Individual Report - Report to evaluate techniques and reflect on learning

Team Organisation

Our team for this project consisted of six members of varying abilities. Having conducted a team project for a different module in semester one we decided to get organised early. We held an initial team meeting in our own time to discuss everyone's strengths and weaknesses as well as any ideas they had or preferences for any tasks they particularly wanted to work on. The project itself was also divided into two phases. Phase one was mainly for research and to come up with a list of questions that could be used in the project, at this point I defaulted to a leadership position, I asked everyone to come up with at least one question for each learning style quiz (of which there were two) and set a short deadline so we could stay on top of things.

This immediately differentiated the people in our team and gave great insight into each individual's attitude and work ethic. First and foremost keeping in contact with the team members. We decided it was easiest to use Facebook and create a team page where we could keep track of things. However two of our team members initially did not have Facebook accounts and although these are quick and easy to set up, as these members were not used to using Facebook as frequently as the others they didn't check messages as often and had to be chased up in person to make sure they understood what was going on. Also by using Googles drive feature we were able to share documents with each other which are saved online, we encountered similar issues with not all our members initially having accounts but these are also quick and easy to set up and were an invaluable tool in the overall process. After these teething issues were resolved we set up a shared document where we could save our own, and view each other's questions.

Intending to set an example I did quite a lot of the initial research myself and posted lots of links for the others to follow, I then wrote out my questions and saved them on the shared document to give everyone a template to follow for their own questions. When the deadline for the questions came only some of the team had completed them, we also had an unbalanced amount of questions for each quiz. I spoke to the members of the team that had not contributed to make sure they fully understood what they were doing and to make sure nothing prevented them from completing their tasks, I wanted to create an environment

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where the other team members felt comfortable talking to myself and each other and although the deadline I had set was arbitrary to our team I wanted to make sure that everyone could meet deadlines when asked. Although everyone responded positively and assured me that they would get it done this ended up being the prevalent attitude of some team members for the duration of the project.

Our next task to be completed was to create our plan and set the foundations for phase two. This was split up into various tasks of varying length and complexity and given to team members who opted for them or otherwise those that we thought were best suited to that particular task. At this point we weren't working as a cohesive whole. 3 or 4 members of the team would meet regularly to discuss their progress and seek help and advice and we would give feedback on each other's work. However two of our team were becoming more distant and it was becoming increasingly difficult to get hold of them. Fortunately one of those was still keeping up to date between our Facebook team and google docs and was contributing work, however the remaining member was also failing to contribute work and was a source of frustration for the other team members. After speaking to this person I ascertained that they were struggling to find time to do the work we had asked due to working to support themselves through university, a situation I empathise with completely as I do it myself. They were insistent that they wanted to pull their weight and contribute to the team. I told them that the other team members were more than willing to do some of the work if needs be as we would rather have everything completed before the deadline so we could review it as a team before submission. This carried on until I was forced to lessen the work we had asked them to do and re distribute it to the remaining members. We narrowly made the first submission in time, by this point I personally had started to give leadership position over to another member. As I commute a fair distance to University and we had to provide a physical submission it was mutually decided that somebody who lived closer to campus would take over and all our work would go through them to be checked for submission as it would be much easier for them to get access to materials and sort out problems than it would be for myself to do so.

Based on our performance throughout phase one of the project I believe our team worked in what most resembled a democratic system. 'A democratic leadership style is an open approach to leading, where decision making is shared and the views of a team or group are

valued' (Defining-Leadership, 2013). Despite division of tasks between us everybody had the opportunity to review everyone else's work and we frequently held feedback sessions to continuously improve what we had done. This approach of equality seemed like the best method to start and allowed us to have a positive beginning to our project however as the weeks went on, people working at different paces started to put strain on the democratic approach, rather than carry on as we were we evaluated our current state and our working ethos evolved to something that more closely resembled a chief programmer team, 'The chief programmer team is a project-based organisation in which specialisation is implemented in an extreme form' (Bell, 2005). This method was more effective for phase two of the project.

'Bruce W Tuckman is a respected educational psychologist who first described the (then) four stages of group development in 1965' (Chimaera, 2001). If we compare our progress to the group development lifecycle I believe that phase one of the project has perfectly encapsulated the first two stages, collection and entrenchment.

Phase two of the project is where the actual programming and coding tasks began. We split this into 3 categories, the questionnaires, the storage of data and finally the analysis of data, these were then divided into two parts to give every member their own section to work on. This was organised and overseen by one individual acting as a chief programmer. Initially this plan worked well, but eventually the same team members that had been problematic in phase one started to become more distant again. Toward the end of phase two we had to devote some time to bringing everybody's modules together to create a complete program, however some team members had not done their part and other members work relied upon the completion of it to be able to continue with their own work. This meant that our chief programmer had to contact these individuals regularly to make sure they were doing their part towards the project. Eventually all the component parts were completed and the team became a lot more co-operative in order to combine our work to create the finished article. This was a very productive albeit short period of our project, the final deadline was looming and we banded together right at the end in a greater capacity than we had previously and I believe that we should be proud of what we created. Comparing phase two to Tuckman's model of team lifecycle I think that we spent a lot of time in stage two, entrenchment. Communication was quite poor, there were lots of ideas floating around and

different members were working to their own perception of the specification. Through a combination of our chief programmers input and the looming deadline right at the end of the project we blazed through stage 3, norming and onto stage 4, performing in a very short space of time. As the team and project were only short term we disbanded after the completion of our single task so we never had the chance to reach the final stages of the team lifecycle.

Overall despite our best efforts and strong finish, I believe we more closely matched the definition of a group as opposed to a team. Certain individuals resisted the efforts of the team as a whole and reduced our overall effectiveness, our democratic approach created an environment with very little accountability where these individuals felt no recompense for how their actions and disregard for deadlines affected the others.

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As part of the process we developed a Gantt chart to give an overview of our timescale and projected times for each of the necessary tasks. In addition to the Gantt chart we also developed a risk matrix where we evaluated potential situations that may have arisen that would hinder or stop or work and then the likelihood of each one of this situations actually occurring. Although our Gantt chart was fairly comprehensive we did not fully utilise it as a timekeeping tool. As the project progressed certain things were found to be easier or more difficult than first anticipated and took more or less time accordingly. We failed to update our Gantt chart and in doing so diminished its usefulness. There were also some tasks we had planned for initially that we decided later to drop from the final draft and other tasks we had to complete that we did not plan for, again we did not update our Gantt chart to reflect this changes and I think this is one of the reasons that we only narrowly made the final deadline.

Our risk matrix was quite a good tool as some of the situations actually did arise that we planned for. Namely the difficulty of contacting some team members and one of our team members fell ill during the process. Because we had planned for this we were quickly able to mitigate the circumstances by redistributing the workload between the remaining team members and quickly overcoming problems that may have had a significant impact on our performance.

For the actual creation of the software itself we used several methods to structure and plan our work. Some of the methods we used were class diagrams, use cases and test cases. Firstly our use cases, this required us to role play different scenarios in which our software would be used, allowing us to think about different people that would be using it and the input they would give and the output that they need for their own requirements. From this we extrapolated the different parts of the system and user interactivity which we could then use to build our class diagram.

A class diagram is a very useful tool to make connections between parts of the system, how they connect to each other and the users, allowing you to see similarities between parts and where parts of code can be reused. This allowed us to decrease the number of tasks we had to do by consolidating similar or identical segments so we could work much more efficiently.

Once our software had begun to take shape we were able to develop test cases. Test cases are step by step guides for each segment of the finished program. Creating these early on gave us some idea of the shape that our final product would take and helped to do some sensibility testing of what is achievable and what it would look like. These were incredibly useful to the process as they provided a comprehensive template for our code to take shape. These were also regularly updated so that they provided a true reflection of what our project would look like and how it will react to user input. Ideally and on a larger scale task test cases would be given to people other the developers to test that it works correctly, despite not doing this I believe that we used our test cases effectively and that this would have been easily achievable.

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Your Role In The Team

As mentioned previously my role in the team changed as our progress advanced. At the onset of the project I assumed the role of team leader. I wanted to lay a strong foundation on which our team could build and work better both as a team and as individuals. I believe that I achieved this to an extent, in the early stages I provided the necessary structure for us to come up with our questions and plan what features we wanted to work on when we started to build the software. By doing this our team style became more democratic and there wasn't as much need for a team leader other than organising team meetings. In terms of content in phase one of the project I came up with questions and checked the others questions for spelling and grammar. I also had to unify the style of language to avoid the questions reading like they had been written by multiple people. I then also devised our list of functional requirements which were the integrated into the Gantt chart and turned into tasks which would be completed in phase two.

In phase two my role was that of a team member rather than a team leader. However I was still the driving force in organising team meetings and making contact with team members who did not seem to be attending meetings or reading our messages. My task for the software was to take the analysis and display it as a graph. This meant using matplotlib and taking the data and plotting it as a bar chart. I did this in such a way that I was able to combine it with the analysis file that another team member was working on and use the same results to generate the graph. I then further added a button to the GUI from the analysis page which when clicked would then display the graph of results in another window. Once the bulk of the code was written myself and another team member went through everything and concentrated on the styling, making sure buttons were positioned correctly and were the same size and other aesthetic features.

Throughout the project I and one other team member shared the responsibility for organising our team. We would instigate meetings and if individuals were not present we would summarise the meeting to make sure that everyone always knew what was going on and what was expected of them. In doing this I believe that my contribution was integral to the success of the project. I personally organised the team at the very beginning and set the pace and work ethic for the other members to follow. By the completion of phase one most

of the team were able to work independently while maintaining contact with other team members and needed less leadership input as time went on allowing myself and the other member more time to concentrate on the development of our sections of the software. I feel that without laying this foundation our team would have been much more discordant for much longer and would have required more micro management and would have been much harder to hit the final deadline.

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Quality Criteria

Quality can be a difficult concept to quantify but there are many models that exist that list aspects of quality specific to software. Firstly correctness, correctness is a comparison between the finished product and the specification. The basic specification was to provide a user with two different types of learning style quiz and to evaluate their answers and return a score and information about learning types, on these criteria our software matches the specification exactly and therefore fulfils the requirements for correctness. Furthermore we paid attention to the aesthetics of the program to provide consistency throughout.

The next aspect of quality is reliability. Reliability can be tested by using your test cases. If test cases are designed properly you can use them as step by step guides to run through the program and check that it looks and behaves as expected. As mentioned previously our test cases were developed well and can be used to check our software and on this front our program can be considered reliable. However in our software we added some extra features which are not covered by our test cases. Some of these features were not fully completed by the deadline and this makes our program as a whole less reliable.

The final quality criteria I will consider is usability. This can be approached from two angles, user and operator. From the users point of view our software is very easy to use. By using validation effectively a user is guided through the start process where they provide their details, when these are completely sufficiently the quiz can begin, from there the questions are answered one by one and the results are automatically calculated and presented to the user. From an operator perspective the system is a bit more difficult to use. Between users the system must be exited and then re started from the command console, this would require some training to be able to do.

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Reflection on what you have learnt

Throughout the project I have learnt many things, especially about teamwork. The content of the questionnaires explored different learning styles, these were further accented by the different members of my team. Everybody works in their own way and at different paces and managing a group of people to become a cohesive team was a difficult and insightful process. Through a need for order I found myself as team leader early on, but not knowing the people in my team very well I was very lenient with deadlines. If I were to undertake a similar task again I would be a more assertive leader from the onset to make sure that everybody understands the importance of deadlines and maintaining contact. One of the areas we had difficulty in was keeping track of everyone in our group and keeping track of what work had been completed and what was still to come. We used Facebook as a tool to communicate which was effective for some group members, next time I would make sure I had a better way of contacting everyone and keep tighter control over the process.

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