

TPK5100 - Applied Project Management

Final Report: Multi-Log

Group 22

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1 Introduction

The aim of the project is to create a mobile application for teachers and students, which facilitates the study and learning of the student. The name of the app is Multi-Log.

There are two types of users who will use the app: the teacher and the student. Depending on the user mode selected, the app will present variations on the interface.

Teacher or creator mode:

The teacher will be able to create a log. A log will consist of multiple test type questions, which will be separated into different units and will follow a particular order, as the teacher decides. In addition, the teacher will give each question a punctuation mark.

Student mode:

The students will join the log that the teacher has created and will complete the questions whenever they want as the course advances in time. When getting the right answer, the students will obtain the punctuation of the question. During the period of the course, the application will remark on the users that are on top of punctuation or who are on fire, and will warn the rest of the users.

2 Evaluation of Project management effort

When carrying out a project it is important to make a general evaluation among all the members of the group.

The distribution of the tasks in this project has been an easy task. In this aspect there have been no problems. The group members were always willing to work and contribute their ideas. It should be noted that all members of the group are studying engineering and therefore we like to think about needs that society has and provide a solution to these. When working on the project we have tried, as far as possible, to be all together and thus to have all the same idea of the project and follow the same thread.

As for the risks, we are going to evaluate all the risks mentioned in the pre-report. First of all we have the technical problems. The website has been tested with friends of ours. We sent them the link to the website and they sent us feedback to know what to improve. All these improvements have been implemented.

Another risk is the design of the website. It is quite attractive and intuitive. It may seem a bit childish but in the end the design we were looking for was simple and for all users. The surveys asked for an evaluation of the attractiveness of the website, and most users think it is attractive as seen in the following section. Since students find the website attractive, this implies a great acceptance by them. It remains to be seen whether this project is also as well accepted by the teachers. In this aspect we should have surveyed teachers as well. It is also important the acceptance of Directors and Student's Guardian because they are stakeholders. It is not yet known if it is accepted by them, this is another aspect yet to be considered.

For the time being, the premium version of the website is not available because we want to see if it is successful first. Implementing the premium version requires considerable work for the members of the group and that is why this decision has been taken. The search for external advertisers has not yet begun. The advertisers for the moment are ourselves, since we are showing it to our friends.

As mentioned in the pre-report, Slack workspace has been used for communication between group members. In this workspace a channel was created so that the most important information could be communicated through it. Whatsapp has also been used to communicate less important things. In the end it is a tool that all of us in the group use in our day to day and very practical for us. Meetings were held once a week to see how the project was progressing and to keep us all informed. In the pre-report it was said that meetings would be held twice a week, but finally it was considered that it was not necessary.

There are some deviations between the original and the final plan. The first difference is that finally we have not created an app, but a website. This decision has been taken because in this way it is easier to access from the computer, and also from the cell phone. As mentioned above, the premium version is not yet available. Another change is that everyone can access the teacher and student profiles from the website. That is, the page is not different depending on whether you are a teacher or a student. It should also be mentioned that everything must be done by the editor of the page. The teacher cannot update the leaderboard, upload tests or change the tests available to the students, but all this must go through the site editor.

Another difference is that the web design has been different from the original idea. At the beginning we wanted to make a design based on branching. That is to say, the student could pass levels and advance in the game. Finally, you can only do the test that is active at the moment and see the past tests.

We evaluate our project management effort as successful:

Scale	Agree	
Group	We are really agree, but some aspects	
response	which could not be implemented as pretended in	
	the original idea lower the strongly agree score.	

3 Evaluation of the impact. Project success

3.1 Target audience

The final product has as its target audience every member belonging to the educational sector, whether student, teacher or manager of a center. Specifically, it seeks above all to improve student learning, which is why these are the main beneficiaries of the project. However, it is also intended to facilitate the teaching of teachers and the resources available to the educational center, which can generate an increase in the prestige of the center and its managers.

In conclusion, the biggest beneficiary of the project is the educational sector.

3.2 Product quality evaluation

In order to evaluate the quality of the final product, this one has been tested with its main target audience: students. Thus, two different groups of 20 students each one have been asked to discover the web and try to complete a test. The first group was formed by teenagers between the ages of 13 and 18 years old, whereas the second one was formed by students between 19 and 25 years old. By doing this, it is possible to know the opinion of a more adolescent student sector and, also, of a more mature and developed one. Each tester of both groups who tested the final product answered two surveys at the end of their experience with the web. The first one was a survey made to know their thoughts about their actual educational situation, how they study and the available resources they have when studying. The results obtained, differentiating both groups, are plotted bellow:



Figure 1: Survey results to question 1.



How long does it take on avarge to find the content you are looking for when you are studying?

Figure 2: Survey results to question 2.

As the charts show, most of the students think that their educational system and way of studying should be improved, even a considerable part of them stated that the learning method of their educational center was poor. Moreover, the average time it takes for students to find the content they need is between 1-5 minutes, with older students being somewhat faster than younger students.

On the other hand, the second survey was about their experience with the product. Students of both groups were asked about different aspects of the web: its attractive, its ease of use and the proposed method of learning. Figures 3, 4 and 5 show the results of this second survey.



Figure 3: Survey results to question 3.



Do you think you could find the content you needed quicker with this web?

Figure 4: Survey results to question 4.



Would you add this learning method on your studies?

Figure 5: Survey results to question 5.

It can be seen that, for the most part, the students tested were satisfied with the functioning of the website. Regarding its appearance, most of them stated that it was attractive and well organized. They affirmed that the format allowed them to find what they needed in a much faster way and with a couple of clicks they could access what they wanted. In addition to this, the students were asked if they would add this new method of study to their courses and the answer was yes, but most of them would only do so in some specific subjects. Some testers wanted us to know that this was due to the fact that in the more practical subjects they prefer to do problems and exercises by hand, since it allows them to be more concentrated and is easier; but for the more theoretical subjects they did believe that it would be very useful.

Finally, with the objective of satisfying the students needs, both groups where asked to give a personal opinion and suggest changes or improvements for the web. Most agreed that the product is a good educational bet, providing a very accessible and useful workspace. At the same time, some of them suggested creating more sections and variety on the web. Consequently, as this is the first launch of the web, it will be tried, as explained above, that the teachers themselves can personalize their own subject and, in this way, add all the sections and options they want. To help with this, the web will be improved in order to make them able to create new workspaces and more innovative sections, which satisfy even more the students.

We evaluate the quality of our final results as outstanding:

Scale	Agree
Group	We think our results are very positive.
response	The great part of the testers were
	satisfied and they contribute with suggestions.

4 Factors that have contributed to failure or success

Project management success is a result of factors that can be distinguished in the three categories; Case-specific factors, Structural factors and Cultural factors (Hussein, 2018, p. 93).

An important case-specific factor was that the vendors of the product were students in the same situation as the project group. As a result, the product was developed based on the project team members own perception of could be a useful aid for the course. In addition, surveys were made to different students out of the project group with the intention to asses the work been made.

It was important for project management success that all team members were committed to the project. As team members didn't know each other at the beginning of the project, a group chat was created and weekly meetings were set to ensure communication and work progress. In addition, a team dinner was organized to know each other better and create a more comfortable working environment. As a result, the group members let other members know their progressions with their responsibilities, and it was clear that everyone showed an effort. The project was highly prioritized, all participants cleared their schedule to be able to attend team meetings and complete the weekly work, completing the assignments of the course and the tasks for this project every single week. The dedication to the project made the team members trusted in each other's work, for which made the working process efficient. The project group had a structural and clear plan from the beginning. Different areas of responsibility were assigned within the team, based on experience. In consecuence, all group members worked dedicated on their part of the project and the project progression followed the schedule. All of the factors described above can be categorized as structural factors.

Factors listed in Table 14, and p. 92 in (Hussein, 2018), matches the success factors described above. The most important success factors (Hussein, 2018) are early planning, clear roles from the beginning, and communication. These factors are fundamental to be present from the beginning for a project to succeed. The different factors correlate; commitment and trust are a result of structural planning and communication, which again results in higher motivation and dedication. These factors are also mentioned in Table 14 (Hussein, 2018). If these factors are present from the beginning, the project group will most likely experience that all group members prioritize the project. Thus, early planning, clear roles and communication are three key factors that should be in focus early in the project.

The factor that contributed to the largest challenge of the project was the lack of prior technical knowledge as discussed in the risk assessment in the project plan. The team did not possess much knowledge about app development, so modifications were made to the inicial concept of the app attending to the knowledge available in the team. This led to a slighly diferent final app, which functions were limited by the programing skills of the team. All this issues that we have had during the creation of the application are responsibles of the delays in the schedule. Having this into account, we realised that we were too ambitious in the schedule of the pre-report.

The factor related to failure discussed above can be related to two factors listed in (Hussein 2018), "Skills, knowledge and competence" and "Project manager has adequate business insights". Since the team did not possess enough technical knowledge to know the scope of the packages, the items were not ideally ordered. This could have been avoided if the team had done more thorough research. The group could have considered the "Project Manager knowledge" item in the planning phase. It would probably have been uncovered that more technical knowledge was required.

5 Most important lessons from the project

Good communication and organization.

This would be the first lesson we have learned. As we started the project it was difficult to work on it because group components did not know each other and we did not speak much to each other. Everything changed when we prioritized communication and we created chat groups, online work spaces, etc. Workflow became smooth and everyone was equally involved.

Be flexible, expect changes.

During the planning phase of our project lots of assumptions were made, we knew things would change in the future but we did not know in which scale. Now that the product is done we see that things can differ a lot, unexpected changes occur and you have to be flexible and ready to solve them. For example our first plan was to learn how to code and to build our product by codding it. Then we realized that it was not possible for many reasons. For a few moments we were stuck on our project when we finally decided to build our project using non-coding software. This decision was hard to take because it was changing in a huge way the initial plan but it let us finish the project successfully.

Learn to prioritize.

This lesson must be the most important one that we have learned. During this project we had some harder moments than others. Sometimes it was lack of time what stressed us out, sometimes lack of motivation, etc. When we learned to prioritize and dedicate all our resources to the important tasks we became way more productive. For example when we were building our app we had lots of problems that made our product not work as expected. Because we did not have much time we had to prioritize and we made a list of the main errors and their impact on making the product not work fine. We finally solved the main errors and in a small amount of time we got a functional product.

Keep the group motivated.

Another important lesson that we have learned is that if all the group members are motivated working is quite easy. The difficult thing is to learn how to keep your group motivated, which can differ a lot depending on the group39;s members. In our case doing weekly group meetings and constantly thinking about what our product could achieve helped us a lot. $\underline{\text{Set a finish line}}.$

Finally, when the product is almost done, think about how you want the final product to be. That will be the finish line. It is necessary to know where to stop in a project like this. Changes could be infinite and to avoid falling into endless loops it is important to know where the start point and the end point are.

6 Reflection on learning and unlearning

Things to learn:

Because of what we are studying, almost all the members of the group already had some idea of how to design a website, but those who did not, have learned. Some members of the team have not taken subjects related to managing a project or starting a business, so they have learned how to do it and the whole process involved. Moreover, we have learned what stakeholders are, the importance they have in a project, as none of us had studied something related to this before, and what it is really important: how to deal with them. In addition, we are also now aware of the different risks a project can have and we have learned how to deal with some of them, as we needed to do it for our project.

Things to unlearn:

Due to our beliefs, according to what we studied, we had prioritized the creation of an app. We finally saw that, in this case, a website was more useful. We also believed that we would need a lot of advisers and it is true that if we want to make our product get further in the future we are going to need them, however if the product is really useful our users (mainly students) are the best promoters we can have, given the fact that they are very interested in its success, so they will tell their friends and colleagues about it and the project will become known and used for more users.

References

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Attachments

Multi-Log web: https://www.multi-log.online/

<u>Video</u>: https://youtu.be/fDfrbgCivxQ

Project plan (Pre-report uploaded on 02/10/22): attached on next page.

PROJECT ASSIGNMENT

Pre-report

Course: Applied Project Management - TPK5100

Date: 22/09/2022

Project assignment group: 22

Students:

- Teresa Garolera Crous
- Jon Urcelay San Roman
- Dídac Cirilo Llorca
- Daniel Redondo González
- Artur Adam Habuda
- Oriol Fábregas Zancudo

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1. Type of product producing.

The aim of the project is to create a mobile application for teachers and students, which facilitates the study and learning of the student. The name of the app is *Multi-Log*.

1.1. General description of the app - Initial idea.

There are two types of users who will use the app: the teacher and the student. Depending on the user mode selected, the app will present variations on the interface.

→ Teacher or creator mode:

The teacher will be able to create a log. A log will consist of multiple test type questions, which will be separated into different units and will follow a particular order, as the teacher decides. In addition, the teacher will give each question a punctuation mark.

\rightarrow Student mode:

The students will join the log that the teacher has created and will complete the questions whenever they want as the course advances in time. When getting the right answer, the students will obtain the punctuation of the question. During the period of the course, the application will remark on the users that are on top of punctuation or who are on fire, and will warn the rest of the users.

1.2. Business model.

The application will be free for the users, but it will have a premium version. Both versions will offer the same functionality, but the premium version will not have advertisements. Income will be introduced from ads and from the premium licenses. The premium app license is intended to be sold to schools and universities.

2. Expected benefits of the product (the outcome).

This app wants to make study time more enjoyable, that is, students can have a good time while they are studying. The main benefit of this application is that students dedicate more hours to the subjects and spend more time learning about them without struggling too much with laziness. That is, the idea of studying with it is attractive. The fact that the app is a game makes students more eager to gain knowledge in the different subjects of the application.

A great advantage of this application is that it can be used everywhere, so when you do not have a computer or a place to study, you can even acquire knowledge.

Another advantage is that the teacher can check if the students are answering the questions that he has proposed and he makes sure that their pupils are acquiring knowledge.

3. Potential stakeholders and plan to involve these stakeholders during project development.

In order for the project to be carried out successfully, it is necessary to properly select the potential stakeholders and how these will be involved during the project development.

Thus, the following list contains the potential stakeholders selected for the project:

- Source Framework (Flutter)
- Application Market (App Stores)
- External Advertisers
- Education Authorities
- Schools Direction
- Teachers
- Students
- Students' Guardians

Source Framework (Flutter)

Flutter is the source framework chosen for the application creation. On one hand, they have an important influence on the application's design, given that this will be programmed with their source framework. On the other hand, they are also really interested in the app's creation, as they want as many projects as possible to use their framework, and even more if they succeed.

Application Market (App Stores)

As well as the source framework, the application market (app stores) have high influence in the project's development. In fact, the application needs to be added to this market

External Advertisers

Since the application is going to have a free version, it is needed to get external advertisers involved in the project. This group has not a really big influence on the development, however, they probably have interest in the project, even more if it succeeds.

Education Authorities

Despite being an important authority, this group does not have a big influence on the project, at least directly. However, if the project succeeds, they may start to have interest in this alternative way of learning and, consequently, start to have some influence in future modifications and improvements. It would be interesting to get them involved in these future plans, considering that they could help the project to reach more people.

School Directions

As the project is for students, school directions are a stakeholder to consider. They do not have a really big influence on the project's development, however, they might be interested in using this application to improve their school's success with students and their learning.

Teachers

Teachers have a considerable influence on the project, since they are the ones who will establish the subjects' contents, the lectures and the test questions. Thus, they should be taken into consideration when designing the application. Likewise, they may be quite interested in the projects' development, given the fact that this one could cause an improvement on students' motivation and learning capacity.

Students

In the same way that teachers, students have a really big influence on the project's development. In fact, they are the end users of the application and the project's success will depend on their satisfaction. Moreover, students are the most interested stakeholders. In this way, the application's structure and objectives should be adapted to students' interests.

Students' Guardians

This last group could not be considered a stakeholder, given that if students are independent they take their own decisions. However, if they are not independent (not adults), their guardians, who might be their parents in most cases, may supervise their decisions, as for example consider if it is good for students to use the mobile phone to study.. Therefore, they have influence on the application.

4. Project risk assessment plan (main risks and how are they going to be addressed).

4.1. Risk identification.

Risk 1. Technical problems that affect the application use and reduce the users confidence

- Risk 2. Not achieving an attractive design for all ages
- *Risk 3*. Acceptance by the app public
- a. Student and teacher acceptance. They are the direct users of the app. If they do not like the way the app works they are not going to use it.
- b. Directors acceptance. They can decide to implement the app as a new study tool. If they do not accept the app as a new tool they are not going to implement it in their centers.
- c. Student's Guardian acceptance. This risk reflects on parents who do not like their childs to be with their mobile phone all day. They could reduce the use of the app for their children.

Risk 4. Not finding premium version users that ensure the use of the application for a long time.

Risk 5. Not finding external advertisers for the free version of the app

4.2. Risk assessment and prioritization.



Figure 1. Risk assessment and prioritization.

4.3. Risk response planning.

Risk 1. Technical problems

Having a technical developer who can fix errors as they appear and can maintain the application from the technical side. This person is the same that develops the application, because he is the one that knows the best how the application works.

Risk 2. Not achieving an attractive design for all ages

Having a designer that works with the developer to introduce changes, if necessary, in the design of the application. The designer has developed the application from the users point of view and will continue doing different user tests to see if the application is attractive for users. Implementing user forms to rate the app is a tool that can help.

Risk 3a. Student and teacher acceptance

If students and teachers do not like the app, the only possible solution is to redesign the app or to think of any other alternative to the use of the application.

Risk 3b & 3c. Directors and Student's Guardian acceptance

If these stakeholders do not accept or like the use of the app for the pupils, the response is to strengthen the marketing campaign by trying to explain better the advantages of studying by playing a game.

Risk 4. Not finding premium version users

The response for this is to lower the price and see if the number of premium users goes up.

Risk 5. Not finding external advertisers

If no external advertisers are found, the measure to be taken would be to make appointments with different school equipment businesses and offer them publicity in our app. This offer can be lowered if it is too high for the advertiser.

4.4. Risk monitoring.

Risk	Risk Impact	Measures / When	Responsible Person	Status / Consequences of measurement
1	Critical	Developer works as maintainer / Always	Developer	-Pay the developer for the constant service -Technical errors solved
2	Significant	Designer doing user tests & User forms / Always	Designer	-Pay the designer for the constant service -The team knows about the users opinion
3a	Significant	Redesign /	Designer and developer	-New app
3b	Significant	Marketing strengthen	Marketer	-Extended the reason of using the app
3c	Marginal	Marketing strengthen	Marketer	-Extended the reason of using the app
4	Critical	Lower the premium price	Developer	-More premium users
5	Critical	Appointments with advertisers	Developer and designer	-Possible interested advertisers -New relations

Table 1. Risk monitoring

5. Skills needed in order to produce the product and how will these be acquired for the project members.

In order to produce our product we do need several skills. Given that we are creating an app, we need to be able to carry out the following tasks:

-App design: for the app design *Sketch* software will be used which means we will have to learn about it and how to use it.

-App development: for the app development we will use *Flutter* framework. It is a google framework quite useful for app development. *Flutter* is based on *Dart* coding language so to finally build our app we will have to learn *Dart* and how the framework works.

To acquire the skills explained below we have lots of material from Internet, so we will try to learn everything on our own, using web and video tutorials. We also know some people that have some knowledge about app development and we will use them as mentors. We hope that they will be able to answer our questions.

6. Project breakdown structure (major deliverables, subdeliverables and work packages).



Figure 2. Project breakdown structure.

As it can be seen in the image above, the overall project under development is an app for studying. There are 3 major project components, also called deliverables, which are: Design of the application, App development and App launch. Within the first section, there are two subdeliverables: App sketch and Final design of the app using sketch software. The last one is divided into two work packages: Design of the interfaces and Design of the screenflow. Within App development, we have Code development, which has Front-end development and Back-end development, and Code test. Finally, in the App launch deliverable, it can be found two work packages: App store and Play store, which are mobile applications that are used to download other applications.

Activity	Duration (most likely)	Predecessor
App sketch (A)	1 week	-
Design of the interfaces (B)	1.5 week	A
Design of the screenflow (C)	1 week	В
Front-end development (D)	3.5 weeks	С
Back-end development (E)	3 weeks	С
Code test (F)	1 week	D,E
Launch on app store (G)	1 week	F
Launch on play store (H)	1 week	F

7. Project schedule. Time-estimate of each task (build and produce) in the project.

Table 2. Project schedule

In order to have a successful work over the app, the team needs to be organized, and have to plan before the time-estimate of the task, besides all the deadlines that each task could carry on during the process.

In our case we differentiate three main assignments which need to be solved the faster and the more efficiently that we can. These are:

- Learn how to code and set the initial structure

That's the most important part of the project and consists basically in learning by our own how to code in the language that we have planned, set the main structure for our project, and also, search specialists of education, in many areas which could help us to develop the questions and the possible answers. Time-estimate: 6 months

- Create the structure of the app

In that step, we need to create the page where the activity will be carried on, and stay secured about that the functions of the app are going good, by proving them many times, with different serves, laptops, users and many other sceneries that we could have when the app will be put on the market. Time-estimate: 4 months

- Attain sponsor and create contracts with them

The final part, when we separate the premium version, with the free one, contacting sponsors, which can pay us a reasonable amount of money for the ads that they will publish in our app. Time-estimate: 2 months

Final estimate Time:

If we add all the estimated times that we are supposed to develop, we may be running out in a range of a year from the date of starting working on it.

8. Most important success factors that should be adhered to in order to succeed in the project.

We attach the success of the project to many factors that we will have to approach in the project, in order to deal or face the problems that will come during the development of the app. If we agrupate the most important ones, then we have:

<u>Efficient organization</u>: In order to face the main structure of the project, it is important to have a good organization, between partners that will be duty managers with communication problems, coding, founding sponsors, trying to contact teachers, and tester programmers.

<u>Communication</u>: It is important to stay in contact with all the members of the group, in order to solve the tasks and the posibles setbacks the fastest that we can, and also to achieve successfully all the deadlines that were planned at the point 9.

<u>Compromise</u>: One of the most important factors is the compromise that all the members have with the project at issue. The lack of compromise will result in poor work, reaching the worst levels between all the objectives and challenges that we need to gace along all the process.

This list of valors are the most important ones, if we wanna have success at the development of the app. However, there are many more, which are also relatively important to the process, such as knowledge of the specialist, ambition to improve the app, or punctuality with the points and deadlines that we have previously set.

9. Roles and responsibilities in the project.

To attain all the aforementioned goals and comply with the set time-constraints, a good and well-defined scheme of the different responsibilities and duties has to be done.

The core team is composed by six people: Teresa Garolera Crou, Jon Urcelay San Roman, Dídac Cirilo Llorca, Oriol Fábregas Zancudo, Daniel Redondo González & Artur Adam Habuda. As mentioned before, additional help may be needed for the development of the different processes involved in the project. For that reason the team will take advantage of the expertise of at least three mentors in app development and three in app design. New mentors may join our project in case it is needed either for the mentioned tasks or other complementary processes. According to the project breakdown depicted in section 7, three main tasks will be carried out: Design of the application, App development and App launch.

Both Design of the application and App development will be carried out simultaneously, with the core team subdivided in two groups of 3 people to work on each one of them. The groups are assigned to each individual taking into account their unique set of skills and interests in order to maximize efficiency and improve work flow within the group.

- Design of the application: Dídac Cirilo Llorca, Jon Urcelay San Roman & Artur Habuda.
- App development: Teresa Garolera Crou, Daniel Redondo González & Oriol Fábregas Zancudo.

These two teams should work in accordance to each other's requirements and constantly provide and receive feedback to ensure the successful development of the app.

Finally for the launch of the app, all team members will be involved. This will cover a wide set of activities involving from the launch itself on the main app platforms, to the marketing of the app and all associated goods.

10. Communication plan.

Proper communication channels between all team members are a key aspect in the project. Especially for the feedback exchange that has to take place between the two main groups (for the app design and development). For that reason, a Slack workspace will be opened to allow for organized and easy communication between all the members of the team. This workspace will be subdivided in at least one general channel for relevant information for all team members, and two group channels for each respective group. Additional channels may arise if needed. For more informal and off-topic exchanges, a Whatsapp group will be formed with all team members.

Furthermore, twice a week, an in-person meeting will be held (or Discord meeting if the majority of members can not attend the in-person meeting) to discuss work done up to that moment, and individual as well as common challenges that may have arisen.