and they would be simple or complex. The main characteristics of activities that needed to be considered, keeping in mind the overall objectives was;

- The regularity of activities- How often is the activity done? Does it need regular updates?
- The interactive system’s response time- how long before the student gets the information he needs?
- The time factor- Will the student be delayed while using the interactive system due to slow system response?

Regularity of Activities
Automating the system will allow the students carry out their activity quickly and easily. Since some of the activities will occur often (scanning student ID to enter hub, going to the food court, meeting friends, visiting the student services in the hub) while other activities will only have to occur once (finding a service offered in the hub), the system will allow ease of use and less complexity.

![Fig 3: Student getting into the hub by ID card scanner](image)

**Extracting Information**

It could be difficult for students understanding the information provided by the student enquiries desk. A student finding a service such as the spirituality and faith service would have to be directed through the stairs or elevator to the first floor of the hub and his understanding in finding the service would be based on how quickly the student can process the information.

**Contexts**

**In The Hub**
Activities will occur in context. In the hub, it is expected to be a bit noisy due to the number of students around. Therefore the system needs to have an option for muting sound alerts and notices with increase in visual cues and an earphone constraint option will also be provided where students can either use their earphone or use the systems earphone. This will be useful for students with hearing impairment. Training the student to use the system will not be required, as the student will need to follow step by step on screen instructions. The system will have to be used on site to prevent physical damage due to theft or weather conditions.

**Home and Halls of Residence**

Certain students might want to find and familiarize their way from home where it could be noisy from living with other students or loud music, so once again, the student could lower sound alerts and notices on their Wi-Fi device while increasing visual cues allowing for more interaction thereby increasing the number of system features available.

**Technology**

**Current Technology**

The current on-site technologies available in the hub for way finding are on-site computers, paper notice/message boards, student enquiry desk, electronic notice/message LCDs, Student ID card scanners, elevator and a stairway. The problems with the current technologies available are duly listed:

- The electronic notice boards are barely noticeable as they’re hung high and the screens are a mere 32in, which would prove difficult for students with visual impairment.
- The paper notice board is located on the first floor. How would a new entrant see this?
- Student enquiry desk is only open for a limited number of hours a day.
- Computers take too long to load due to system response to student sign in. What if time is a factor?
Future technology

As stated, the system will be human centered interactive which will be called “CampuTech”. A new entrant who wish to use the stand CampuTech on site will be able to input data in requesting for directions of services located in the hub and also retrieving information of a given student service offered. It will be touch screen interfaced with option of sound for hearing impaired students. It will have a non-disabled stand port for students without disability and a disabled port for students in wheel chairs and other disability.

The app will also be available free for students to download on their phones, tablets and computers. The main way students will view this information is via screen display and the sizes will be adequate for a desktop quality application. The use of portable media players can influence a student’s use of CampuTech and its restrictive screen size will constrain a way finding and information seeking method for new entrants.
Observations

New Entrants

For majority of the students (sophomores and seniors), they can easily locate any offered student service from the hub because they are well familiar with the building but the new entrants take few minutes to process the building and where they need to go before making a move. Starting from how to enter the building, they hardly realize they have to scan their cards to enter the building. Also because the hub has multiple entrances, they get confused depending on the directional entrance they take.

Questionnaire (http://fluidsurveys.com/surveys/bryant4real/camputech/)

From the questionnaire sent to 10 students, mostly new January entrants, others September intakes it was discovered that a significant amount did not know their way around to or around the hub, and they rather asked people for directions on getting to the hub and other campus buildings. Minority of first years a usually accompanied by others who already know their way. Another result from the study showed that 50% usually carried hand held paper campus maps and would rather find their way instead of seeking directions from other students, while interestingly 100% of those who do not know their way around the hub asked for information at the inquiry and information desk while standing in long queues.
Role of Technology in Navigation

Getting to the various services offered in the student hub is the main concern as they can find it tasking. Some students use complicated ways of getting there like having to stand in long queues while others ask questions from other students who possibly might not even know their way there. Moreover, the questionnaire that more of the students would rather use a technological means of getting to the hub and getting information about the services offered.

Personal Interview
On the interview carried out on the same 10 students on questions asked about their opinions on an interactive prototype to aid in the navigation of the hub. It was discovered that 70% believed that an interactive system would be more
appropriate in navigation because they believe that engaging in a task in the hub should not prove difficult because the hub is the center of student life on campus. The other 30% believed that the traditional way finder by students should be encouraged because they believe a student should be willing to tour around campus and discovering new buildings and places by themselves without the use of technology.

Reflection

In my opinion, I believe observations and investigations are better ways to understand how users (in this case students) interact with technology not only because we can see exactly what they are doing but because we can take the analysis and develop a better system. Usually, users may forget certain processes they have to go through to accomplish a task when filling a questionnaire or while being interviewed. However, if the user is being observed, facts could be collected in real time and observing users lets us see and experience what happens when these users are faced with a real problem, showing us various specific work around and suggesting if it’s a recurring fault or if they simply just ignore or abandon it.

Questionnaires are a way of gathering information and compared to other methods, it is cheap and easy. Yet we have to consider that not everyone will complete the questionnaires. Another issue with questionnaires is that it is hard to follow up questions with variable answers. For example, a question like ‘Would you like to use technology to navigate around the hub?’ If the user says no it would be hard to follow up with the question.

Secondary Research

Las Vegas Convention Center Way finder

Introduction
This technology was developed by Prism Technologies in conjunction with Signs West and are currently using the future on interactive “way finder” technology at the Las Vegas Convention Center. This patented technology provides the solution for way finding in all types of venues from Conventions and airports to casino floors and malls.
Fig 6: Interaction with a way finding system in LVCC

Simply put, as a person walks up to the kiosk, touches the interactive layout of the existing convention floor and is easily directed to the booth they are searching for. The interactive solution is tailored to meet the need from simply moving people to destinations, providing information on the convention center and unloading excess inventory.

User Interface
As shown in the figure, the interface is made easy and understandable to use. Using a compact frame viewer and touch screen LCD, the interface displays a structural prototype of the building with different floors and rooms. The basic controls can be found on the left and right sight of the screen, consisting of room names, directories, legend for understanding the codes, current show and future shows.

Video Link; [http://www.youtube.com/watch?v=K4E8yJEGI5g](http://www.youtube.com/watch?v=K4E8yJEGI5g)

**Reflection**

Academic journals and web research can play a vital role in modeling our user interface and interactive design. In medical industry and hotels, way finding technology can point patients quickly to specific rooms or ward and guests can see hours of operation, services, menus, contact information and location within the facility which allows them to take advantage of
what is available to them without leaving the property. Aside from location awareness, way finding technology like the LVCC way finder can also give guests direct access to information about where they want to go. If they are searching for the nearest steakhouse, they will also know which one has the rankings, what is on the menu, if they deliver and what time they close.

**CampuTech Design Visualization**

**Kiosk Prototype**

![Adjustable CampuTech Kiosk Prototype](image)

*Fig 8: Adjustable CampuTech kiosk prototype. Also wheelchair accessible.*

The design prototype will be a 180cm stand alone kiosk, with 3 located on each floor, all wheelchair accessible and designed to meet convention and constraints requirement. The 22in screen has been fitted in portrait orientation and will have a screen resolution of 1050 x 1680 pixels.

**Main Interface**
The interface shown above is the main interface for the CampuTech stand-alone kiosk. Basic controls are seen on the bottom right of the screen which shows the ‘Select Floor’ icon, ‘Services Offered’ icon, ‘Contacts’ icon, ‘Get Direction’ icon, and the ‘Help’ icon. The parts labeled are explained as follows;
1) This visual constraint allows the student see hidden parts of the blueprints and the student can expand and touch zoom on the screen as desired.

2a) Elevator access is on the part of the map. A choice for students if they wish to use the elevator.

2b) Stair access occupies this part. Also a choice if the student desires the stair access.

3) These are various service rooms offered in the hub.

3a) the student store where they could get customized Coventry University attire and pens and stationary.

3b) Careers and employability center.

3c) Occupies the student union center and 3d is the Advantage module center.

4) This is the volume control shown with the ‘+’ for volume increase and ‘-’ for volume decrease. Also the ‘I’ logo is the information. When touched, it gives you detailed info on a selected service offered in the hub.

Feedback on Visualization

Feedback

Kiosk Prototype

Students, most of them about the color and others about the openness of the kiosk, questioned the prototype. A student asked if it was available in other colors? Another asked why there was no shield to protect the screen. For the latter question, I explained there was no shield because it was going to be located on site and would not be affected by the weather. Also since there would be no need for secured transaction, it would least require providing a shield for the device.
Main Interface

The main interface was well accepted by majority of the viewers. Two students asked what would happen if he decided to take the elevator instead of the stairs, and I assured them that the interface would change to the blueprints of the floor they were on and they would still be able to trace their destination. Also since this CampuTech kiosk will be on each floor to allow easy access which ever floor the student was on, the starting interface would be the blueprints of the floor they were on while they could still be able to change to other floors. Another question asked by another student was what if all the kiosks were occupied, would he have to wait if he was in a hurry? I explained that CampuTech technology will be available for download for free on computers and smartphones and tablets with provided student ID card and if the kiosks were all occupied, he would have the option of using the app on his mobile device.

Appendix

Questionnaire/Survey Questions
1) Are you a Coventry University Student?
   - Yes
   - No

2) Are you a new entrant?
   - Yes
   - No

3) What is your current level of study?
   (Please Select One)
   - Pre University Student
   - Level 100
   - Level 200
   - Level 300 (Sandwich Year)
   - Level 300
   - Post Graduate Student Level 1
   - Post Graduate Student Level 2
   - Research Student
4) Have you ever been to the Student Hub?
   (If No please go to question 6)
   ☐ Yes
   ☐ No

5) What was the purpose of your visit?
   (Please select as many as possible)
   ☐ Inquiries and Information
   ☐ Career and Employability
   ☐ Advantage Module Advice
   ☐ Health and Welfare
   ☐ Coventry University Student Union (CUSU)
   ☐ Spirituality and Faith
   ☐ Food Court
   ☐ Square One
   ☐ Study group with course mates
   ☐ Meeting with friends
   ☐ Other (Please Specify)

6) What is your way finding method around campus?
   (Please select appropriate check boxes)
   ☐ Ask fellow Students
   ☐ Browse buildings online
   ☐ Ask at Inquiry desks
   ☐ I do not ask or search I just tour until I get to my destination
   ☐ Others (Please Specify)

7) Would you recommend the use of technology as a way finding method for New Entrants?
   Please select one and explain your answer
   ☐ Yes
   ☐ No

Submit
References


Available from: http://www.signswest.com/blog/?p=103
[accessed 18 January 2013]