Snake
Project Management Experience Report
Group 12

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Iteration 1

Project Management Work
We started discusing each project and taking votes on which one we wanted to choose to do. Each person talked about what part they feel is more suited for them and they want to take over during the project. This led us to create an overall scope with all the things we want to implement in this project. We all agreed on using Discord as the preferred method of communication, and that we should all actively read the message boards to keep up with what is planned in the project.

Iteration Reflection
This week was spent talking about what we wanted to do and getting to know each other in the team. Since none of the members knew each other from before we did not know how much we could trust each other to complete any work. The first manager was appointed to us and we had no chance to vote. These factors point to being in the first stage of the The Integrated Model of Group Development (Wheelan, 1990). At the end of this iteration we planned to meet the coming week and formalize the work that we had undertaken during Iteration 1.

Iteration 2

Project Management Work
At the beginning of this iteration we scheduled two meetings, but in the last week of the inception phase, we decided to add one other meeting in order to construct all our desired graphical diagrams before the mandatory submission deadline. In these meetings we started coming up with requirements for our snake game and choosing the tools that we want to use. Working on the team contract and project vision was our main focus in this iteration.

Methods & Tools
For everyone to be involved in the project, we set up a Google Drive. This way each person can do their work and the others can see the progress. There are a lot of tasks that have to be done for each iteration and it is sometimes hard to keep track of them so we decided on using ClickUp as our management tool. By using this tool everyone can assign themselves to the tasks they are doing in that iteration and let everyone know when they are finished doing it. We also created our “Snake Game” project in Gitlab. We chose to use Lucid as the preferred software for making graphs and charts.

Iteration Reflection
Forming the team contract was an effort to prevent conflict from occuring in the initial stages of the project, by having set rules we could transition into stage 2 of the The Integrated Model of Group Development (Wheelan, 1990). Within the team contract we touched on points like conflict handling, leadership methods and that an open work environment is key to make the team members trust each other and speak their minds if they disagree with something.
A day before the deadline, we realized that we were further away from the finish line than we actually thought, making it stressful for all to stick to the initial plan. This showed us that we need to monitor our progress in relation to time as well as our plan so that next time it will be easy to identify when we are behind the schedule. It also helps us realize faster that we are not on track and we can come up with a new plan. In this iteration we planned on completing all tasks collectively, this led us to underestimate the time that we needed to spend. The fact that the initial plan was due at the end of Iteration 2 pushed us to divide the tasks rather than everyone working on them together. Due to the fact that this required us to trust in each others’ abilities to finish the individual tasks under pressure, we gained a lot of confidence going into the next iteration.

Iteration 3

Project Management Work
In iteration 3 we moved into the elaboration phase of the project. The first thing we did in this iteration was deviding the team into sub-teams. We figured by having members specialize in certain parts will make the overall level of competence higher in the team. Since not all members need to have a deeper understanding of all separate parts of the project, they can then instead focus on the tasks that they are responsible for. This was our first time working on a project so there were a lot that we did not know about and to have a better understanding of our project and what we are supposed to do, we mostly dedicated this iteration to doing research on parts we choose to specialize in.
The Management sub-team worked on the first version of Assessment/Review.

Methods & Tools
We introduced the Burndown Chart in this iteration to be able to graphically show how much of the work had been done and how much we have left. By displaying our progress visually we can both get the team to understand where we are at in the project and show our stakeholders in a good way.

We introduced pie charts and a table where we displayed the progress in terms of tasks completed. We felt that we needed this to better keep track of the number of tasks that we were assigned to in the current iteration. A time table with color-coding was introduced to convey how many hours were spent by each team member in comparison to the estimated 20h per iteration.

Iteration Reflection

Our accomplishments from the previous iteration led to overconfidence, we planned to get more work done than our capabilities allowed us to. This is reflected in our burndown chart for this iteration. Another indicator pointing toward the negative impact of the overconfidence-bias is our time tables that say we spent 20 hours less than what we were supposed to do. According to (Cognitive Biases in Software Engineering: A Systematic Mapping Study , *4.3.9 Overconfidence Bias*, 1328), an overconfident team tends to not live up to their expectations since they neglect requirements analysis, and presumptuous project managers overestimate the time and resources resulting in an increase of the probability of project failure.When we decided who was going to be in what team we let everyone decide that for themselves. We have to take into account that in most newly formed groups there are some individuals who tend to speak more than others, whereas others do not speak at all. Someone might agree just to avoid causing a conflict or think that other members will not agree if they were to speak up.(Psychological Safety and Learning Behavior in Work Teams, *Psychological Safety*, 355).

We were in a stage where we had moved past getting to know each other but were still not trusting enough to work as separate teams without the manager having to guide the team.In the team contract that we made in Iteration 2 discussed the weight of having a safe work environment where people could speak up if they thought something was wrong.We estimate that whe team maturity was in stage 2 at this point, even though we did not experience any open conflicts, team members might still have been wary of speaking up.

Iteration 4

Project Management Work
This was the first interaction in the construction phase. The management sub-team did not know how to work with Gitlab so the development sub-team decided to do a workshop. This way when the members from the management sub-team want to take part in coding, they already have enough knowledge to start and not waste time on doing unnecessary research. In general a lot of the work that we did in Iteration 4 was introducing new tools and techniques. The management part of the project was focused on finding the right tools to make sure that all aspects of the project were kept track of. Since the lecture on Risk Management was postponed, we had to do more research on Risk Management and its requirments on our own to create the first tool for this part.

Methods & Tools
We decided to incorporate a Gantt chart in the monitor and control part of the report to complement the burndown chart and get more information about what tasks have been completed and how much we have left.

We also added the Schedule Performance Index (SPI) which will help us know how our schedule planning is and how many hours as a team was spent on each iteration. This chart gives us a helpful representation of the work we have done in the corresponding iterations and can help us plan better for the upcoming iterations.

We made an ABC progress chart that will help us monitor actual cost, earned value, schedule variance and cost variance all in one chart. This chart gives us a big picture of the cost of our work while also showing the value and progress we are making.We redesigned the burndown chart to represent the percentage of work that was yet to be done, we changed the color scheme to make it easier to read.

We introdeced the first Risk Management Table *(RMT)* to identify and keep track of the risks associated with the project. We chose to use both qualitative and quantitative risk assessment techniques to give a good overview of what risks we should prioritize. Our plan is to update the RMT at every end of iteration meeting to accurately track what risks the team is facing in the next iteration.

Iteration Reflection
The dependency between the sub-teams became more apparent after Iteration 4. We decided to merge the teams together to one development team. We realized that the work balance between management and development was skewed, more time was needed in the management so one member volunteered to switch teams. This decision was made to focus more on the management part of the project since a lot of the requirements for the course are management related. This change in team structure led to the teams being able to work more independently and the manager could take a step back and trust that the team did what they were tasked with doing. The restructuring of the teams also led to better communication between the sub-teams. All of these changes indicate that the team has moved on to stage 3 in The Integrated Model of Group Development (Wheelan, 1990).

Iteration 5

Project Management Work
At the start of Iteration 5 we restructured the teams as described in the previous paragraph. We also switched the project manager and introduced the new role “communications manager”, which was assigned to the previous team manager. Iteration 5 was the first iteration where we had the majority of the tools that we needed for the monitoring of the project. Because of this and the fact that the management team was now one more person we could focus on the structure of the project management report. The added structure made it easier to keep track of the project as a whole.

Methods & Tools
We decided that we needed a tool for prioritizing our risks in a visual way, so we chose to use the Risk Management Matrix *(RMM)*. We put the severity of impact on one axis and the risk of occurrence on the other. We then color-coded the matrices to make it easy to see which risks were prioritized. We chose the combination “High/High” to be our unacceptable risks.

We combined the qualitative and quantitative risk assessments, the qualitative on the x- and y axis, and the quantitative as a ranked list in each matrix. The Risk Management Table *(RMT)* was changed because we needed a way to mark risks as either active or inactive. We felt the need to make it easier to keep track of what risks were anticipated for the current iteration so we added that column to the RMT.

The SPI graph was modified so that this graph now also contains the cost variance as well as each line’s optimal value, with the purpose of facilitating the process of interpreting the graph. We changed our way to work with ClickUp so that we added tags that represented each iteration, in this way we could make better use of the software and add traceability.

Iteration Reflection
One unforeseen benefit to changing team members around the team was that the knowledge of the specific teams got spread to other teams. When we had the workshop about GitLab in iteration 4, we also tried giving the members of the team a wider knowledge about all aspects of the project. When we decided that team members should be specialized within the department they worked with, it made the team vulnerable if one of those specialists could not complete their work for any reason. The risks of a team member not being able to work got too high and we needed to mitigate that risk by making all members have a rudimentary knowledge of all the parts of the project. The team was by this point used to working with each other and the group dynamics did not change drastically even though the project manager changed. Since the leadership have not micromanaged the team but rather trust them to work as they see fit, the change did not affect the workflow in any major way.

Iteration 6

Project Management Work
The project management work was focused on improving the structure of all the documentation. We made a template for the Project Management Report so that all team members entered their respective information in a uniform way. Making the documentation structured is a benefit both for the team and for the stakeholders that read the report. Another big structural change to the report was the introduction of a new template for the end of iteration review. The point of this was that we felt that the end of iteration meetings were too unstructured and we needed an agenda to follow every iteration.We made the new agenda follow good agile practices since that is going to help with the reflection part of the project. This was the first iteration that some of the team members were working remotely, this led to some extra work to try and accommodate everyone in regards to meeting scheduling. We also worked on connecting the changes in risks to the risks that the team members were anticipating for the coming iteration. As a part of the new End of Iteration structure we incorporated an Expected Risks Table so that all members could express their risks in a structured way.

Methods & Tools
We decided on removing tools from monitor and control that do not offer any new information to our project. Our team did not feel like the ABC chart contributed a clear picture of our current state of progression. We already cover all the information from the ABC chart in the SPI- and Burndown Charts, thus making the ABC chart redundant.

The SPI Graph previously showed cost variance, we decided to remove this and display it as its own chart. The reasoning behind this was that putting too many values in the graph made it look messy and hard to understand.

As for the exclusion of the Gantt chart, it was useful in a way that it gave us an overview of what exactly has been done and what we didn't manage to complete but we have the burndown chart and table of tasks with pie charts which do the same but with a more beneficial overview, since it covers the percentage of work done with the expected percentage throughout the entire project with simple graphics as two lines.

We made some changes to the Risk Management Table (RMT). Specifically, we removed the "Milestones" column as we did not feel it was necessary for monitoring risks and did not provide any additional information. We also removed the "Quantitative" analysis because we felt like it was not giving us any information that the "Qualitative" analysis was already providing and it seemed somehow irrelevant to our project since we are not dealing with actual cost.

In addition, we reviewed the risks in the Risk Management Matrix (RMM) and updated it to reflect all changes that were made in RMT. We did some more research on how to make the RMM look more embellished in a way that can also be helpful, and finally we decided on color-coding it and redesigning the colors. To better explain to the stakeholders why we change the risks in any given way we introduced the Risk Change Table. The reasoning behind this is that we needed a way to display our rationale behind the changes

Iteration Reflection
The fact that we had members of the team that worked remotely, we needed to focus our effort on adequate communication. We are aware of the obstacles communication causes, misunderstandings, disagreements and personal conflicts. Having more meetings could be an indicator that there is not enough trust within the team and the question about micromanagement becomes apparent, which contradicts the statement about us being classified as a stage 3 group.
The other possibility is that we conducted more of our communication in person than we previously thought. Since we were constricted to online meetings to a larger degree, we missed out on that interpersonal communication. We argue that because of the trust that we gradually developed in the previous iterations, we could move forward with the same kind of structure, just work more on the communication.
The structure that we came up with for the Project Management Report led to less inconsistencies in the documentation as well as fewer misunderstandings about how to update the information correctly.

Iteration 7

Project Management Work
In the previous iteration we updated and introduced a lot of tools, we also removed parts that we felt were redundant. Because of these changes in the previous iteration we felt like the risk management part of the project is now structured in a way where we can easily monitor the risks and show that to potential stakeholders.
From this point we focused on using the same tools and keeping the structure so that we had consistency throughout the remainder of the project.
As a part of widening the knowledge within the team, we had team members switch sub-teams to work on parts of the project that they were not used to doing. Incidentally, Iteration 7 was the first time the team experienced multiple members being sick or otherwise unable to work, which led to the team being forced to take on tasks that they would otherwise not have done.

Methods & Tools
We decided to not use the cost variance diagram from now on because it was redundant to use since we got the information needed from the burndown chart and the SPI.

We removed the Task Table from the iteration review since we realized that the information was already conveyed under the control and management part of the report.

Iteration Reflection
The structure we implemented in the project management report in the previous iteration became very helpful to this iteration since they provided a clear structure of what is supposed to be included in the report for each week. This helps with productivity when writing the report and compiling the data from the passed iteration.

Having many tools and templates do help with the structuring, unfortunately it also made us a bit overconfident and we failed to see how high the risk of having a lack of personnel could be.
When switching tasks there is a risk of not being able to do them as well as the person who has specialized in it. We try to counter this by cominucating more and asking each other about tasks that we have trouble with. In conclusion, even though the tools and templates were good at this point, we oversaw the fact that all members of the team did not know how to use them correctly.

Iteration 8

Project Management Work
In Iteration 8 the coding part of the project was mostly done, this led to the fact that the team members in the development team could focus more on doing managerial tasks. We decided to move on without any sub-teams and instead have everyone work as a larger team.

We planned for the team to have a week of vacation in Iteration 9 so we focused on getting every task done before the vacation. Although most members of the team were now healthy again and could contribute to the project, we still worked mostly remote.

Methods & Tools
We did not introduce or change any of the tools for Iteration 8, we felt confident that we were able to convey all the information that we needed with the resources that we already had. It was also in-line with the effort to keep the documentation looking uniform and easy to follow.

Iteration Reflection
We planned to have 2 weeks vacation when we first planned the project, but due to members getting sick we did not get all the work done. The tasks in the backlog from Iteration 7 and the planned tasks for this iteration led to putting in more hours to finish all the tasks we had to do.
After overcoming lack of personnel, communication in this iteration has been mostly remote since multiple members of the group are still not on campus. It has made it easier to plan meetings since we have had some experience before working remotely.

Iteration 9
As planned in the beginning of the project we chose to go on vacation in Iteration 9. That is why we do not

Iteration 10

Project Management Work

Going into the transition phase, we had two team members that were occupied with the re-exams. The iniability of them working until the re-exam, this made it necessary for other team members to take over in this last phase in order to keep the project going forward. A meeting was held after re-examination to assess what still was left to be done. At this point we decided to go through a short sprint to get all the tasks done by midnight, we did not want to leave any work undone on the day of submission. The final meeting we had was to discuss what we have learned during the entirety of the project, and what lessons we can take with us going into the next project.

Iteration Reflection

The final iteration was planned with the goal that all members of the team should participate equally. We planned for this even though we knew in advance that some members would not be able to work as much and that other members would have to step in and work overtime. Besides, we underestimated how much work that was actually left to do with the documentation. Both these factors are evidence that we still have much to learn when it comes to planning even though we have come a long way. Actions that could have mitigated the impact of this could have been putting more slack in the project to start with or to cancel the vacation week in favor of getting work done.

We also had to make sure that communication was really good this iteration since the time frame we had before the deadline was really short. The communication worked very well and we contribute that to our recent efforts in improving those aspects.Our team maturity remained in stage 3 in the last few iterations, in the final iteration we experienced that we can still be very productive and keep the quality even though we had a lack of personnel.This leads us to believe that if this team were to work on a longer project, we would reach stage 4 of The Integrated Model of Group Development (Wheelan, 1990).

Project Reflection

In the Inception Phase of the project we put together a project plan and a project scope. Since we had no prior experience in this kind of project we could only make guesses based on what we had learned in the project so far. This led us to misjudge how long some parts of the project would actually take. We also planned for features in the initial scope that we had to cut from the final version of the game. We decided that some members should specialize in different parts of the project. We underestimated how much time we actually needed to spend on learning the relevant skills needed for that job. We should have put more slack in the project to prevent us from falling behind when the members had to spend longer time on learning. Another problem with the specialization was that the team members became very proficient in their field of work, but lacked the rudimentary knowledge about what the other departments were doing. This became a problem later on when the team members had to take responsibility for work that they were not used to doing. To counteract this problem we held workshops with the entire team so that all members would have some basic knowledge about the work that was going on in all the other departments. By doing this earlier in the project we would have ended up saving a lot of time later on when we faced a lack of personnel. The planning between iteration became more structured and more accurate the longer the project progressed.

In the beginning we spent a lot of time on learning how to use different tools and in what situations they can be useful. We selected the tools that we deemed necessary and useful for the project and accurately conveyed the information we desired. That meant that we tried many different tools that we ended up not using in the final iterations of the project, many of which conveyed the same information but in a worse way. Some information gathered was first thought to be needed for the project but then turned out to be unnecessary for the project at large, so we removed the accompanying tools. Using the right tools makes the project management work much easier, and moving on to the next project we now have a set of tools that we feel confident in using.

We set rules for communications in the team contract that clearly stated that it was okay to ask for help and that we encourage team members to speak up. We wanted to create a safe work environment where it was okay to show vulnerability. We wanted to encourage this kind of interpersonal risk taking without being punished, it is a key part of the Team Psychological Safety that is described in (A. Edmondson, Psychological safety and learning behavior in work teams, Group Diversity and Performance, vol. 44(2), 1999.). Another part of being able to manage this project successfully was that we early on discussed the common goal of the project. We also made sure to plan out every iteration so that the goal of what needed to be done in any specific iteration was clear to all the team members.

We watched the mandatory leadership videos and discussed what kind of leadership we wanted in the team. We felt like the agile approach to leadership, where the teams are self organizing was the best approach for this project. The shared leadership would make it so that all team members could fully take responsibility for their own work and not have to get permission from the team managers at every stage. The team managers guided the team members when there was the need for it, and worked to inspire and support the team to retain a positive attitude. Besides this the managers had been assigned to the rest of the management tasks just like the other members of the team. In conclusion, we felt that this style of management works really well for a couple of reasons. The team members could decide on their own work and life balance, and feel like they were their own leader. That made all the team members understand how leadership works, and that the way of collective leadership leads to a more productive and safer work environment.

When the team first met to discuss the project, we were initially unsure how much we could trust each other. We got appointed a manager without having the chance to vote, in addition no members previously knew each other. This meant that the team did not yet have any confidence in the group. The interactions between group members was mostly about getting to know each other and trying to build relationships with the other members. Getting to know each other builds trust and this was very much needed at this point. We moved to stage 2 in The Integrated Model of Group Development (Wheelan, 1990.) when we in Iteration 2 decided to make a team contract. The things that we specified in the team contract was to prevent any future conflict from happening, and if it did, how we would handle it as a group.At the end of Iteration 4 we decided to change the structure of the teams. This change in structure allowed the teams to work more independently and that helped build trust and positive working relationships within the sub-teams. This indicates that the group has moved on to stage 3 in The Integrated Model of Group Development (Wheelan, 1990). We remained in stage 3 for the rest of the project, and we continued to display the trust and confidence that we would collectively achieve our end goal. We have learned that building a trusting and productive team takes a lot of time and effort, and that clearly agreeing on common goals helps to keep everyone motivated.

References

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