Project Specification - LSEPI Analysis

Project Specification 1 - Aiding Visualisations for Distraction and Pain Management Through Immersive Virtual Reality Environments

A major social issue is the actual target group of this project as it is so broad being 18 and over and trying to cater for such a large audience could be problematic. The student mentions interestingly that elderly people would be included in the target group. This may be an issue as to use the "Oculus Rift", as mentioned in the project the user needs a certain level of understanding of the technology to benefit the most from it. Many elderly people would not be able to relate to this technology and thus properly engage with it. In addition, the application could potentially be very subjective with a lot of people disliking the idea of using a virtual reality system and preferring more traditional methods of pain relief. Taking this into consideration the technology should be tailored to either a younger audience or an elderly audience. This is due to it being extremely unlikely that an age demographic stretching from 18 to elderly will all appreciate the same application as everyone has different preferences. To improve the student should specify a smaller demographic and adapt the application to the audience, so it is on a much more manageable scale. Alternatively, he could scale up his project and make multiple applications to accommodate for the different demographics. This failure of virtual reality to appeal to elderly audiences is further highlighted by recent articles stating how three dimensional fear was a factor in determining the acceptance and rejection of VR (Coldham & Cook, 2017). Further showing how the students broad ranging approach would not be suitable.

Cost is a factor throughout this project that hasn't been given much consideration. The "Oculus Rift" named in the project costs approximately £400 and requires an array of additional purchases such as a relatively powerful computer along with other accessories. This is an expense which will have to be taken on by the healthcare service, which in most cases is the NHS who are already under the strain of budget cuts. In addition to these high start-up costs there would be a large possibility that full-time technicians would have to be employed to keep the system in working order. As a result of this the relative cost of the project increases exponentially compared to traditional painkillers in use today. In this the question really becomes is the additional expense worthwhile and is this new form of pain relief beneficial enough to justify the price tag, especially since it's a relatively new technology and has yet to be proven there's a definite element of risk.

A more cost-effective option would be "Google Cardboard", which is a cheaper alternative however runs through a smart phone unlike the "Oculus Rift". It is much more portable, requires no additional purchases hence meaning more people could have access to the technology as it is cheaper so more units can be obtained by the healthcare service. Recently, there have been articles indicating that virtual reality is at a stage in development where it is consumer friendly and has already proved itself as a good measure for pain relief. It has been used as far back as the year 2000, successfully alleviating pain in both adolescent and adult patients (Ahmadpour, et al., 2019). Possibly making this a worthwhile investment for healthcare services and a new source of pain relief as throughout the last decade or so methods of pain relief have been relatively stagnant.

There's a definite issue of mobility and space requirements among the participants and in a hospital environment. Assuming they are bed-bound they will not be able to fully experience the "Oculus Rift" as it requires a relatively large area of floor space to operate which may not be realistic in the confines of a hospital. Significantly the student mentions in the project aims they will be testing the final application on the general population which is not representative of the actual target audience who are in chronic pain. As a result, this could produce flawed and misleading data making the application appear more popular than it is. To rectify this the student could conduct a focus group containing solely people in chronic pain to get more representative data. Then following this focus group, they could make improvements based on their actual audiences' feedback.

A system such as the "Oculus Rift" also requires the user to be standing, which is an obvious issue if the target audience is bed-bound. On a similar note, there is no guarantee the hospital would be able to accommodate such space requirements and the chance of development within hospitals to fit these virtual reality systems is relatively slim. Due to these circumstances the new technology would not be able to be implemented universally and therefore would not be readily available. A possible suggestion to the student would be to focus their attention on the recovery period after the patient has left the hospital and deliver the technology to the likes of after care companies. This would take the financial burden from free healthcare services such as the NHS.

Another aspect of this project regarding LSEPI which has not been mentioned is the use and storage of data, particularly with the newly implemented GDPR rules introduced in 2018. Recently British Airways was subject to these new guidelines and was fined a record breaking £183 million after "poor security arrangements" led to a data breach (Porter, 2019). This shows how great the consequences can be if the protection of data is neglected. The failure of the student to mention how the data would be handled implies it has not been considered. The student has a moral responsibility to put measures in place to protect the participants data and it must solely be used for the purpose stated with no lack of clarity. Not only that, the data gathered must be the bare minimum required for the project, so it doesn't infringe on the participants privacy and in the event of a data breach the possible consequences would be far lower. The student could consider many methods such as encryption and anti-malware software to properly protect the data.

The student may encounter legal issues within this project as they mention how they will be using data from a previous company "Max Planck Institute for Biological Cybernetics" as an aid for the project and possibly a case study. There is no mention of any kind of permission from the company and the data may be confidential so in this case the student would be wrong to use it. To overcome this the student would need to get a formal form of permission from the company or alternatively not include this data to avoid GDPR complications. Recently "Facebook" has been exposed for having special arrangements with third party companies such as "Amazon", "Netflix" and "Microsoft" to share its members personal data. Specifically Microsoft's search engine "Bing" was able to see the names of "virtually all" of Facebook users friends without their permission in order to personalise adverts shown to them (BBC News, 2018). This demonstrates how important it is to fully disclose how data will be used to the public especially within the student's project as it could affect many vulnerable people and a lot is at stake, so it is an ethical issue as well as a legal one.

Bibliography

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