Projectsnatch:

The new form of hand-in assignments

PROJECT FINAL REPORT

Manuel Pérez Bravo

Erik Stenseth Gómez

Ignacio Toribio Robles de Acuña

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Preface

With this report, we give detail of the group we have developed in the course of *Applied Project Management (TPK5100)*, in the Norwegian University of Science and Technology (Autumn 2019). With this project, we have experienced first-hand the project management challenges and paradoxes that arise during the development of any project, and in the case of digitalization projects in particular. Our project has consisted in the development of an interactive film where the student can relate to the narrative of one of the cases of study (*3.4 Planning and construction of a new upper secondary school)* included in the book by Bassam Hussein (2018) in which we have based this course. The project has concluded with a fully functional product that other students have had the opportunity to test and give feedback on, and we are quite satisfied with the outcome even if the project management has been as challenging as enriching.

The address to our product is: http://folk.ntnu.no/manuep/Presentation.html

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Group number: GROUP 4

Student names and student number:
1) Manuel Pérez Bravo (519779)
2) Ignacio Toribio Robles de Acuña (519243)
3) Erik Stenseth Gómez (519809)

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1. Digitalization projects

A. Describe your product, its intended purpose and why you have selected to produce this product.

The product we have developed is an interactive film that intends to substitute one of the compulsory hand-in assignments in order to create and test a new form of assignments where the student can relate to the narrative in a more visual and interactive way, devoting less time than before. This idea has been inspired on the original and acclaimed production of Black Mirror: Bandersnatch by Netflix, released in December 2018, in which the spectator can choose the destination of the main character and watch the consequences. In this interactive film, entitled *Projectsnatch*, the student will be actor of the management and will watch and assess the consequences of his decisions.

The interactive film presents the narrative of case 3.4 *Planning and construction of a new upper secondary school* from the book by Bassam Hussein (2018). The students, from their devices, can at several points of the narrative take decisions on the management being presented with scenes that recreate the case with the help of simulation game *The Sims 4*. Each clip of video will lead to a new dichotomy, and up to 8 different endings in which the students must assess the success or failure of the project based on the final outcomes. The student's answer on the success assessment and a brief explanation of the answer will constitute the submission for this hand-in assignment. Total estimated time is around 10 minutes, and it is an individual work that can also be brought to as a resource in class (the students vote for options from their phones on Kahoot and the presenter chooses on screen).

An explanatory diagram is hereby presented, where the yellow circles are the clips on which the students base their decision regarding the following dichotomy. To the right, a screenshot of what the HTML web looks like at the point of taking one of the decisions:

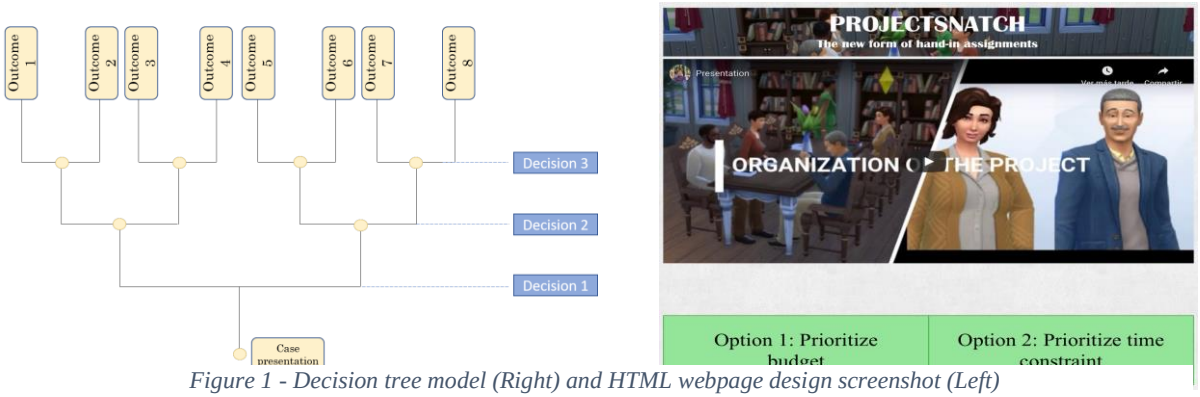


Figure 1 - Decision tree model (Right) and HTML webpage design screenshot (Left)

With the increase in use of technology in education, we thought that a relevant digitalization project concerning the teaching of the course TPK5100 would be to change the traditional form of document-written hand-in assignments to a more interactive form where students can more easily relate to the narrative and give an answer within the same platform and from any device. The classes of TPK5100 already make an extensive use of technology with in-class participation, simulation games and multimedia material; however, the assignments are still just a digital form of what a traditional written assignment would be, and it motivated us to try a new form. It could be said that the ***rationale*** of the project was the willing to change the long time we have devoted to hand-in assignments in this course and make them a less tedious task. The ***purpose*** would, in that case, be the creation of the interactive and individual form of assignment that doesn't require the formatting of a document.

The use of computers for work is being gradually replaced by the all-time use of portable tablets and phones, and that is why we determined that our product would have a better acceptance among students if the platform was accessible from any device. To do so, we have developed an adaptive HTML website, hosted in NTNU servers, for the sake of preserving a formal and ad-free experience for

students with the resources that NTNU provides. Among the numerous possibilities of interactive learning multimedia, we thought this format is still innovative among learning and streaming platforms, and it produces a greater involvement than a plain video or a static simulation game by combining video with multiple-choice paths that lead to different outcomes.

After dedicating some time to consider how and at which point to collect the answers from students during the film, we thought that justifying every choice would make the assignment tedious and may cause the loss of the thread in the story. Furthermore, students can very quickly restart the game from the beginning and try different paths of the managerial decisions so that they can relate to the different outcomes. For that reason, we decided to only include an answer form at the end, when the outcome is presented, and the student will submit an assessment on the success or failure of the project.

Without the need of creating a formatted document, the assessment on the project and the brief explanation will be sent to the professors or will be a downloadable file that the student can upload to Blackboard. We are aware that this project only covers only of the main topics treated in the course, the success assessment in projects and the identification of the success and failure factors. The intention with this assignment, if the acceptance is high, is that other students copy the format and recreate other cases alike so that the production phase is both a constructive and learning phase for students.

B. *After having the opportunity of working on a small-scale digitalization project, what are, in your, opinion the main challenges that your group has experienced with this type of projects?*

Regarding on the main challenges our group has experienced, there are some traits that are transferrable among digitalization projects. Digitalization projects' main focus lies on successfully managing the expectations of stakeholders. Stakeholders, especially the end users, will be who determines if the project was a success or a failure, and that is why it is important to adequately communicate with them, both professors and students in this case. For that purpose, we conducted a survey in class, where students could express their feeling about the current form of the assignments and towards which form they would like to see changes. Results show that around 75% of the sample (35 students) would be willing to change towards an individual and interactive form of assignment that requires less time. However, accomplishing a product that lives to the expectations hasn't been easy, as digitalization projects incur in several other difficulties that mainly relate to the lack of knowledge/competence and biases.

Digitalization projects have a strong component and intention of transformation. The transfer of users (professors and students) from the previous form to the new one can be difficult due to organizational resistance to change. A majority of the students asked (63%) indicated that they were very satisfied with the current form of assignment, and then would require introducing a sufficient improvement for them and for the professors to transfer. We tried to make a user-friendly interface that adapts to any device and takes little time to go through the narrative, but reading on the video might be hard to follow and less attention-catching than we thought (according to the feedback we have received).

Also due to the high degree of transformation that this kind of project implies, the lack of knowledge and expertise in digitalization has been a challenge for us, since none of the three integrands was very familiar with HTML coding or video editing. We have had to change the way we were going to produce the videos to computer simulations, as the lacked the skills and material to follow the initial proposal. The project life cycle has therefore required to re-adapt and re-define some of the goals stablished in the beginning, always trying to not affect the success criteria for a project like this, but only the means. The project, as usual transformation projects, had a very short temporal window to be developed. In real life, the constraints are not as tangible as in construction projects, but the market window for a digitalization project has a very short duration and the product has to be in place very soon before it is no longer ahead of the innovation or looses the customer it previously had.

2. Self-evaluation of the project management effort in the project, success or failure? And why?

A) The group should make an overall evaluation of their own project. This is an evaluation of how well the group managed the project, how well was the organization of the project group. How well the group identified and managed risks. Did the group managed to deliver the project results according to your originally stated success criteria (according to your original plan)? Is there any deviations between the stated success criteria and your final evaluation of the project?

In first though, we evaluate our project as a success, since the final product achieves the main goals we had set during the project initiation phase. Nevertheless, the management has been quite *ad hoc* and we could say it was a management failure.

We could say that our project faced a major challenge when our group was downsized from five students to only three, after two of them dropped out of the course. However, the three remaining students were from the same nationality and communication flow became easier and faster than in a group where international complexity is a factor. Organizational complexity was replaced for resource shortage, but the origination of the project has been smooth and flexible, by simply dividing the tasks among the three of us and always giving each other feedback. We could then state that we followed a project structure even if the size of the group makes it difficult to even identify ourselves within a given structure of **project organization**.

Regarding the **project planning,** the major deliverables for this project were: The decision tree on which we had to foresee outcomes for each of the paths taken, the production of the scenes themselves, and the design and building of the adaptive HTML web page (*cf* the WPS we stablished in the plan, Figure2).

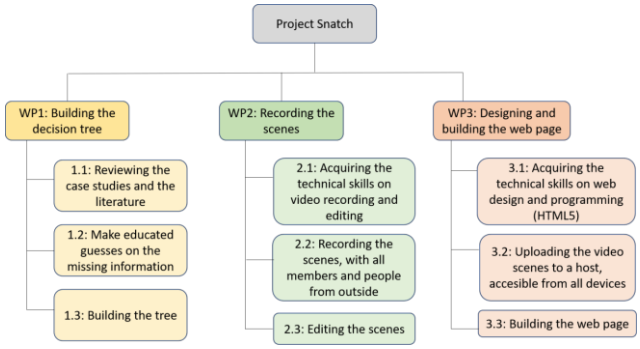


Figure 2 - WPS breakdown (from Project Plan)

These deliverables were put into a Gantt diagram in the plan, where we stated the desired progress pace regarding the main milestones has been modified during the development of the project, as we have had to change several features of the initial project proposal (without affecting its purpose). It is fair to say that we hadn't clearly identified the dependencies between tasks, as during the project, we found out some tasks were blocked while awaiting for others to be finished. A final Gantt diagram is presented in Annex I, but we have considered more relevant the **network diagram** that we finally found realistic for the project, and that we think could have been useful to have from the beginning:

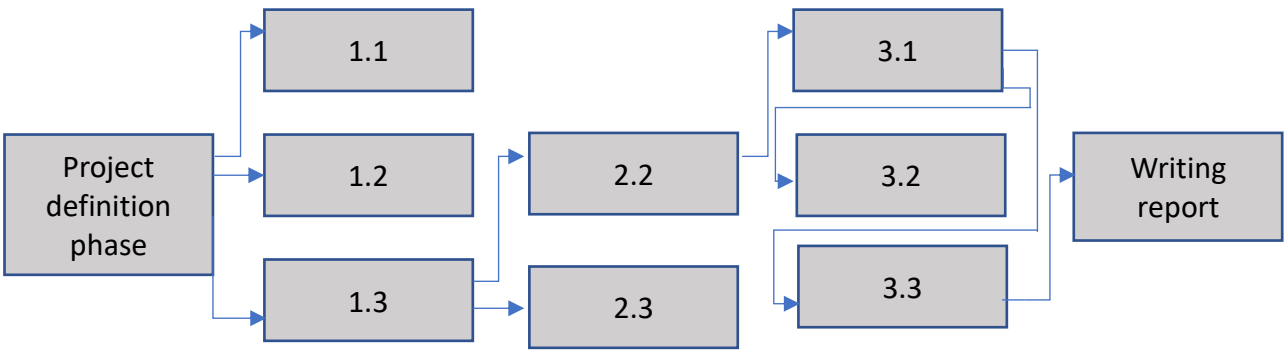


Figure 3 - Network diagram (post-project)

It is possible to say that the project planning has been changed during the project in order to make it follow the current progress at each stage.

Even the most carefully planned project can run into trouble. It is firstly evident that our previous experience in project management was nonexistent, but it is necessary to accept that some situations cannot be foreseen. For that reason, we tried to define the potential risks in the project and thought how to mitigate or deal with them if they finally happened. We can see the **risk assessment** matrix (PMBoK, 2013) we had defined in the initiation phase, and outline some risks that actually happened, and others than were not identified and also took place:

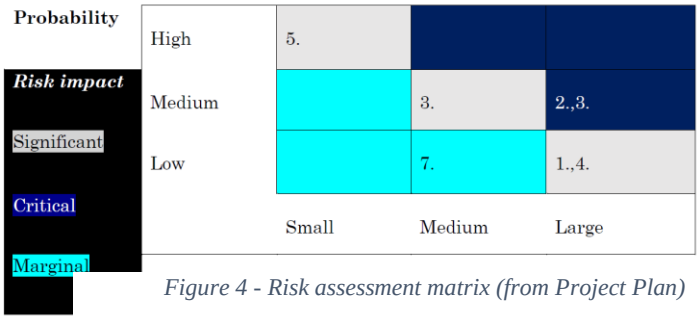


Figure 4 - Risk assessment matrix (from Project Plan)

1. End users unhappy with project outcome
2. Interface too difficult to use
3. Glitchy product
4. Not satisfying time constraints
5. Group members dropping out
6. Stakeholders not supporting the project
7. Project team members don't agree on objectives

Risk identified as [5] took place at the very beginning of the project, when two of the project members dropped out of the subject, and the consequences, as identified, were small thanks to the early timing. None of the other identified risks have happened, as the feedback on our product has been positive by those who have tested it, and stakeholders have seemed satisfied with the outcome. However, some other challenging situations have taken place and they hadn't been identified as risks, such as the delay due to the lack of expertise in the technological skills (video editing and HTML coding mainly). Their consequence has been small too, as we have mitigated it by spending more hours than planned in the development of the web and its videos and the result is finally satisfactory.

Finally, regarding the **success criteria** we initially stablished, we can say that we have accomplished most of them. Among the key factors (Murphy, Baker and Fisher, 1974) to pursue of chances of successs, we accomplished the following:

- Good coordination with stakeholders – Yes: good response interaction with other students.
- Adequate project planning – Poor: Not clearly identified dependencies between tasks.
- Proper choice of projects – Yes, according to the feedback on our product. Very visual.
- Agreed success criteria – Yes, they were stablished by consensus.
- Good project start-up process – Fair: Underestimated impact of lack of skills and experience.

Using the literature, we could find other critical success factors that specially apply for this kind of project (Hussein, 2018) in our initiation phase, such as: clarity of purpose and objectives, end-user involvement, balanced project group, adequate early planning, established routines for deviation or flexibility. All these success factors were followed even if to different extents, and agrupping by **success factors**, it is fair to say:

- Project management: Failure – Understimated required time and skills for some of the tasks. Project management quite *ad hoc* at some points, even if the objectives were agreed on.
- Process success: Success – We were able to satisfactorily interact with other students during and after the competition of our product, so that we could have feedback to work on.
- Project success: Success - The project has achieved to create a value on the manner that project management is learnt. It is too soon to assess the transformation our project has caused, but the students who have assessed it have seen potential in it.

B) Please evaluate the degree of your support to the following statement (group-based evaluation):

We evaluate our project management effort as successful

Scale	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
Your response				X	

3. Self-evaluation of the value to the learners? (evaluation of project success) Can you document your assessment?

The group should make an overall evaluation of the impact of their own product on learners. The group should provide and support the evaluation with documentations. These documentations could include:

A) Describe your target audience and the learning objectives of your product

The target audience of this project was mainly the students who are being introduced to the course and the students who want a different assignment from time to time to break the inertia of the hand-in assignments being alike.

B) A description of the method used to evaluate the final product.

The evaluation of the interests of end users was made beforehand in a survey. When we had all the information from the survey we could go on and complete the project knowing what the end user would want. Once it was finished, we could fully evaluate it and we; the project team, were the first to do so. Since this is an interactive story of a case, we will simply try out the program going through all the different options.

We asked the members of the group 5+12 to evaluate it to have an objective opinion from someone in the course since ours could be considered a bit subjective. They go through the story making their own decisions and report back to us with their feedback of the project.

We also got in contact with the team who had done the peer review of our project to ask them for their evaluation.

Another method we used to evaluate the finished project is presenting it to our respective flat mates. The objective of this evaluation is to try out this project as a tool to introduce project management to people who haven't done it before. They also go through the story making their own choices and we try to explain in simple terms the reasons why the project is successful or not. After this we asked if they learned something new about project management.

C) The number of informants who have contributed to the evaluation, and how these informants have been selected.

The informants will be the members of group 5+12 plus some our flat mates. We selected these two groups to get information from two different type of people: those who have taken the course and have experience with project management and on the other side, those who have no experience whatsoever with the matter.

This is done so we can better assess which group will have a better reaction to the project and find it more useful. Knowing this we can be more comfortable assigning who the end user will be.

D) *Results of tests, surveys or interviews with students or persons who have reviewed the final product*

The first survey we did was when deciding what to do for the project. We set up a number of questions and asked people in class to answer them. We wanted to know what people thought of the current assignments, how they worked on them and proposed other options. These are the answers we got.

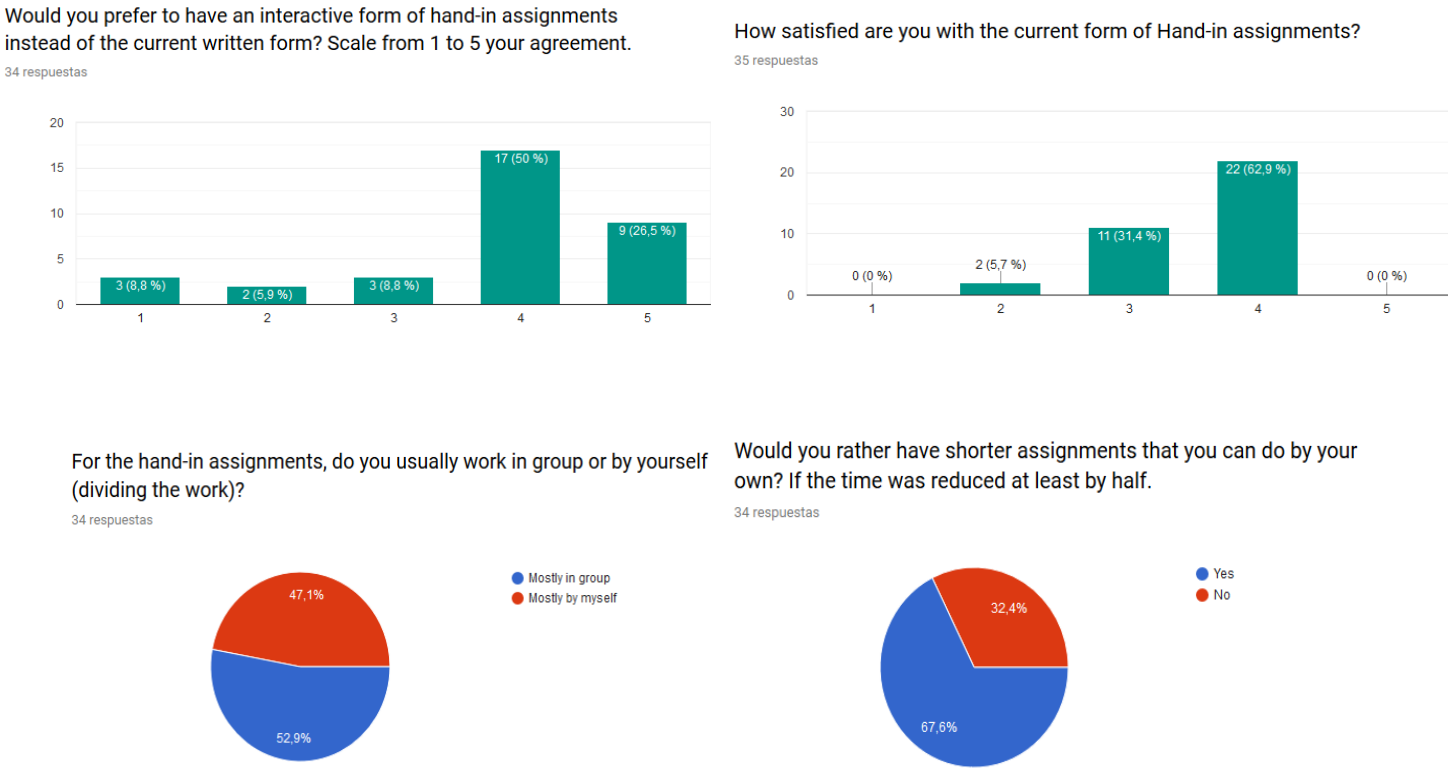


Figure 5 - Results from the survey to the students (sample of 35)

In total we got 35 submissions which is an adequate sample of the class. The answers were mixed, but mostly positive. But the most important answer we got was the last one which showed that students were for the most part open to the idea of an interactive form of hand-in assignment. This survey also helped us recognize the scope that our project should have. The answers show that a lot of students enjoy working in groups and don't really want to give that up which contradicts our project plan. That's why we decided our project would be really useful as a tool to introduce the students to the course as an assignment done in the first week, before groups are formed. This would be an entertaining way of being introduced to the course and getting in touch with the different aspects that constitute Project Management.

Our initial evaluation was centered around things working. Being this a digitalization project, which wasn't our strong suit, we had to acquire the tools needed to edit the videos and program html for the web page in a reduced window of time, so having bugs or glitches in the web page was a pretty probable risk factor. It was important that if that was the case, we would be able to fix them. Luckily everything worked as intended on the first try and didn't find any errors, so we didn't need to fix anything.

Next its time to talk about the evaluations we received from the different informants we previously mentioned. Feedback was mostly positive, mainly because of the project design and for it being entertaining.

Group 5+12 liked the project very much and found the idea useful but felt the educational value of it would be better suited for someone just starting the course since the story didn't delve to deep into technicalities. Apart from this, they enjoyed the creative effort of the different videos and options.

Group 8, the one in charge of the peer review evaluation also liked the finished project. They showed their approval on the idea of having to spend less time on an assignment that was done individually and being able to see the consequences of your decisions in the project. However, they pointed out that you could pass to the next step without seeing the video and that sometimes the subtitles were too fast and couldn't follow the story that well. Luckily that would not be that difficult to fix.

Finally, our flat mates liked the product on different levels. A couple of them were actually interested in the course and after experiencing a "simulation" of what it is to be project manager and what plays into it they were eager to look into it further. Others weren't that interested but were kind enough to try it out and ended up enjoying it. It helped that we were there to shortly explain why things happened how they happened. All of them said that they definitively learned something new about project management.

E) Please evaluate the degree of your support to the following statement (group-based evaluation):

	Our product is of high quality and we recommend it to be used as learning aid in project management				
Scale	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
Your response				X	

4. Factors that have contributed to failure / success.

In this section students should list and elaborate on all the factors that they believe have contributed to the success or to problems of their project. Which factor was the most significant and why? Compare your identified factors with the factors listed in (Hussein 2018) pp-92.

The project management of this assignment was a bit chaotic on our part, that's why we would classify it as a project management failure.

The project managements really starts with the formation of the groups. At first, we were a group of five out of a maximum of 6, all international students. But shortly after, one of our team members had

to leave the team because as an international student he had to rearrange the courses he was going to take and couldn't assist anymore to TPK5100. This happened a week after we arranged the group, so we really had no time to assess the risk of that happening. We were also very slow to start thinking about the final project, centering all our efforts on the weekly assignments. And then, before handing in the preliminary project, another team member left, leaving only three of us.

In the risk assessment, revolving mainly on product and people factors, especially after losing one of the team members. We concluded that a faulty and difficult to use product was the main risk for the project management, as it was a high probability risk factor with critical consequences. Luckily, a great job was done on the programming department, making the whole program easy to use and bulletproof. One risk we should have taken more seriously was the availability of each one of us. We all had different responsibilities outside the course, and at different times, which made working as a team all together really difficult. This also made having meetings to discuss the planning and the direction of the project almost impossible.

The success factors we laid down were also followed as closely as we could but not perfectly. The first step was to agree on what we were going to do for the project (purpose and objectives) and on the success criteria when making the project description. Being the reduced group we were, that wasn't difficult to achieve. We then focused on the communication with stakeholders with a simple survey asking various questions regarding the satisfaction with current assignment work and our digitalization project. It provided a considerable positive feedback which gave us the green light to continue with the initial idea we had, but make some slight chances nonetheless.

Despite this, there was a clear lack of communication between team members during the initial weeks after the initial plan was submitted, which meant that the initial Project Schedule was not followed. Since we started late, we had to combine working on the three packages at the same time, building the tree of choices and the story while preparing the web page and acquiring the necessary video editing skills to do the project. After this was done, the videos were done and uploaded as the webpage was being finished. This left little time to troubleshoot, luckily it all worked without problems. It can definitively be said that part of getting the project done in time is in part thanks to being flexible as a team and being able to successfully adapt to the situation.

The most significant factor was, without a doubt, the lack of communication because it in turn affected all of the project. We hardly ever had meetings to discuss the project and hardly ever met each other in class since some of us had conflicting courses at the same time. This handicapped the project from the beginning, we agreed on what we wanted to do but had no time to plan and organize properly. Luckily, we were able to put down the time and made it to the due date after some days of hard work and prioritizing.

Comparing these factors with what is present in (Hussein 2018) pp-92. We have listed a couple of factors that are on the table, such as commitment, collaboration with stakeholders, clarity of purpose and objectives and a structured risk management process. Some of the listed factors missing in our project would be adequate early planning, continuity of project development and most importantly experience and use of lessons learned from previous projects. These last ones are very important and obvious since this project was our first real taste of project management. The only "experience" we had before was reading about cases, which of course helps, but you don't learn as much as when you are presented with a real-life situation. This was a factor that definitively showed and affected the outcome of the project.

To conclude it is safe to say that even though the project itself wasn´t a failure, the project management could be called as such, since in the end we failed to have the streamlined process we planned and hoped for. Lack of commitment and experience are the two main factors for this happening, but even

with the problems we faced since the beginning of the project we still managed to pull through thanks to the flexibility and problem solving of the team.

5. Most important lessons from your project

If you should give clear-cut advice to other students on how they should work on similar projects what you will say to them? Formulate your lessons like the following:

1) *You should first identify the learning objectives of your final product before deciding on the type of product …….*
2) *My advice ….*
3) *I learned that ……*
4) *My experience suggests ….*

We learned that it is very important to meet face to face with the rest of the team and discuss the roles of each person and the check points along the way. We would say that it is advisable to follow these as much as possible, and if for any reason it can't be done, one should discuss solutions in one of the regular follow-up meetings. It's also critical to be transparent and involve your stakeholders as much as you can, especially end users, since they will determine if your project is a failure or a success.

Our experience also suggests that it is necessary to take into consideration the skills needed to complete a project. A project will be no good if we lack the skills to complete it, and the failure to recognize this will lead to project failure. In case we don't have the necessary skills, one should take into account acquiring them in your project planning, since that will take time. Underestimating the need to acquire proper technical or managerial skills is something common when there is lack of expertise, and it can most certainly lead to management or project failure.

Our experience also suggests that an early planning can help identify the dependencies between tasks and the need to add/change existing tasks to acquire the skills or involve the end users in our case. However, during the project, it is always necessary to update the most immediate goals with the current development of the project and that must be done frequently with defined follow-up time.

But our best advice is that one should get along well with your team. No one wants to work as a team if you don't enjoy each other's company. This will also keep the team motivated which is something often overlooked but still critical. Projects sometimes incur in a project success in terms of success criteria, but the management is not satisfactory due to the lack of proper communication and understanding between the members of team.

6. References

[1] Hussein, B. (2018). The Road to Success: Narratives and Insights from Real-Life Projects, Fagbokforlaget.

[2] Prabhakar, Guru. (2009). What is Project Success: A Literature Review. International Journal of Business and Management. 3. 10.5539/ijbm.v3n9p3.

[3] Turner, J.. (2014). The Handbook of Project-Based Management. 92.

[4] Project management Institute (2018). Guide to the project management body of knowledge.

[5] Howard Tiersky, CIO (2017). 5 Top challenges to digital transformation in the entreprise.

Annex I: Peer-review evaluation report

What is name of the group you are assigned to evaluate: <u>GROUP 7</u>

A) Based on your evaluation (as a group) please indicate the strengths and weaknesses of the final product.

Strengths

- In our opinion this project adds value as it very well clarifies cases of study that are relevant for the course.
- It can be used in self learning when studying for this course, or even used in class to present a case and discuss the related question at each paragraph.
- The interface is very clear, easy to use and attractive. It is focused in the teaching and it is accessible from any device.

Weaknesses

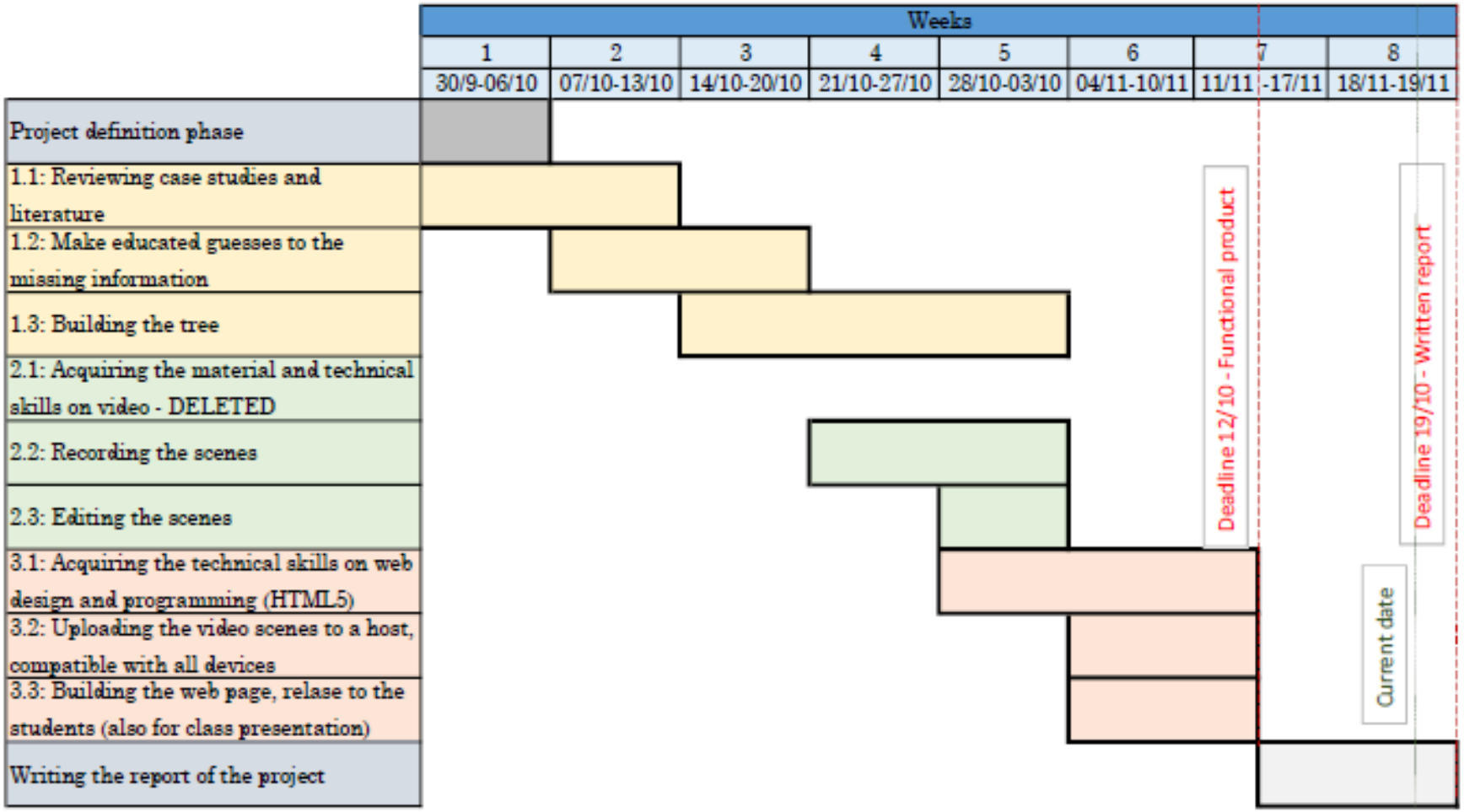
- The interface could be considered as too simple, can be complemented with other related multimedia sources or links that direct the user to the content.
- The interface could include a system to count total points of the user so that he can revisit the sections on which they did worse.

B) Please evaluate the degree of your support to the following statement (group-based evaluation):

	The product we reviewed is of high quality and we recommend it to be used as learning aid in risk assessment in project management. Easy to use, clear, attractive.				
Scale	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
Your response					X

C) *On a scale from 0 to 10.* ***What grade would you recommend for this product?***

We would definitely recommend this product for the learning of project management, so it satisfies the goal of the digitalization project that was proposed. It shows a clear degree of maturity when it comes to the proposed answers in each question, and the interface is both easy to use and attractive. However, we consider that, in terms of digitalization effort, it was a quite simple solution to the already existing content, not that it doesn't merit less.

We would grade this project with an 8.

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