Assignment M2

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***Abstract*—**The EdX platform is a nonprofit and open-source platform that offers various courses from different universities and entities. The courses are MOOC (Massive open online course) type, and they are available for Desktop, iOS, and Android. The current research focuses on the EDX course search interface's redesign, aiming to improve the course search and enrolment task on the Desktop platform version. The main goal is to understand the user needs, goals, and how they interact with the EDX interface and mainly with the search page to perform and evaluate a prototype interface.

1 PARTICIPANT OBSERVATION

1.1 Execution.

Location: Local university library.

Time: 7:00 Pm

Day: Monday

Location description: The room is clean; there is no background music only some background voices, but the overall environment is quiet; I am in a big room with probably 20 or 30 more people.

My overall impression of the location is favorable, everything seems tidy, and I can feel a relaxing atmosphere. The illumination is adequate, and the building design offers a non-distracting experience. The chair and desk are in place; I think I have all I need to perform my tasks.

Setting characteristic:

- Hardware: Public Desktop PC
- Processor: Core I5.
- Ram: 8 GB.
- Operational System: Windows 10.

- Monitor: 23-inch monitor, flat screen.
- Web browser: Google Chrome.

Personal feelings: I am feeling calmed, I do not have any critical or different tasks to do for the rest of the day, so I only focus on my main tasks/goal.

Role: I will take the role of an average student who wants to access the interface in his/her university library, I consider myself an experienced but not expert user.

Distractions or impediments: I do not have any visible distractions; there is no background music, and the quiet voices are not really a distractor, I can take notes freely. Also, I do not have any physical nor hardware disadvantages that might affect my performance in the tasks.

Task evaluation: Currently, I am on the main page (https://www.edx.org/); I observe several options at the top of the page (courses, programs & degrees, and School & partners). I already identified the search option; it is easily identifiable thanks to the color (red with white letters), it contrasts with the rest of the options. I click on the search button, and the action takes me to a different page, more options appear in front of me. Now I am on the search page; I can see other search options from Subject to Language; I will proceed to perform my task from this page.

Task to accomplish: I am trying to search and enroll for a particular course, but I do not remember the name of the course nor the University, I only know the subject (Circular economy)

How am I doing my task? I noticed several "Courses and Programs" all over the interface; most of the recommended courses are interesting. Still, there is no visible option to "save" the courses to watch them later. Also, I need to click on them to get more information; there is no quick way to review the course without clicking on them. There are no tags that could quickly categorize each of the visible courses.

Returning to my main task, I type "Circular economy" on the search bar, different course option appears in the search bar. I click on the search button, and a new page is displayed; I can see three results for "Programs" and 16 results for

"Courses." I quickly find the course I am looking for: "Circular Economy: An Interdisciplinary Approach," from the Wageningen University.

I click on the course image, and a new page is displayed; there is no quick way to enroll in the course from the search page. From the course page, I can see all the information related form the course: Available Sessions, About this course information, etc. A red button is available to enroll, I click on them, and the interface feedback seems correct a message is displayed with the following text: Congratulations! You are now enrolled in Circular Economy: An Interdisciplinary Approach. I am now enrolled!

Final task status: Completed

1.2 Participant observation summary.

I was able to complete the task successfully, without significant complications.

The intentions are clear; the interface allowed me to identify the correct steps to perform my task, I was able to establish the right actions to execute my task. Finally, the execution process was done correctly without any incidents.

The interface gives immediate and constant feedback for each of my actions; also, the final message establishes that my goal was achieved.

I noticed that being at the university affected my type of courses searches. To reach the library, I had to pass through the arts faculty, along with the overall architectural design of the library affected my searches. I suddenly was searching for architecture and design courses that I did not have in mind. The problem is that, as previously mentioned, there is no visible option to "save" the courses to watch them later; also, there is not a visible way to create my categories or tags that could quickly categorize each of the visible courses so that I could check them later.

1.3 Bias control.

To avoid confirmation bias and reduce the impact of some previous ideas, I came with the plan of collecting the data in two different ways, first by taking short notes while performing the task itself, and secondly by expanding and adding notes of my experiences after I performed the activity and completed the task.

I performed all the observations with a clear notion that I am not the final user; I completed all the tasks without any preconceived ideas as far as possible. I expanded my experience notes during less than 24 hours from my participant action to avoid some recall bias.

2 SURVEY

2.1 Execution.

The raw data from the survey can be found on the appendix, sections: 7.1 Survey questions and 7.1.1 survey responses table.

2.2 Summary.

I noticed that most of my respondents (76%) have a bachelor's degree and 24% have at least a master's degree; the information is obviously charged to a particular part of the population, this is because all the respondents came from the HCI course, and they should have at least a bachelor's degree to access the course. The information gathered could be used to answer the question who are the users? I could capture the feelings and needs of these particular users to create and test requirements that fulfill their expectations.

I also could observe that 95% of the people that have taken at least one MOOC use a desktop/laptop device to access the web-based interface of the MOOC applications and that 58% only access the courses in their homes. An important point to notice is that 76% have used the EDX platform at least once; the data could be used to create personas depending on the level of expertise on the interface.

The survey data gave me good insight into the user's goals; for example, 33% of the respondents selected advancing in their careers as the primary purpose of enrolling in a course, while 58% use the MOOC platforms to learn something new. I will perform future statistical analysis to capture specific correlations between categories, for example, the correlation between the number of completed MOOCs and the level of satisfaction of the search function.

2.3 Bias control.

To reduce response bias, I took some steps while designing and implementing the survey:

- The questions are designed to be neutrally worded without negative or positive connotations, avoiding leading words.
- The survey was shared via peer survey platform; I asked for participants on the Ed Participant Recruitment Thread. All the participants had an equal opportunity to answer the survey.
- The survey responses are entirely anonymous.
- I tried to design the survey to avoid social desirability bias by avoiding questions that might lead to an "appropriate answer." For example: Do you think education is good?

3 THINK ALOUD

3.1 Execution.

The notes and data gathered can be found in appendix section 7.3 section.

3.2 Summary.

The think-aloud process was performed under certain conditions. Firstly, the overall strategy and goals were introduced to the participant; I explained the general tasks and requirements. Secondly, I gave the participant the consent form; he/she read it and signed without any doubt that his/her privacy would be respected; the consent document sample can be found in Appendix 7.2. Thirdly I proceed to present the interface and some tasks that I previously created. I accompanied the participant during the whole process; I took about the user performance, decisions, and thoughts. Finally, once all the tasks were completed, I asked if the user had any questions, and once all the questions were answered, I thanked him/her for his/her time and effort.

The data gathered from the think-aloud activity proved extremely valuable because it gave a different panorama of how a completely new user would use the interface to search a course. Overall, the user interaction was constant, I noticed some troubles while searching for specific functions, but overall, the user did the tasks without significant issues.

3.3 Bias control.

The observer bias is probably the most common bias during the think-aloud process; that is why I took actions to prevent or reduce the bias generated by my

interaction with the user. The first control that I took to avoid bias was the idea to implement a predefined action script that I rigorously followed. The actions script contained a series of steps that described the overall process of the task execution. The task flow was not interrupted during the activity, even if the participant asked some questions.

Also, to avoid some social desirability bias, I informed the participant that I was not the designer of the interface and that we were not part of the study; thus, the participant could relax and provide meaningful insights during the activity.

4 DATA INVENTORY

Thanks to the data gathered on the previous need-finding exercises, I filled my data inventory by answering the following questions.

4.1 Who are the users?

I identified my focus users as bachelor's or masters' students, under an age range ranging from 18 to 49. I choose to take this group based on the data gathered from my survey, and by performing the participant observation activity, I noticed that all the potential users had more than 18 years.

4.2 Where are the users?

I identify that most users access the interface while they are in their homes; 100% of the survey participants usually access their courses in their homes, and 58% only access their courses at home. The think-aloud method gave me insights into why the participant would prefer his/her home as their preferred location.

4.3 What is the context of the task?

I think I have not gathered enough data to be able to categorize different contexts. Previously I argued that the task context is based on different characteristics, for example:

- Physical location.
- Constraints
- Resources.

But still, I do not have enough data to construct the different contexts under the task that might be occurring.

4.4 What are their goals?

I was able to identify two main goals of why the users search and enroll in a MOOC. The first goal is based on the observation that 58% of respondents search and enroll in a course to learn something new. As the participant, I also observed the last goal while walking into the library and arts faculty (while acknowledging that I am not the final user). The second goal that I identified was that most of the rest of the users usually search and enroll in a course to advance in their careers; this is based on 33% of participant answers.

4.5 What do they need?

The think-aloud and participant observation methods allowed me to infer some of the needs that I will define as future requirements, for example, the ability to "save" the courses to watch them later or a faster and easier way to review a course without clicking on it. I was able to capture the user needs on both need-finding methods.

4.6 What are their task and subtasks?

Again, the think-aloud and participant observation methods were helpful to find and portray the main task and subtask, for example:

- Find a course based on the course name.
- Find a course based on the university.
- Check if the course has available sessions.
- Enroll in the course.
- Explore courses based on subject interests.

Some of the previous tasks and subtasks were identified during the think-aloud activity, while others came during the development of the participant observation main task.

5 DEFINING REQUIREMENTS

I will evaluate my prototype mainly by two methods. Firstly, with an empirical evaluation session. Different users will use the redesigned interface during the testing session, and I will ask them to perform a specific task based on section 4.6 (What are their tasks and subtasks). The gulf of evaluation and gulf of execution will be analyzed based on the participant's feedback.

Secondly, I will follow specific Heuristics evaluation rules that will be evaluated, by external users, for example:

- Visibility of the system options
- By keeping consistency with the rest of the EDX platform.
- By offering flexibility depending on the user experience.
- The added features should be easy to find and quick to access and.

The requirements will be categorize based on different attributes:

Functionality: The re-design interface must create custom categories; under these categories, the user could add and save courses based on his/her interests. Also, the new interface will create custom learning paths based on the user's goals.

Usability: Adding courses to the different user categories should not affect the general experience of enrolling in the course. Also, a new quick view feature will be added to give the user a brief description of the course without clicking on the course; by just passing the cursor above the course image, the interface will display the general information and course characteristics.

Learnability: The learning curve of the interface will be measured during empirical evaluations. The interface invisibility cycle must be adequate to spend more time thinking about the task and not in the interface itself.

Accessibility: I will ensure that all types of users could use the new interface; it will not matter the level of expertise or if they are looking to enroll in their first MOOC. A heuristic evaluation will measure the accessibility.

6 NEEDFINDING NEXT ITERATION

As previously mentioned, I could not answer the question: What is the context of the task? So far, I have not seen nor identified new types of questions that might help me during my redesign project.

To answer the missing questions, I will implement and conduct some interviews to strengthen and expand my data inventory. I will try to answer some of the questions that were not answered based on the user constraints and how their resources could affect or create a different context for the goal and tasks.

7 APPENDIX

7.1 Survey questions.

Q1: What's your age?

Q2: Which gender do you identify with?

Q3: What is the highest degree or level of education you have completed?

Q4: Have you enrolled in a MOOC?

Q5: What is your purpose for enrolling in a MOOC?

Q6: On how many MOOCs have you enrolled in?

Q7: How many MOOCs have you finished?

Q8: Which MOOC application have you used?

Q9: If Other was selected, please specify which ones.

Q10: Where do you usually access the MOOC interface?

Q11: If Other was selected, please specify which one.

Q12: Which Platform do you mostly use to access your courses?

Q13: If Other was selected, please specify which one.

Q14: Have you ever used the Edx platform?

Q15: How did you find your last EDX course?

Q16: If Other was selected, please specify which one.

Q17: Overall, how satisfied, or dissatisfied are you with the Edx search function?

7.1.1 *Survey responses.*

#	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17
1	18-29	Male	Bachelor´s Degree	Yes	Advance in my career	1	0	Udemy		Home		Web - desktop		No			Neither satisfied nor dissatisfied
2	30-39	Male	Bachelor´s Degree	Yes	Advance in my career	2	1	Other	Upgrad	Home		Web - desktop		No	Online Ad		Somewhat satisfied
3	18-29	Male	Bachelor´s Degree	Yes	Learning something new	1	1	Coursera		Home		Web - desktop		No	Other		Neither satisfied nor dissatisfied
4	40-49	Male	Bachelor´s Degree	Yes	Advance in my career	6	6	Coursera; EDX	n/a	Home		Web - desktop		Yes	MOOC platform search function		Very satisfied
5	50-65	Male	Bachelor´s Degree	Yes	Learning something new	15+	15+	Coursera; EDX;Udemy		Home		Web - desktop		Yes	MOOC platform search function		Somewhat satisfied
6	30-39	Female	Bachelor´s Degree	Yes	Advance in my career	9	3	Coursera; EDX;Udacity		Home ;Office		Web - desktop		Yes	Internet search engine (google,		Neither satisfied nor dissatisfied

															Bing, DuckDuckGo, etc.)		
7	18-29	Male	Bachelor´s Degree	No	Other	1	1	Udacity		Home ;Office		Web - desktop		No	Internet search engine (google, Bing, DuckDuckGo, etc.)		Neither satisfied nor dissatisfied
8	30-39	Female	Bachelor´s Degree	Yes	Learning something new	4	4	EDX;Udemy		Home ;Office		Web - desktop		Yes	Internet search engine (google, Bing, DuckDuckGo, etc.)		Somewhat satisfied
9	18-29	Male	Bachelor´s Degree	Yes	Learning something new	5	2	Udemy		Home		Web - desktop		Yes	Online Ad		Neither satisfied nor dissatisfied
10	18-29	Male	Master´s Degree	Yes	Learning something new	20	13	Coursera; EDX;Udacity;Udemy		Home ;Office ;Coffee Shop;		Web - desktop		Yes	MOOC platform search function		Somewhat satisfied

										Library							
11	40-49	Male	Bachelor´s Degree	Yes	Advance in my career	5	2	Coursera;EDX;Udacity;Udemy		Home		Web - desktop		Yes	MOOC platform search function		Somewhat satisfied
12	18-29	Female	Bachelor´s Degree	Yes	Advance in my career	5	5	EDX		Home		Web - desktop		Yes	Internet search engine (google, Bing, DuckDuckGo, etc.)		Neither satisfied nor dissatisfied
13	30-39	Female	Bachelor´s Degree	Yes	Learning something new	10	5	Coursera;EDX;Udacity;Udemy		Home;Office		Web - desktop		Yes	Internet search engine (google, Bing, DuckDuckGo, etc.)		Neither satisfied nor dissatisfied
14	30-39	Male	Bachelor´s Degree	Yes	Learning something new	2	1	Coursera;EDX		Home		Web - desktop		Yes	Internet search engine (google, Bing,		Somewhat satisfied

															DuckDuckGo, etc.)		
15	18-29	Male	Bachelor´s Degree	No													Neither satisfied nor dissatisfied
16	18-29	Male	Bachelor´s Degree	Yes	Learning something new	10+	10+	Coursera; Udemy		Home ;Office		Web - desktop		Yes	Internet search engine (google, Bing, DuckDuckGo, etc.)		Somewhat satisfied
17	18-29	Male	Bachelor´s Degree	Yes	Advance in my career	7	3	Coursera; Udemy		Home ;Public Transportation		Web - desktop		Yes	Internet search engine (google, Bing, DuckDuckGo, etc.)		Somewhat satisfied
18	30-39	Female	Master´s Degree	Yes	Learning something new	5	2	Coursera; EDX;Udemy		Home		Web - desktop		Yes	MOOC platform search function		Somewhat satisfied

19	30-39	Female	Master´s Degree	Yes	Learning something new			EDX		Home		Other	laptop	Yes	MOOC platform search function		Somewhat satisfied
20	18-29	Female	Bachelor´s Degree	Yes	Advance in my career	3	3	Coursera;EDX;Udacity		Home;Office		Web - desktop		Yes	Other	Part of the OMSA program	Neither satisfied nor dissatisfied
21	30-39	Male	Master´s Degree	Yes	Learning something new	> 20	30	Coursera;EDX;Udacity;Udemy		Home;Library		Web - desktop		No	Internet search engine (google, Bing, DuckDuckGo, etc.)		Neither satisfied nor dissatisfied
22	40-49	Male	Master´s Degree	Yes	Other	8		Coursera;EDX;Udacity;Other	FutureLearn	Home		Web - desktop		Yes	Internet search engine (google, Bing, DuckDuckGo, etc.)		Somewhat satisfied

23	30-39	Female	Bachelor´s Degree	Yes	Learning something new	10+	10+	Coursera;EDX;Udacity;Udemy		Home;Public Transportation		Phone/Tablet App		Yes	MOOC platform search function		Neither satisfied nor dissatisfied
24	40-49	Male	Bachelor´s Degree	Yes	Learning something new	4	2	Coursera;EDX;Udacity;Udemy		Home		Web - desktop		Yes	MOOC platform search function		Somewhat satisfied
25	40-49	Female	Master´s Degree	Yes	Learning something new			Coursera;EDX;Udacity;Udemy		Home		Web - desktop		Yes	MOOC platform search function		Somewhat satisfied

Table 1 — Raw data from the performed surveys.

7.2 Consent Form, Think aloud method.

Adapted from: http://hci.ilikecake.ie/eval_thinkaloud.htm.

Consent Form.

Administrator name: _____

Participant Name: _____

This is a study about capturing the overall experience of having to search and enroll for a MOOC course on the EDX interface, it is intended for people who have little to non-experience in enrolling MOOCs. My goal is to make the EDX course search function appealing, intuitive and user friendly. Your participation will help me achieve this goal.

In this session you will be working with the Web based interface of the EDX platform. I will ask you to perform tasks a typical user might do, such as access the page, search for a specific course and search for a course based on your own interest. I will sit in the same room, quietly observing and taking notes.

All information collected will be used for internal purposes. I will not videotape and/or audiotape the session. I may publish our results from this and other sessions in my reports, but all such reports will be confidential and will not include your name.

This is a test of the software. I am not testing you. I want to find out what aspects are confusing, so I can make it better. You may take breaks as needed and stop your participation in the study at any time.

Statement of Informed Consent

I have read the description of the study and of my rights as a participant. I voluntarily agree to participate in the study.

Print Name: _____

Signature: _____

Date: _____

7.3 Think aloud notes.

Participant's characteristics:

Location: Home

Device: PC

Age: 25

Gender: Female

Highest degree or level of education: Bachelor's degree

Number of MOOCs previously enrolled: 0

Previously used the EDX platform? No

Level of expertise: Novice

Tasks

Task #1: Search find and enroll a previously mentioned course.

Me: Please go the page www.edx.org and try to find and enroll in the course: "Software Engineering: Introduction". While you are performing the task, I would like to remember you that I need you keep talking about your thoughts and ideas while performing the task. If you have any questions, please feel free to ask.

Subject: Ok, so, currently I am on the main page. On the top I can see several options, I clicked courses, but it appears that only displays a list of more options based on different subjects. I might try to find the course based on the subject, but I think it will be easier to use the option bellow. I see a big red button with the label search and on the left I think I can search the course from there.

I will type the course name on the white box, and I make click on the search button. Ok now I am on a different page, I can see my previously search, and I see that there are 6 results on the top of the page, but I don not know why they are called programs, because bellow those options I see that there are 35 results labeled as courses.

On the course option I can see what I think it is the course that I am searching for, I will make click on it. Ok now I am on a different page, it appears to be main page of the course, so I think I am doing fine. On this new page I can see more information for example that the course is being administrate by the University of British Columbia and that there is one session available.

There is a big red button with the label: "Enroll now" so probably that is the button I must press to enroll into the course. Before making click on the button I will check the rest of the information, it looks interesting. It is quite nice that the general information is being displayed on right, I can see the length and price of the course.

There is still some information that I don't understand for example: the screen tell me that the course belong to a associate program called: "Micromasters program" and does the verified certificate have some type of curricular value?, if they have it could be interesting to see all the different options.

Ok probably I am doing things that I am not allowed.

Me: No do not worry, what you are doing is just fine, do not contain yourself, you can explore different things

Subject: I think I will just click on the "Enroll now" button, I clicked the button and now a different page tells me that I am now enrolled in the course. Great

Me: Congrats you did perfectly. Do you have any comments about your general experience?

Subject: I was excited when I saw the option to certificate the course, I always wanted to study more about design, I think the platform represents a great opportunity for person like me that want to change careers, I think I will explore the platform more after the activity, I wonder if there is an option to create my own curriculum?

Me: I think that would be all, again thank you so much for your time, I really appreciate it.

Subject: No problem thanks for introducing me the page.