User Study Report

EWOR Education Platform design

Introduction

The goal of our client, EWOR, is to offer an alternative way to "learn" entrepreneurship practically by *learning by doing* instead of studying it in theory. They offer their participants an opportunity to have a startup without financial risk, having their own venture supported by a partner company. To provide their participants with the needed knowledge they want to create a non-mandatory education platform. This platform should be in addition to the working experience and contain information about topics that the participants need in their daily business.

Our task is to come up with a design for this education platform. After brainstorming and idea finding we came up with a first version of the landing page of the platform as well as some features.
To understand the needs of the users, how intuitively the website design is and if all the features are necessary, a user study has been set up.

In the user study the following three topics have been examined:

- **Landing Page:**
  The landing page is the first page presented after logging into the platform. It should show an overview and lead to different features. One feature that was wished to be showed on the landing page by the stakeholders, for example, was the progress (project- and module completion-wise).
  In the user study different ideas are tested on intuitivity and understanding. The question on how efficient the user is able to perform certain tasks on the UI has to be answered.
- **Interest Check:**
  One goal of the learning platform is to break free from academic boundaries and explore the content in a playful manner. Therefore, one feature of the platform is to suggest modules which the user is particularly interested in and encourage the user to study proposed modules. For that reason, three different low fidelity prototypes have been created to select the topics a user is interested in. These prototypes will be evaluated for their usability.
- **Communication Platform:**
  One stakeholder requirement states to have as much peer to peer interaction as possible. This is due to the fact that they want to create a community that is helping each other out and sharing their experiences as well as gaining networking experience. The interviews with potential users (i.e. successful and failed startup founders) also showed that a common need is to create or have access to a social business network. This requirement led to the idea to integrate a classic forum to the platform where users can exchange their knowledge about certain topics and to connect with other startup founders at the same time.

The ideation process lead to an investigation on what specific features for a communication tool are desirable and if some features of already existing common ones (forum, messengers, etc.) are not used and thus turn out to be unnecessary and should not be implemented.

Method

Study set up

The study has been conducted on 9 participants in total, age 23 to 25. Three of the participants were female and six male. Every participant was given the three different studies in a random order to account for a systematic bias on completion times due to fatigue effects.

To validate or invalidate the above described questions and criteria three different approaches have been chosen to gather insights on the three main topics to be investigated:

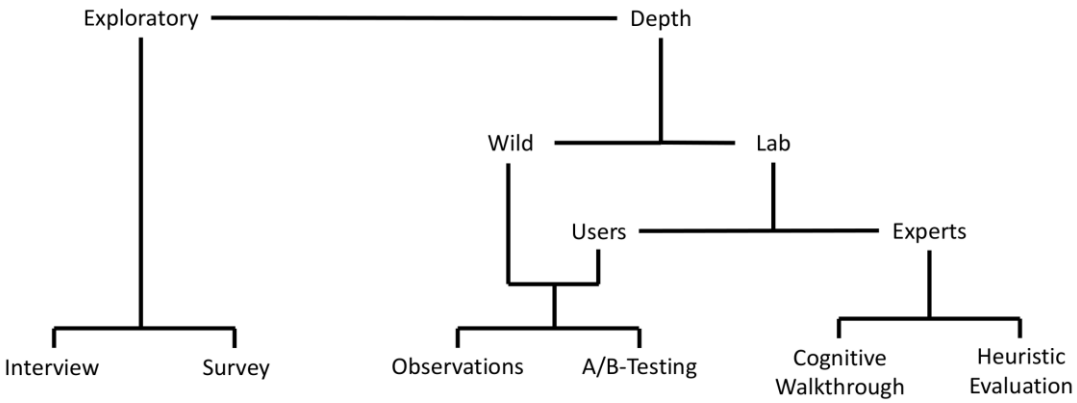


Figure 1: Method overview, different evaluation approaches - source: Lecture

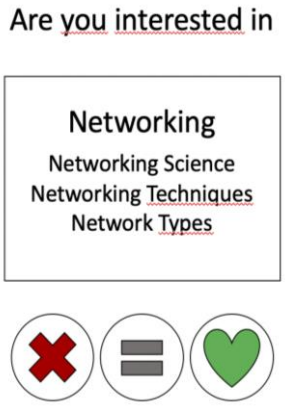
Landing Page

To answer the questions about the landing page it was decided to choose the *observations* approach which is in the in depth analysis tree in the method chart (see Figure 1).

Different tasks have been given to the participants and features have been evaluated to figure out how intuitive the landing page is. The performances of the tasks have been observed and evaluated on numbers of clicks, chosen path and time used to fulfil a certain task.
We have decided to use a paper prototype for the task and apply the *Wizard of Oz* method to mock the functionality. In the video, one can see how this was realized and what task the participants had to fulfil.
After fulfilling the tasks according to the User Study Guide the participants were asked to answer some questions about it, so we could evaluate their experiences. The questionnaire can be seen here.

Interest Check

The process of selecting topics a user is particularly interested in can be repeated any time to be able to alter one's interests at any point. To evaluate these prototypes a comparative depth A/B/C testing approach has been chosen as to compare all three prototypes and choose one for further development. The SUS (*System Usability Scale*)[1] provides a general and widely used set of questions and a resulting scale which describes the usability without elaborating on the question *why*. The default questions put a focus on three key aspects of usability: *effectiveness*, *efficiency* and *satisfaction*.
The participants were guided through the three different methods, using the like/dislike interest check, the comparison check and the bubble interest check, and were then asked to fill out a form to evaluate the usability of each one of them.



Prototype 1 - like dislike

Prototype 2 - comparison

Prototype 3 – bubble

Figure 2: The three different prototypes that have been evaluated in the A/B/C testing.

All three prototypes were made with PowerPoint and can be downloaded here. The survey of the interest check can be found here.

[1] https://www.usability.gov/how-to-and-tools/methods/system-usability-scale.html

Communication Tool

To get the rather high level answers for the questions specified in the introduction an explorative survey has been conducted with the same participants who evaluated the landing page and the interest check.
The communication tool evaluation was approached with a questionnaire, as the goal was to find out how students communicate in projects these days and what specific features are most wanted. The goal was mainly to gain insights into the experience of the participants with communication tools and state the needs and requirements to an aforesaid tool.
The survey can be found here.

Results

Landing Page

Task 1: Click on your profile. Then, upload your CV.

All participants intuitively completed the task in two clicks, as it was supposed to be done. To get to the profile settings after clicking on one's profile picture is intuitive.

Task 2: Continue the networking module that you already started last time.

The legend describes the number of clicks participants needed to complete the task. All of them succeeded in completing the task. Most of the participants saw the "continuing section" right away, one participant used another way to complete the task, which works as well.

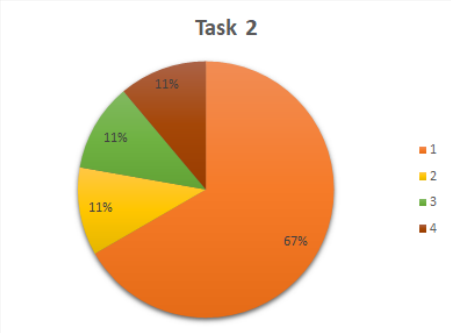


Figure 3: Number of clicks participants needed to complete task 2.

Task 3: You decide against doing a certain course you've selected. Delete one of your own courses that you haven't started yet.

The participants who had only three clicks, deleted one of the ongoing courses and didn't succeed therefore. This is just bad reading and doesn't have an effect on the design. There had to be a hint given to four of the participants, which was that the whole page was still given after laying down the upcoming courses, e.g. that the edit button could still be used. This is a weakness of the paper prototype that has no influence on the final website design though.

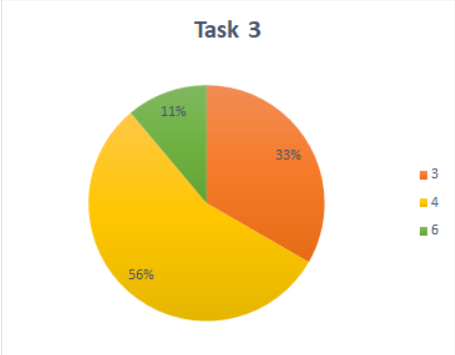


Figure 4: Number of clicks participants needed to complete task 3.

Task 4: You want to do a course. Search for the course "Followership" and add it to your courses.

All participants succeeded in completing the task. There were two main ways used: using the scroll function or the search function in the all modules overview. One participant wanted to edit "your courses" and add it there. This possibility should be added. There has to be a discussion for a search button on the "your courses" page as well.

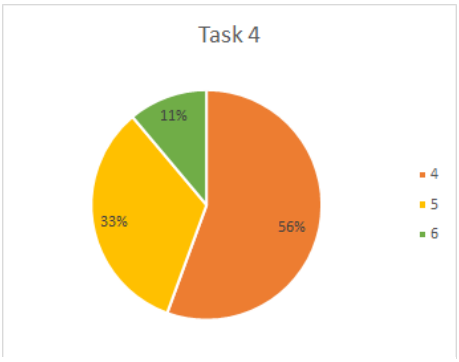


Figure 5: Number of clicks participants needed to complete task 4.

Task 5: You are in Phase 2 of the project and want to know what courses belong to it. Figure it out.

Even though the word "phase" hasn't been truly introduced to the participants of the user study (only in the question), some of them intuitively clicked on the right button. Others had more problems. Since the phases will be an important part of the stakeholders entrepreneurship program, and therefore the participants will know the term, no changes have to be introduced.

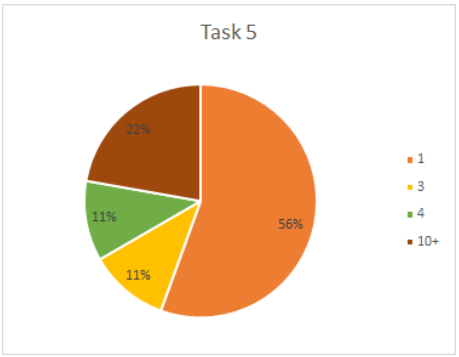


Figure 6: Number of clicks participants needed to complete task 5.

Task 6: In which phase of the main quest did you complete the most modules?

Four participants couldn't complete the task successfully and only three had no problems figuring it out. Based on this knowledge and in comparison with task 7 the spider map will be deleted and normal progress bars will be introduced. Also, there was a remark about "Skills" being confusing and the title "Skill Progress" will be used in the future.

Task 7: Where did you focus when studying modules from side quests?

This was better understood than task 6, only two participants failed due to confusion of the term "side quest". This shouldn't be a problem with the entrepreneurship program participants, as they will have been introduced to these terms in the beginning and will be familiar with them. Based on this knowledge the decision on how to design the skills of the main quest have been made since the progress bars have been understood better than the spider map.

Task 8: How many crowns do you have? What do they stand for?

This task was successfully completed by all the participants. One even gave the answer to the second question without even clicking on the "crown button". It seems to be very intuitive.

Task 9: Click on the challenges icon. Are such challenges motivating for you? Would you like to have them as a feature? Do you (even) mind?

One participant first clicked on the “crown button”. The buttons should all be superscribed. The answers to the questions were the following:

- two participants are not motivated at all by these things
- one participant said if there is some base motivation around, alike challenges can be motivating
- all of the participants said that challenge one (seven days in a row) would never be motivating
- the third challenge was liked, as to see the progress
- the fourth challenge got a remark as being unmotivating if one didn’t want to learn the topic the mentor suggested

Further progression has to be discussed with the stakeholders at EWOR.

Task 10: Please log out.

Very easy, intuitive task, as the burger menu is commonly known.

Difficulty of the Task proposed by number of clicks

To get a better understanding on how difficult, e.g. unintuitive a task was for the participants, a comparison of the needed number of click per task to the mean need ones of the participants is shown in Figure 7. This information will also be used for the timing data evaluation and picked up in the relative difficulty section.

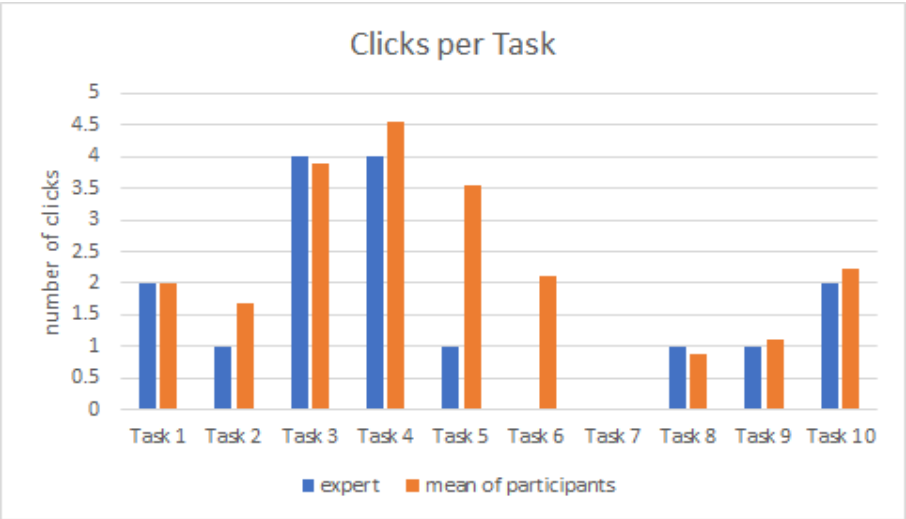


Figure 7: Number of clicks participants needed compared to an expert for fulfilling the ten different tasks.

It can be seen that tasks 5 and 6 were by far the most difficult ones. Task 5 has been very hard for two participants which makes the difference great. Task 6 has been misunderstood by many and the changes applied to the feature have already been discussed above.

Difficulty of the Task proposed by time needed to fulfil a task

Another quantifiable measure for the difficulty of each task is the time it takes for the participants to solve them. However, it has to be noted that only the average time by itself is not a direct indicator of the quality of the interface, as the various tasks themselves differ greatly in difficulty. This is why the relative difficulty of a task to the time it takes the participant in the study to solve it is compared. This means that if a certain task is supposed to be rather basic and theoretically doable in a short amount of time and it takes the participant comparatively long to solve it, measures should be taken to facilitate that task. For that matter, the average time needed by the participants of the user study has been compared with the time someone that is familiar with the webpage design (expert) needed to solve the task.

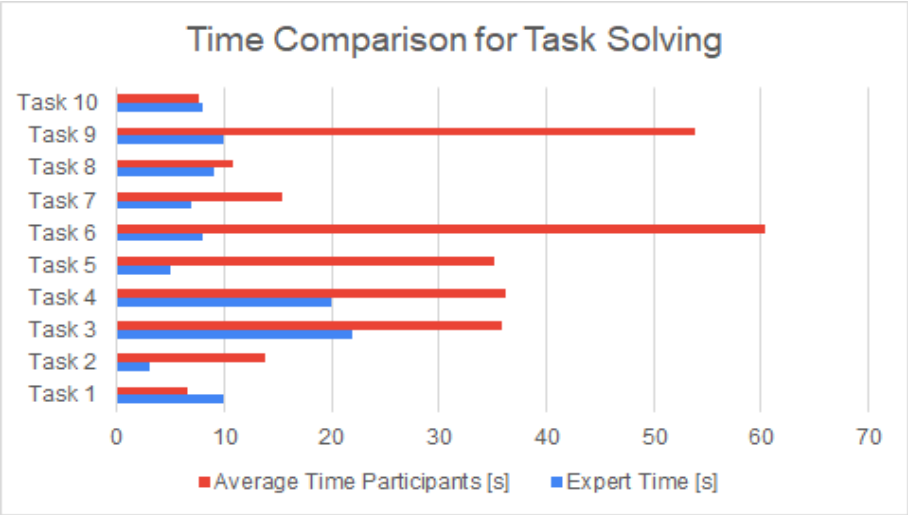


Figure 8: Average times the participants of the user study needed in comparison to an expert to fulfill the ten different tasks.

A good example here as well is *task 6*: “In which phase of the main quest did you complete the most modules?”. In theory, the information to solve this problem is given on the main landing page and accessible without any clicks. Still, this was the task that took the average participant the longest to solve. This means that this information should be presented in a better, more obvious way.
Another big difference between the average time of the participants and the expert can be seen in *task 5* where the they were asked to find out what courses belong to the phase two of the project. This outcome can be explained by the fact, that the participants of the study are not familiar with the phases the uses for the entrepreneurship program as mentioned above.
In *task 9* the participants were asked to give us their opinion about a challenge feature, this is why it took a long time to solve this task. The difference in time is therefore not a problem.

Variance

Another indicator where the interface can be improved is the variance between participants for a task. The variances for each task can be seen in the graph below.

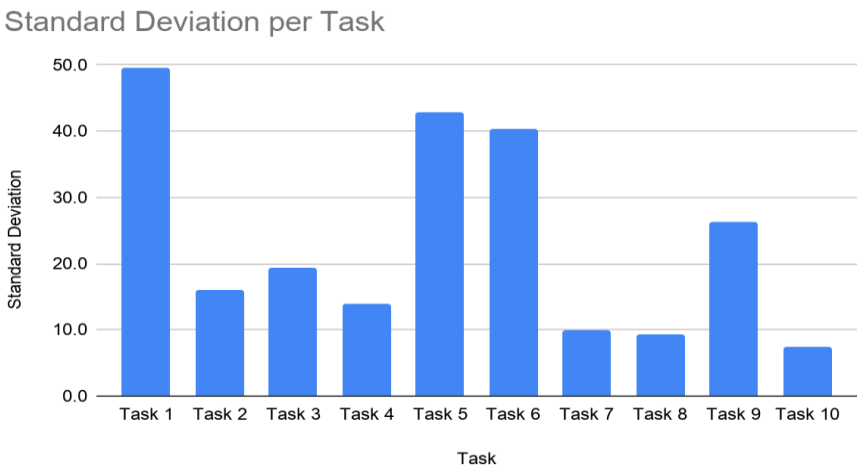


Figure 9: Standard deviation for the time the nine participants needed to fulfill the ten tasks.

Obviously, there are multiple ways a given task can be solved, and not all of them take the same time. On the other hand, a high variance could mean that some participants were “stuck” doing a task, and discoverability could be improved. We are therefore looking for tasks with few ways to solve and a high variance.

Tasks with high variance are for example number one, five and six. A possible explanation for the difficulty of task six has already been given above. Concerning task five (“You are in Phase 2 of the project and want to know what courses belong to it. Figure it out.”), some of the perceived difficulty might stem from the used terminology. None of the participants in this user study were previously aware of the connection between project phases and courses. In addition to this, task five has two different ways to solve it, and one of them takes significantly less clicks as the other - which also might explain the high variance. The high variance in task one can be explained by the short time it takes to solve and by it being the first task overall. While some participants solve it directly, others take a few seconds to get an overview of the interface.

Landing Page Survey Evaluation

The general feedback concerning the landing page and idea of a learning platform for startup studies was very good, with all of the participants stating that they would personally like to use said learning platform. When asked about the intuitiveness of the presented landing page, a clear majority (seven out of nine participants) described it as intuitive. All participants also responded to the question “Is it easy to become familiar with the learning platform and to learn how to use it?” in the affirmative, with the responses being pretty evenly split between “easy” and “very easy”.

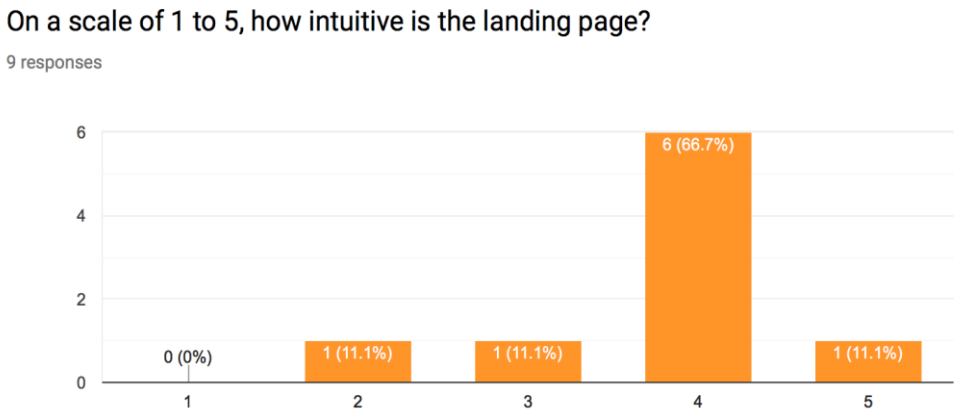


Figure 10: Answers of participants to the intuitiveness of the landing page, where 1 means not intuitive and 5 very intuitive.

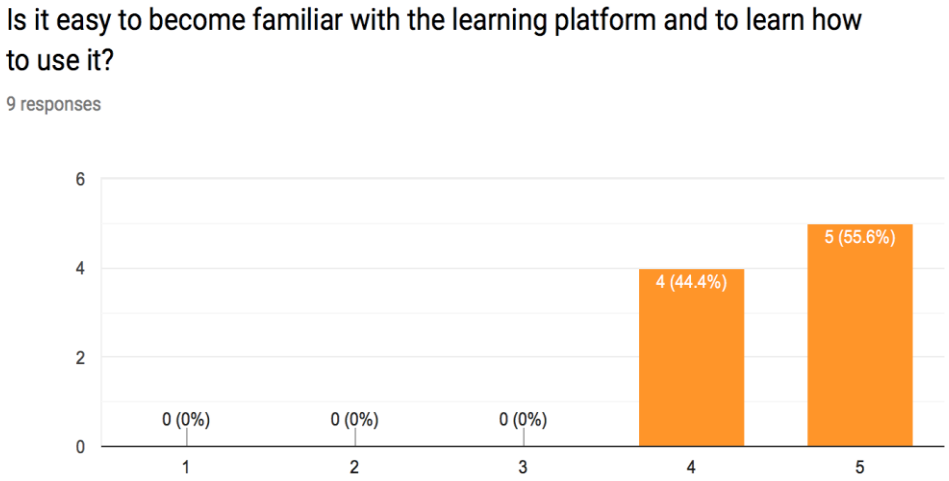


Figure 11: Answers of participants to easiness of getting familiar with the landing page, where 1 means not easy and 5 very easy.

When asked about things that were unclear, two things stood out:

- There were difficulties in understanding the spider diagram and its relevance to the “main quest” and the participants learning progress along the project. In general, the progress made with regard to the selected courses could be presented better.
- There is an issue with terminology, especially with “main quest” and “side quests”, but also regarding the difference between a “quest”, a “module” and a “course”. It remains to be seen if participants with a different background (i.e. already involved with the client) have less difficulty with this.

Timing data supports these conclusions. See chapter [Difficulty of the Task proposed by time needed to fulfil a task] for more information. Possible solutions are the removal of the quest progress from the landing page or a different form of presentation, possibly as simple progress bars. The latter version would also have the advantage of being more modular and informative regarding the amount and types of modules selected.

Managing courses, finding and adding them has been rated as “very intuitive” by half of the participants. Two other responses rated the experience “intuitive”, while the other ones are split between “somewhat intuitive” and “not very intuitive”. A suggestion that came up

regarding this was to combine the “all modules” and “your courses” buttons, and let the participant filter by all or only his courses in the dropdown window (or a separate selector).

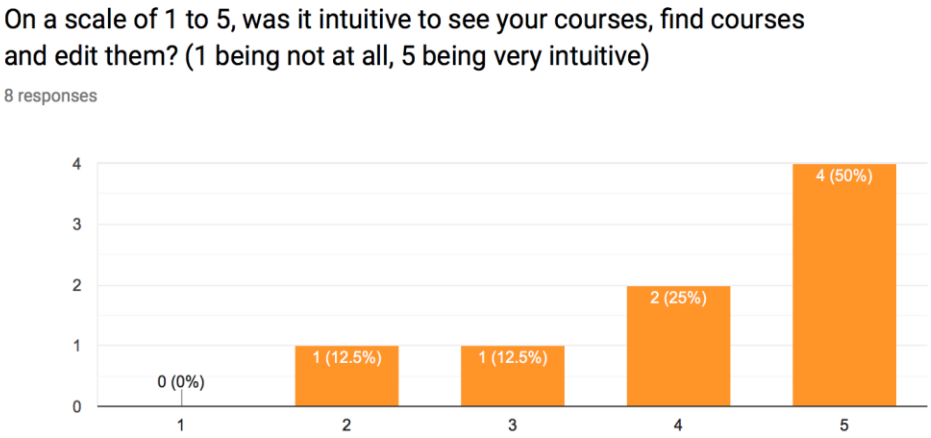


Figure 12: Answers of participants to the intuitiveness of the course section of the landing page, where 1 means not intuitive and 5 very intuitive.

Lastly, regarding the events calendar, two thirds of the study participants responded that they would frequently have a look at the events section presented on the landing page. This data would therefore support keeping it in its place, even though the majority is not as clear as for other questions. This needs to be further discussed with the stakeholder.

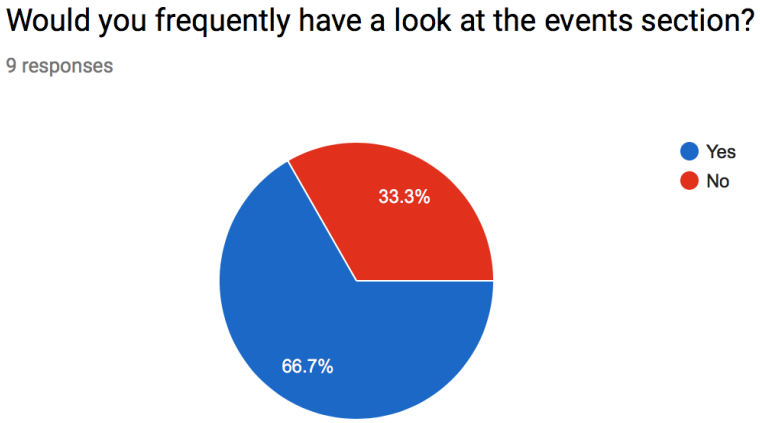


Figure 13: Answers of participants to the use of the event section of the landing page.

Interest check

System usability scale (SUS)

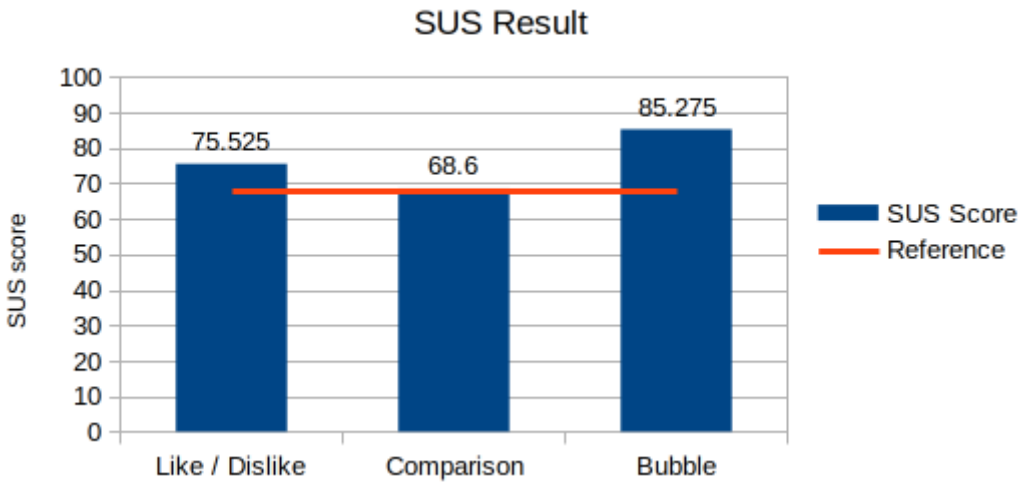


Figure 14: Results of the system usability scale (SUS).

The SUS results show clearly that the bubble prototype has the best usability out of the three models. Even though prototype 3 (bubbles) clearly has the best score, all of the prototypes scored above the general SUS reference of “good usability”, which is set at 68 points. To confirm the SUS scale, subjective questions about the individual experience and satisfaction have been posed which are shown below.

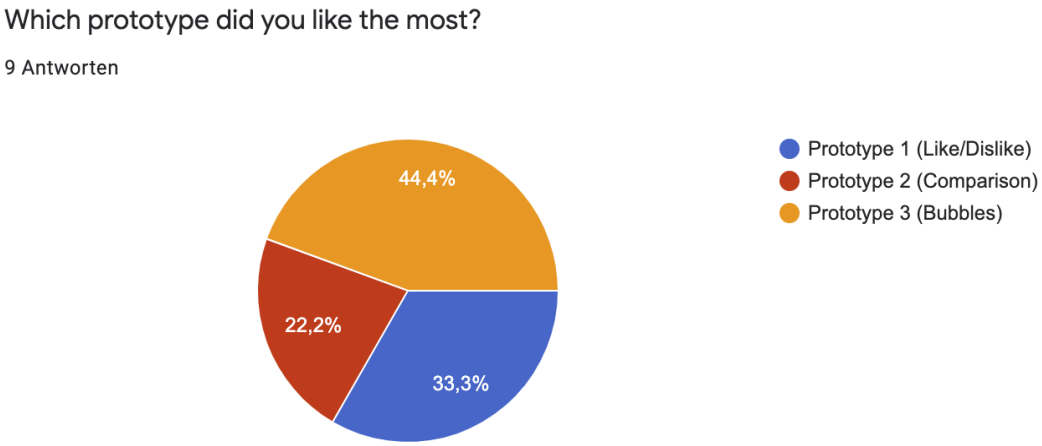


Figure 15: Answers of participants to the three different prototypes of the interest check, which prototypes did you like the most?

The subjective evaluation of the individual satisfaction of each prototype above shows that prototype 3 was overall the favourite interest check out of the different approaches provided. The result concurs with the SUS findings and can be looked at as an additional check to verify the SUS results and its importance.

Task completion time

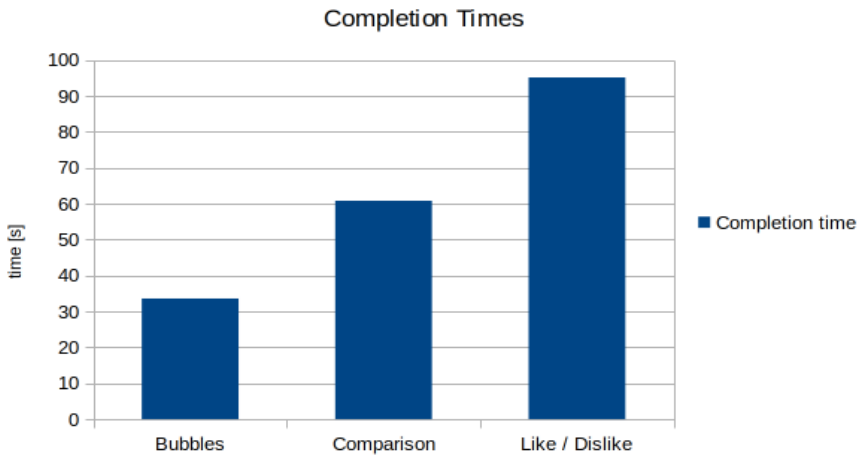


Figure 16: Time the participants used to do the interest check during the user study.

Since the process is repetitive, the completion time was recorded and provides a metric for the prototype evaluation criteria. The table shown above lists the average completion times of the individual prototypes. The timings show that the completion time is not the only metric influencing the overall usability since prototype 1(Like/Dislike) scored higher than prototype 2 (Comparison) even though completion times are lower. As already discussed the exact reason why one model is usable or not is not provided by the SUS. Nevertheless, it can be assumed that completion time has a rather big effect on the user experience for a task intended to be repeated multiple times.

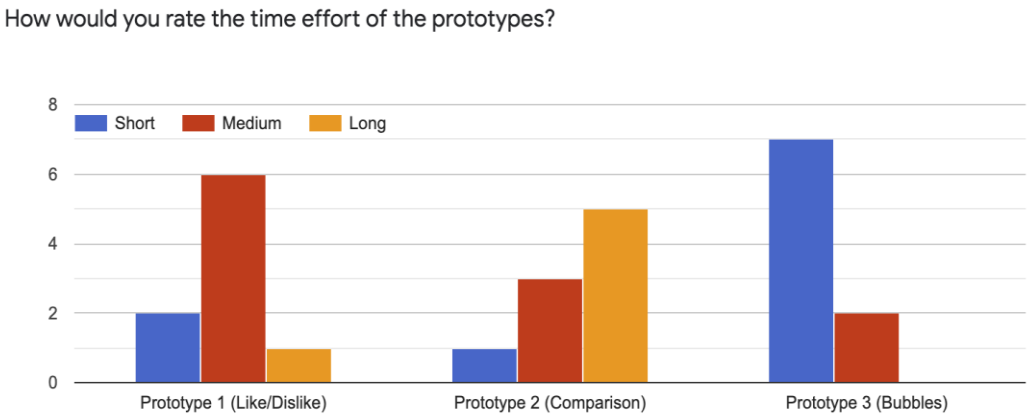


Figure 17: Answers of participants to the three different prototypes of the interest check, time effort of the prototypes.

The three prototypes have been rated subjectively according to the perceived time effort. The lowest perceived completion time is given by the bubble selection which also had an average completion time of 34 seconds. Surprisingly, prototype 1 (Like/Dislike) was rated with a medium time effort even though the average completion time was the highest with 95 seconds. Prototype 2 (Comparison) had the highest rated perceived time effort but was with an average editing time of 61 seconds shorter than prototype 1. This leads to a conclusion that prototype 2 is more cumbersome than prototype 1 because participants thought that it has taken them more time to complete the task than they effectively did.

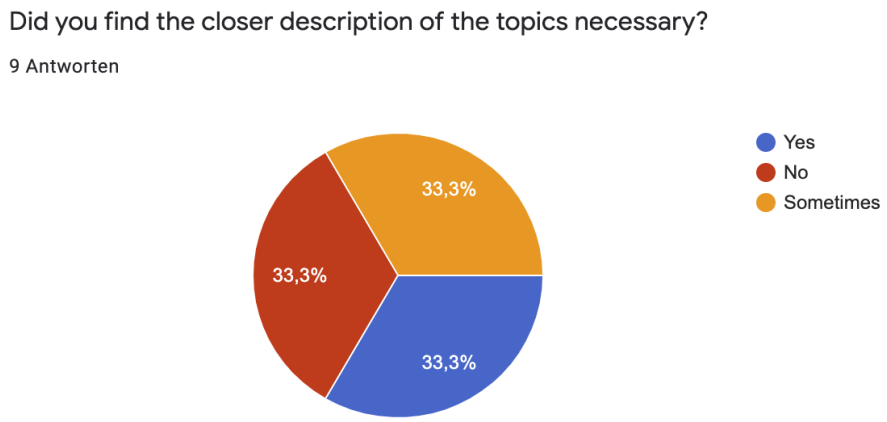


Figure 18: Answers of participants to the three different prototypes of the interest check, is a closer description necessary?

One out of the three prototypes had additionally to the topic title a detailed description of the topic because we wanted to find out if it is really necessary to have one. One third found this closer topic description necessary, another third found it sometimes useful and the other third would leave away this closer descriptions. The key take-away from this chart is only a third of the participants generally do not want further information on the topics. The classification and granularity of the topic description needs to be discussed with the stakeholder.

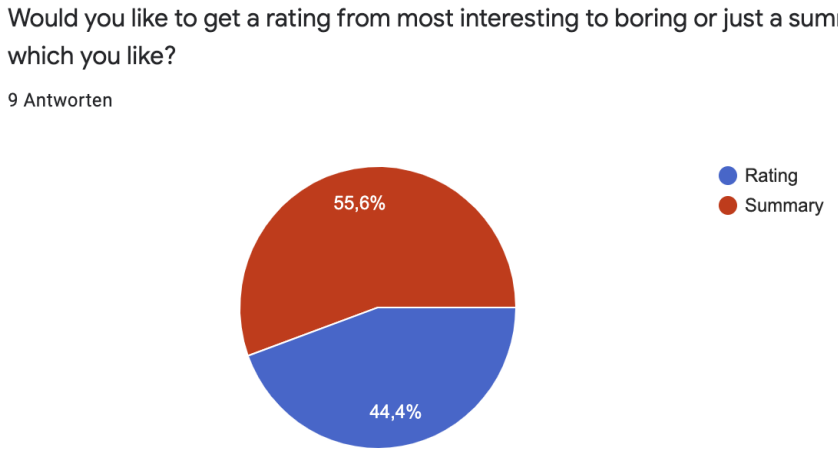


Figure 19: Answers of participants to the three different prototypes of the interest check, preference of getting a summary or a rating after the interest check.

We wanted to find out which outcome of the interest check the participants preferred. prototype 1 and 3 generated just a summary of the topics the user is interested while prototype 2 yielded a rating from the topic the user interests the most to the most uninteresting topic. The majority of the participants prefer just a summary of the topics they are interested in.

As the last question the general usefulness of an interest check was asked and all of the participants think that an interest check is useful in the context of this project.

Communication Tool

Even though only one of the participants has never used a communication tool for a group project in the past, 66% of the participants experienced that the tool was not used during the project. Reason for this was either that the project group members did see each other on a daily basis or the communication tool was obsolete besides self organized communication (via whatsapp, email, etc) or obsolete at all.
One of the most important factors of a communication tool are the participants and context: To whom would you like to communicate and on what level? The survey showed two desirable communication groups for the program participants: the mentor and colleagues (the term colleagues is rather broad and is interpreted to be other participants of the EWOR project). The scope of this communication was answered to be mainly on the project level and 89% would not want to include non-work related topics.

Since not used features of common tools should be culled, a list of features was presented to the participants and they were asked to mark the features the communication tool must contain.

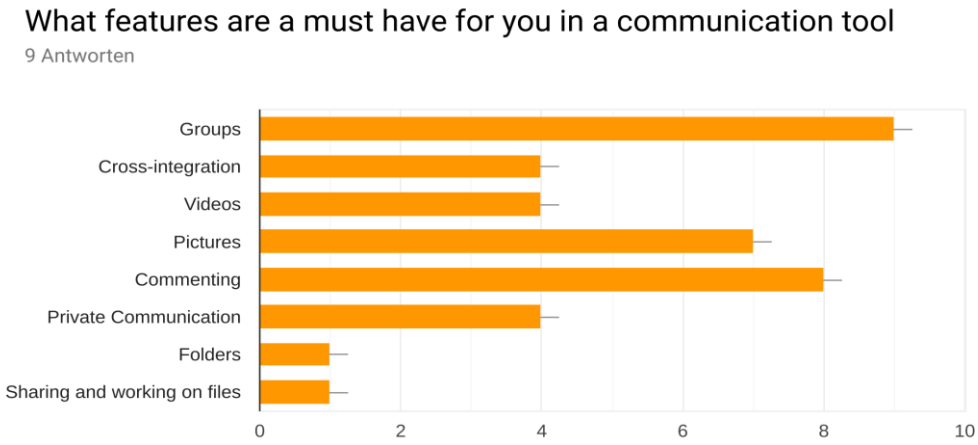


Figure 20: Answers of participants to survey about the communication tool, the three different prototypes of the interest check, which prototypes did you like the most?

The most wanted feature is the ability to have groups. It is not clear whether groups must be created and self-managed or if this just means that the communication has to be structured according to the type of communication or some other criteria, which hast to be further investigated in the process of creating this feature.
The second-most wanted feature was to be able to make comments. Again this does not fully describe the specifics of the feature nor its extent of what can be commented but acts as a foundation in which direction the functionality should be directed at. The third feature the participants would wish in a communication tool was the ability to exchange images.

These results of the communication tool give a basis for a more specific ideation process and lays the foundation for first low fidelity prototypes. Since the communication may not be a standalone component but has to be integrated into other components it is important to specify the found needs and resulting requirements first before it is implemented.

Implications

In the results section the outcome of the user study has been described for the three questions we wanted to answer. In general we can say that this test definitely gave us a deeper understanding of the user needs.

Landing Page

The observation approach we have chosen for the landing page gave us the possibility to see if the different sections of the landing page are clear to the participants. We gained the understanding that the “Skills” section was not clear enough and that a spider-diagram to display the learning progress is not intuitive. In this case one can compare task 6 with task 7 where the progress of the side quest studying is displayed with a bar, which was understood better. These conclusions are also supported by the evaluation of the timing data and the results of the landing page survey.
The course and module section was well understood and the participants were able to edit their courses and find courses they were asked to find. We also gained an understanding of the need for a challenge feature.
In general we can say that with the observation approach we need to be aware of that we can see if our prototype is performing as expected or not but since we cannot compare it to other prototypes we don’t know if it is the optimal solution. This disadvantage of the observation approach was balanced out by gaining more knowledge through the survey the participants had to fill out after they fulfilled the tasks.

Interest Check

The interest check evaluation yielded a clear winner out of three interactive prototypes. Evaluating the different interest check prototypes with the SUS method was appropriate since it also focuses on repeated tasks which will be the case with the intended functionality of being able to adjust one’s interests at any point on the platform. Therefore the process should be efficient and completion times should be low. Further subjective questions were asked to get a feeling for the satisfaction of each prototype. The best SUS score and overall individual subjective rating has been proven to be the bubble selection approach. The completion times were the shortest on this prototype as well, which further endorses the choice.
Further steps with the bubble selection feature can now be addressed and the fidelity lifted to get a more production-ready feature. It is clear that the feature should nevertheless be further evaluated in the context of the whole platform and not only as a standalone component.

Communication Tool

The survey on the communication tool and the participants’ experiences gave insight to high level needs and requirements to said feature. Even though no specific prototype has been evaluated important insights could be extracted from the survey.
The communication on the learning platform is a central tool and a lot of care should be put into the need finding process to avoid creating an unused and therefore unnecessary

communication tool. It could be of great importance to tackle some user needs identified in the initial need finding process (i.e. contact to mentor, networking) which has been conducted with potential users of the platform. On the basis of the user studies an ideation process can now be carried out with a highlight on these evaluated features. In the past, many users have not used a communication tool for their project due to already existing alternatives (such as whatsapp etc.). Therefore, a sophisticated integration to the platform and its tools might prove beneficial. Further the substance of the communication should be mainly project based.