HCI CW3 Individual Report

Greig Huth s1532620

1 CW1 Design Group Number

Group 87

2 Link to the original mockup

Link to old Figma Mockup
Link to new Figma Mockup

3 Personas

Persona 1 (Cameron)
Persona 5 (Francis)

4 CW2 Outcome Summary

Group 88 identified three heuristic violations with the original mock-up:

- Lateral Navigation bar violates heuristic #6 *Recognition rather than recall*. They thought that users would be confused by where to find things because only a small number of elements can be displayed in this format.
- Lectures are not organised by week and this violates heuristic #7 *Flexibility and efficiency of use* They thought that this violation would make it hard to find specific lectures.

I have elected to ignore the third heuristic as I believe it contradicts itself. It says that both the presence and lack of help documentation are problems with the design. Because of this ambiguity in the evaluation I am going to ignore it for the remainder of the report.

They designed 4 tasks to run their evaluation with:

- **Task 1** - This task looked to evaluate the navigation bar by asking participants to retrieve information from the Course Information page. They found that some participants were confused by the labelling in the navigation bar, but were able to still complete the task quickly.

- **Task 2** - This task looked to evaluate the lecture page by asking participants to work out which lectures have been watched. It was split into two steps: find the lectures covered in week 1, then, find the lectures that have been watched. Five out of eight participants were able to complete step 1 but with difficulty, they had to jump between different pages multiple times before they found the information. Additionally, some users had trouble understanding what the colours in the lecture cards meant.
- **Task 4** - This task looked to evaluate the search function by asking users to use it and find search results. Some users had trouble finding the page due to the lack of confirmation button to allow users to easily see when their query was accepted. They also found that some users did not understand the results and thought that the specific content that matches their query should be highlighted in some way, despite the fact that it already was.

I have elected to ignore their third task. Firstly it is asking participants to find something that doesn't exist in the mock-up therefor it is not evaluating something the original problem definition tried to solve. Secondly, they did not elaborate on the results they got in the report. They claim that no one was able to complete the second part of the task but they did not say why or detail any of the participants experiences in the report. Consequently, I have no basis to work from to make any changes to the design aspects covered by this task.

5 Problem Description

The following is the list of problems my redesign will be addressing:

- Content is hard to find, it can often be split over multiple pages or areas of the page (like coursework grades) and this makes finding information take more time than it needs to. There is also no way to search for specific strings in the course content, this means that you either have to remember the location of the information you're looking for, or hope the course has it well laid out so its easier to find.
- Currently there is no way to track progression through course materials within Learn. Having a system that does this automatically would greatly help users manage their time. More time could be spent actually engaging with course content instead of trying to work out what you need to do.
- Page navigation in learn is cumbersome, the side menu does not scroll with the page so if you want to navigate to a new page you must scroll all the way back to the top of a page, this is particularly bad as pages on learn tend to be large with lots of information.

6 Design Improvements

The three design aspects I focused my improvements on were the horizontal navigation bar (2), the Lectures page (4) and the Search Results page (6).

6.1 Navigation Bar

New Screen - (2)
Old Screen - (3)

The first improvement I made was renaming some of the labels in the navigation bar. Group 88 found that most users had at least some confusion about the labels. In particular participants had trouble with the "overview" label. Participants thought it would lead to more general course information rather than an overview of the course schedule. This was a common misinterpretation so I changed the label of the course schedule page from "overview" to "schedule". I believe schedule more accurately describes the content on that page.
Another change I made was to the colour of the navigation bar. One of the recommendations group 88 made was to change the navigation bar to something that has a high contrast with the other colours. This is supported by one of the tasks as 3 of the participants habitually ignore the search box and as such had trouble doing one of the tasks. To that end, I thought that changing the colour to Medium Turquoise (hex code #69DFDF) would provide enough contrast such that these users who ignored the search box may find it more noticeable. Following on, I also redesigned the search box. I added a border around the input box to make it stand out more against the background and added a confirmation button to give users an explicit method to confirm their query. The button has a drop shadow to afford pushing. This was another point mentioned in the recommendations section.

6.2 Lectures Page

New Screen - (4)
Old Screen - (5)

The first improvement I made was to organise the lectures by weeks. Group 88 found that all users had trouble with this page, they would check the lecture page and not be able to work out which lectures were in which week and this lead to a lot of time being wasted rechecking different pages. This was also a recommendation left at the end of the report. Each week has a heading with the date that week started, with the lecture cards located underneath this heading. They are currently in groups of three but this is arbitrary, it could be changed to accommodate any number of lectures per week. The layout also follows the gestalt principle of proximity, lectures in the same week are much closer to each other than they are to other lectures in other weeks.
The second change I made was to the colour coding, originally there were three colours: green, amber and red. These three colours were meant to represent the different states of engagement one may have with course materials(green for completed, amber for partly completed and red for uncompleted). Group 88 discovered that users found this system confusing, and repeatedly had to go back to the schedule page to remind themselves of the different meanings. This was a substantial problem so I reworked it into a binary system. There are now only two states, completed and uncompleted which are represented by a green filled box with a tick and an empty

box. I chose a green box with a tick because I wanted to use green since most people associate this with "completion". The original colours we used present large accessibility problems for users with red-green colourblindness. This is the most common form of colour blindness so I wanted to address it in some way. My solution involved using an empty box to show the absence of something. This tells the user that something is missing but doesn't rely on colours. This is also the reason why I included a "tick" to go along with the green shading.

6.3 Search Results Page

New Screen (6)
Old Screen (7)

The first improvement I made was to the query match highlighting. In the original design, the search page would highlight text if it matched your query. However this highlighting was not very visible and didn't have many examples so when group 88 were doing their evaluation, themselves and the participants thought that the feature didn't exist at all. Because of this, I improved the highlighting, making it more bold to make sure it stands out against the rest of the text.
The second improvement was to the result location. In the original design, the text on the left had side of the boxes was supposed to represent the location in the site where the query match was found and it was the intention that the user would click this to navigate to the relevant page. Group 88 found that users did not understand that this is what the text was trying to convey and found that user wanted this feature specifically. To that end, I made the text blue and underlined it to keep in line with how links are commonly represented on web pages. The way this text is laid out is with the following format "Page query was matched in -¿ Element in page query was matched in -¿ Document query was matched in". I defined a more rigid structure to clarify where exactly in the page the query is being matched.

6.4 Storyboard

6.4.1 Scenario

This scenario is detailing the use case showcased in figure(1).

When the user first accesses the web-page they land on the "Schedule" page. They want to start working on coursework 3 so they navigate to the "Assessments" page to find out more details about the coursework. After arriving at this page the user will look at the different cards and scroll down to the one labelled "coursework 3". They read the description and look at the associated links. They see the link that mentions storyboards, they don't seem to remember this topic very well so they decide to use the search function to find out more. After inputting "storyboards" into the search box they are met with the search results page. On this page they notice there is a lecture about storyboards so they click the link to get to the lectures page. They see from the left hand side of the card that they haven't watched this lecture yet so they click on the thumbnail and are taken to media hopper relay to watch the lecture.

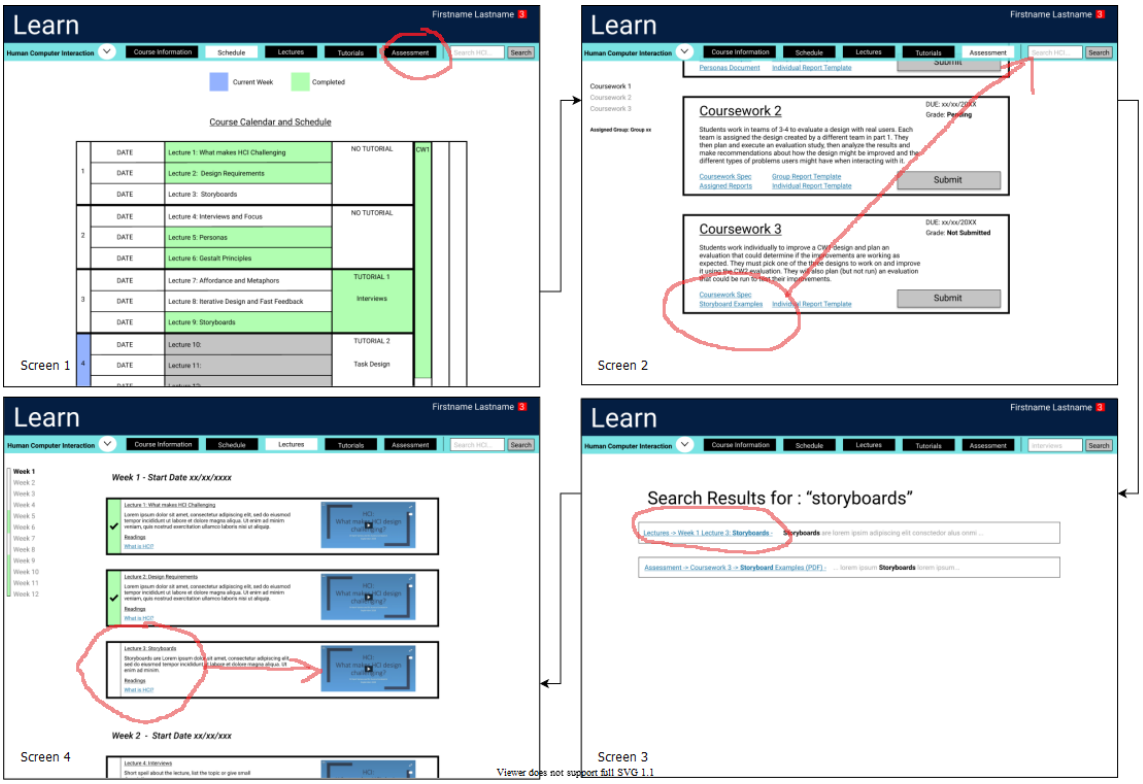

Figure 1: Storyboard, order of screens is clockwise

7 Methodology Introduction

I will use a "Task Design" study for the evaluation. This works by designing tasks that attempt to evaluate key areas of the design. The participants are not asked talk through their thoughts while the task is being run. This allows the participants to focus on the task without the pressure of dialogue during the task. Following each task I would have a short discussion with the participant about the task. This is to allow participants to give their thoughts as they are fresh in their head and not have to worry about recalling specifics during the post-study interview.
The tasks i have detailed will allow me to focus on the design aspects i have worked on. Since one of these aspects is the navigation bar which is integral to every page in the design, i felt like task design was the right approach as every task will contribute feedback regarding this aspect.
I plan to use a semi-structured interview style. This style allows for focused answers to the questions I ask but also allows the participants to expand and take the discussions in directions I may not have considered.

8 Methodology

8.1 Advertisement and Participation

I plan to contact University of Edinburgh students in the societies I participate in through either Facebook Messenger or Discord. I want to restrict the participants to UofE students because they are familiar with learn and are the target audience for the mock-ups we are designing. I would be looking to find at least 5 participants, and would try to select participants from a range of ages and degree programmes, excluding HCI students as they would be too familiar with the coursework to get unbiased results.

8.2 Protocol

8.2.1 Pre-study brief

I would start by inviting the participant to a Microsoft Teams VoIP call. Me and my partner would introduce ourselves and the study. The consent form the participant is required to sign details what data we are going to be recording, but the participant will again be reminded that both their screen and the call will be recorded for future reference, while keeping in line with GDPR. We also want to remind them that all of their options are valid and valued. We will then send them the link to the mock-up, remembering to tell them to not interact with the mock-up before the task has been given.

8.2.2 The Study

Then we move on to the tasks, the first task will be presented audibly to the user and a timer will be started as soon as the explanation is finished and stopped as soon as they give audible confirmation of completing the task. If the participant is having trouble after 90 seconds they will be given a prompt to assist them, if they still cannot complete the task after 180 seconds it will be recorded as a DNF. After the task is done we will ask some basic questions about how the participant found it and if they have any thoughts to share. These steps will be repeated for each task in the study.

8.2.3 Post-study interview

After all the tasks have been completed we will ask for consent to give a short post-study interview. If they agree then we will go on to ask a few questions about what they thought of more specific aspects of the design as well as their thoughts compared to what is already offered by the university.

8.3 Tasks

I have deliberately chosen tasks that either cover the same things as group 88 or cover similar things as thier tasks. The reason for this is so I have some frame of reference for comparison.

- **Task 1 - Find out which coursework you still need to submit for this course and then check the exam/work weighting.** This task will allow me to evaluate the improvements made to the navigation by asking the user to navigate to multiple pages to find different pieces of information.
- **Task 2 - Find out which lecture you still need to watch in week 2** This task is very similar to a task group 88 used. This task will allow me to evaluate the changes made to the lecture page, by asking them to interact with a new feature I added.
- **Task 3 - Search for all the material relating to "interviews"** Because Figma is simply a mock-up tool this task is simply showcasing how the search box hypothetically would be used. This task will help me evaluate the changes made to the search box in the navigation bar as well as the changes made to the search results page.

8.4 Running the study

I would recruit someone to help me run the study. From my experience with coursework 2, having two people available to share the load of note taking and question asking was a huge benefit. The minimum number of participants I would like to study would be 5 but I would consider more. The number of tasks is quite small and given that it took an average of 25 minutes per person last time I would anticipate this study to take around 15-20 minutes. With a minimum of 5 participants this would mean the whole study would take around 90 minutes to complete. With each participant, audio of the dialogue and a video of the participants doing the tasks will be recorded. This worked well last time as it allowed us to review the studies and clarify points we may have missed at the time. I intend to run the full protocol for every participant, however I am aware that not all the participants may be able to complete all the tasks so I will handle this on a case by case basis.

8.5 Analysis

I will use both qualitative and quantitative analysis methods.

8.5.1 Quantitative Methods

For each participant doing each task I will record how many seconds it takes them to complete it, starting from when I finish explaining the task to when the participant gives audible confirmation that they completed the task. This allows me to judge how difficult a participant found a task. I can also use this data to look at the variance between participants and the mean time it took

the participants to complete each task. These values will help me decide how difficult the tasks were overall. I can then compare this to my predictions of how difficult I think the tasks should be. The disparity in these values is what I need to decide if my improvements to the design have worked.

8.5.2 Qualitative Methods

I plan to use content coding to summarise transcripts of the post task discussions and post-study interviews. I want to identify patterns in the participants reasoning to get insight into how they feel about the design while they're using it. In vivo coding will let me compare how different users felt about the same task in their own words and descriptive coding will help me focus their thoughts into summaries that I can also compare.

8.5.3 Comparisons to old design

As stated in section 8.3 I have chosen tasks that are similar or the same as tasks that group 88 used. The purpose of this it to maintain a clear line of comparison between these designs. I can compare my quantitative analysis by direct comparison of the times taken and variance/mean values. This will tell me how much harder or easier participants found the tasks in each design. I can compare my qualitative analysis by looking at the transcript content coding for each participant and task. I can compare these summaries to look at how differently people feel about the designs.

A Study materials

Participant Consent Form

Project title:	Evaluating a new potential design for Learn
Principal investigator (PI):	Dr Kami Vaniea (kvaniea@inf.ed.ac.uk) Dr Aurora Constantin (Aurora.Constantin@ed.ac.uk)
Researcher:	Greig Huth

By participating in the study you agree that:

- I have read and understood the Participant Information Sheet for the above study, that I have had the opportunity to ask questions, and that any questions I had were answered to my satisfaction.
- My participation is voluntary, and that I can withdraw at any time without giving a reason. Withdrawing will not affect any of my rights.
- I consent to my anonymised data being used in academic publications and presentations.
- I understand that my anonymised data will be stored for the duration outlined in the Participant Information Sheet.

Please tick yes or no for each of these statements.

1.	I agree to being audio recorded.	☐ **Yes**	☐ **No**
2.	I agree to the screen in this session being video recorded by the researchers.	☐ **Yes**	☐ **No**
3.	I agree to take part in this study.	☐ **Yes**	☐ **No**

Name of person giving consent	Date dd/mm/yy	Signature (ok to type it)
Name of person taking consent	Date dd/mm/yy	Signature (ok to type it)

Participant Information Sheet

Project title:	Improving the usability of courses and Learn
Principal investigator:	Dr Kami Vaniea and Dr Aurora Constantin
Researcher collecting data:	Greig Huth

This study was certified according to the Informatics Research Ethics Process, RT number 1432. Please take time to read the following information carefully. You should keep this page for your records.

Who are the researchers?

The research is being carried out as part of the Human-Computer Interaction course at the University of Edinburgh. The course is taught by Dr Kami Vaniea and Dr Aurora Constantin. Today's study is designed and run by Greig Huth who is a student in the course.

What is the purpose of the study?

The purpose of this study is to explore alternative ways to present course content on Learn. The University has the goal of creating a more consistent educational experience for students by putting most courses onto Learn. The goal of this research is to look at different ways Learn and the courses on Learn can be best presented to students to create a usable and educational experience.

Why have I been asked to take part?

We are looking for people who have experience with University courses and possibly also Learn. You have been asked to participate because we believe that you have this type of experience.

Do I have to take part?

No – participation in this study is entirely up to you. You can withdraw from the study at any time. After this point, personal data will be deleted and anonymised data will be combined such that it is impossible to remove individual information from the analysis.

Your rights will not be affected. If you wish to withdraw, contact the PI. We will keep copies of your original consent, and of your withdrawal request.

What will happen if I decide to take part?

You will be interacting with a design prototype of an Informatics Learn course. The session should take about 15-20 minutes. We will ask you to do some normal student-type activities such as trying to find information about assessment deadlines and where to find lecture recordings. During the session we will ask you to share your screen with us so that we can watch you interact with the prototype. If you agree, we will video record the session so that we can review it in more detail later. There will also be a short follow-up interview at the end of the session. Our goal is to understand how well the prototype supports students, so seeing you interact with the prototype will greatly help us understand where it supports you well and where it can be improved.

Are there any risks associated with taking part?

There are no significant risks associated with participation.

Are there any benefits associated with taking part?

There are no direct benefits from taking part in this study other than the knowledge that you have helped us complete our coursework and possibly also helped the University better understand student's needs around course website design.

What will happen to the results of this study?

The results of this study may be summarised in published articles, reports and presentations. Quotes or key findings will be anonymized: We will remove any information that could, in our assessment, allow anyone to identify you. With your consent, information can also be used for future research. Your data may be archived for a maximum of 1 year. All potentially identifiable data including consent forms will be deleted within this timeframe if it has not already been deleted as part of anonymization.

Data protection and confidentiality.

Your data will be processed in accordance with Data Protection Law. All information collected about you will be kept strictly confidential. Your data will be referred to by a unique participant number rather than by name. Your data will only be viewed by the researcher/research team Greig Huth

All electronic data will be stored on a password-protected encrypted computer, on the School of Informatics' secure file servers, or on the University's secure encrypted cloud storage services (DataShare, ownCloud, Microsoft Office365, or Sharepoint).

What are my data protection rights?

The University of Edinburgh is a Data Controller for the information you provide. You have the right to access information held about you. Your right of access can be exercised in accordance Data Protection Law. You also have other rights including rights of correction, erasure and objection. For more details, including the right to lodge a complaint with the Information Commissioner's Office, please visit www.ico.org.uk. Questions, comments and requests about your personal data can also be sent to the University Data Protection Officer at dpo@ed.ac.uk.

Who can I contact?

If you have any further questions about the study, please contact the lead researcher, Silver Campbell <s1610745@ed.ac.uk>. Or the Human-Computer Interaction course instructors Dr. Kami Vaniea <kvaniea@inf.ed.ac.uk> and Dr. Aurora Constantin <Aurora.Constantin@ed.ac.uk>.

If you wish to make a complaint about the study, please contact Greig Huth <s1532620@ed.ac.uk> or inf-ethics@inf.ed.ac.uk. When you contact us, please provide the study title and detail the nature of your complaint.

Updated information.

If the research project changes in any way, an updated Participant Information Sheet will be made available on https://web.inf.ed.ac.uk/infweb/research/study-updates.

Alternative formats.

To request this document in an alternative format, such as large print or on coloured paper, please contact Greig Huth s1532620@ed.ac.uk

General information.

For general information about how we use your data, go to: edin.ac/privacy-research

Lab Study Protocol

1. Send PIS to all participants
2. Send consent form to all participants
3. Send instructions about how to participate (e.g. Teams meeting invite) to all participants
4. Remind participants of the points in the consent form, and ask if they are ok with them
    a. Remind them of the screen recording
    b. Remind them of the audio recording
    c. Remind them of the post-interview
5. Ask them to open a new browser window and turn on screen sharing for that window
6. Send them the link to the mockup and wait for them to load it
    a. Ask them to press the 'present' button if required
7. Make sure to let the participant know that they are to NOT interact with the mockup before the tasks start.
8. Present the task audibly. Make sure to record the time taken from the task, starting from when you finish presenting the task, to when the participant gives audible confirmation of completing the task.
9. Ask the participant how they feel about the task, only looking for general thoughts and feelings at this stage.
10. Repeat this for all the tasks.
11. Ask the participant if they are willing to do a post-study interview.
12. Conduct interview if given consent
13. Stop recording after interview is done
14. Thank the participant for their time and end the meeting.

Lab Study Script

Hello, we are carrying out this research as part of the Human-Computer Interaction course at the University of Edinburgh. We are researching alternative designs to UoE's blackboard Learn website with the use of a prototype mockup design. We will ask you to perform several tasks to help us evaluate certain aspects of the design. As mentioned in the consent form, we will be recording your screen and audio as well as a post-study interview. Please remember that your opinions are valued, and that there are no wrong answers. Say whatever comes to your mind. Please open a new browser window and open the link to the design we have just sent you. Press the present button, and make sure to select user test mode. We will begin recording now. I will read the task aloud for you. If you would like me to read it aloud just let me know. Please say 'done' when you think you've finished.

TASKS:

1. Find out which coursework you still need to submit for this course.
2. Find out which lecture you still need to watch in week 2.
3. Search for all the course material relating to the string "interviews".

That was the last task! Are you happy to do the post-interview too? We have just a few additional questions. We will continue recording audio but not the screen.

Post-Interview Questions

1. What did you think of the horizontal navigation bar? Is the information presented clearly and does the order make sense?
2. How does this horizontal navigation menu compare to the vertical one used by learn currently?
3. How did you feel about the colour coding? Did you understand what its purpose was?
4. Comparing this mockup to the learn interface that is currently in use, which do you prefer and why
5. Do you have any further comments about your experience with this prototype design?

That's it! Thank you very much for your time. We'll end the call now. Bye!

B Mockup Screenshots

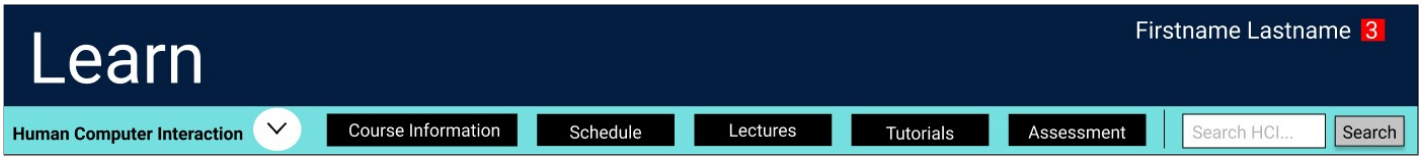

Figure 2: New "Navigation Bar"

Figure 3: Old "Navigation Bar"

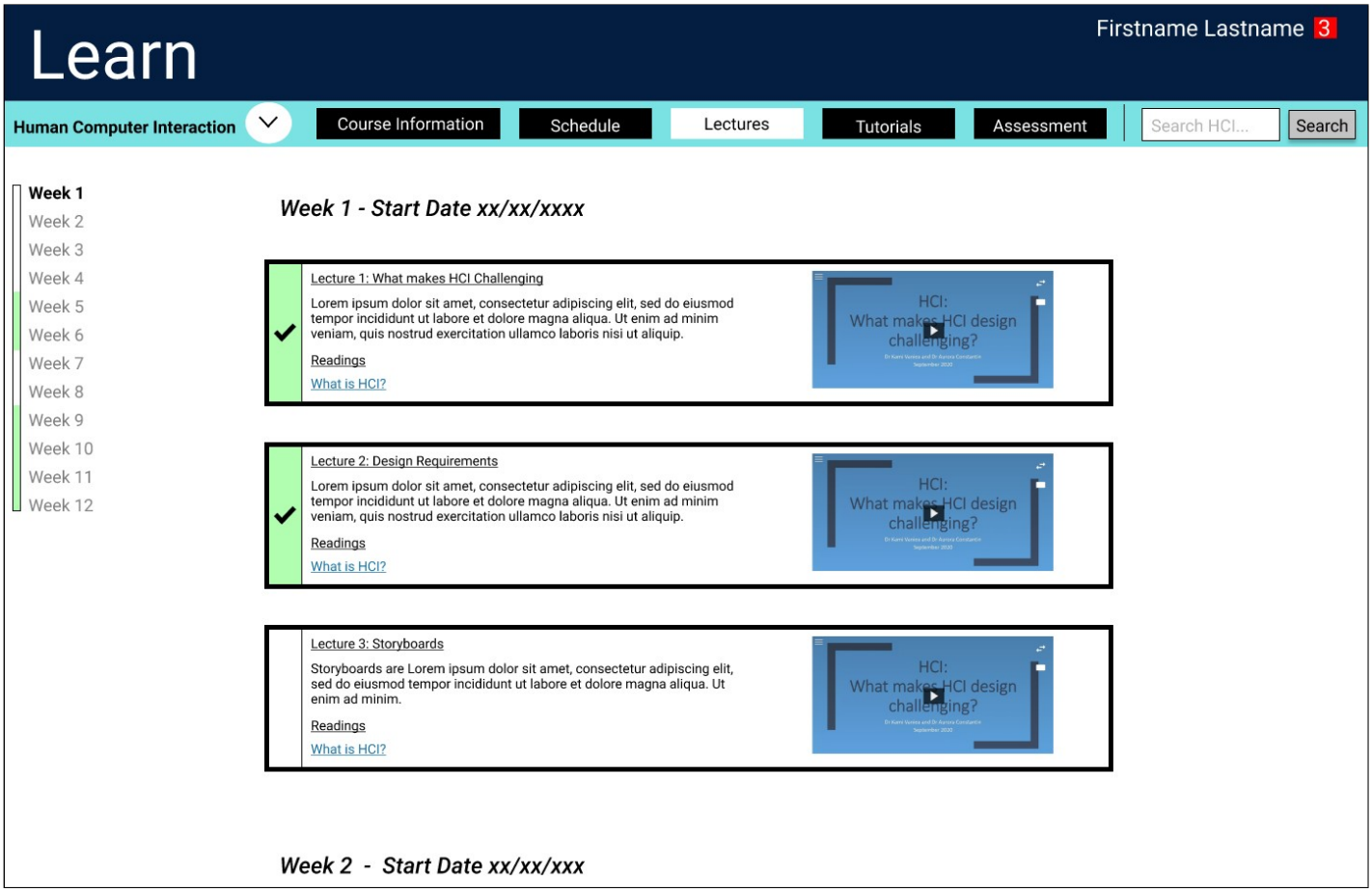

Figure 4: New "Lectures" Page

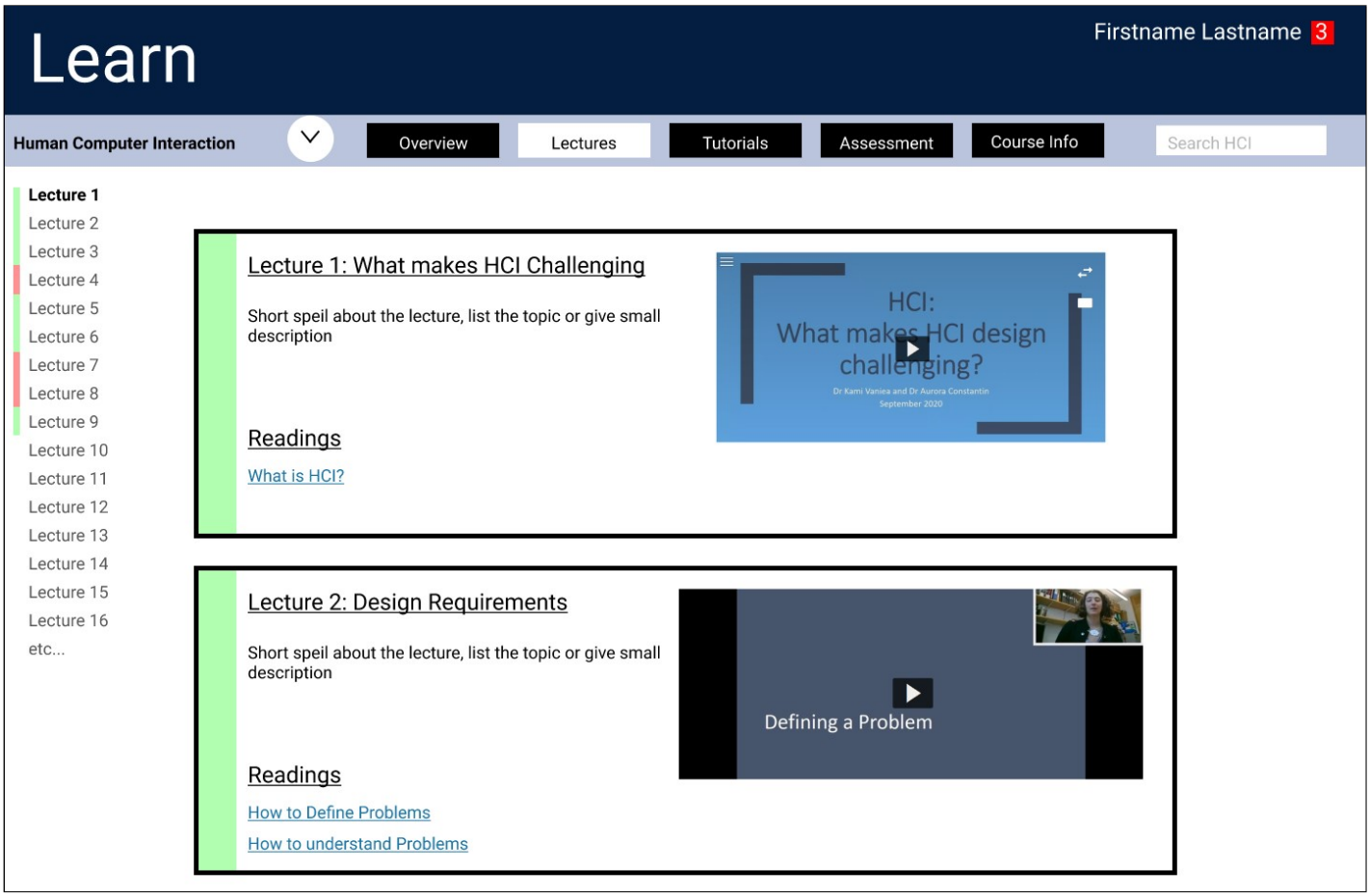

Figure 5: Old "Lectures" Page

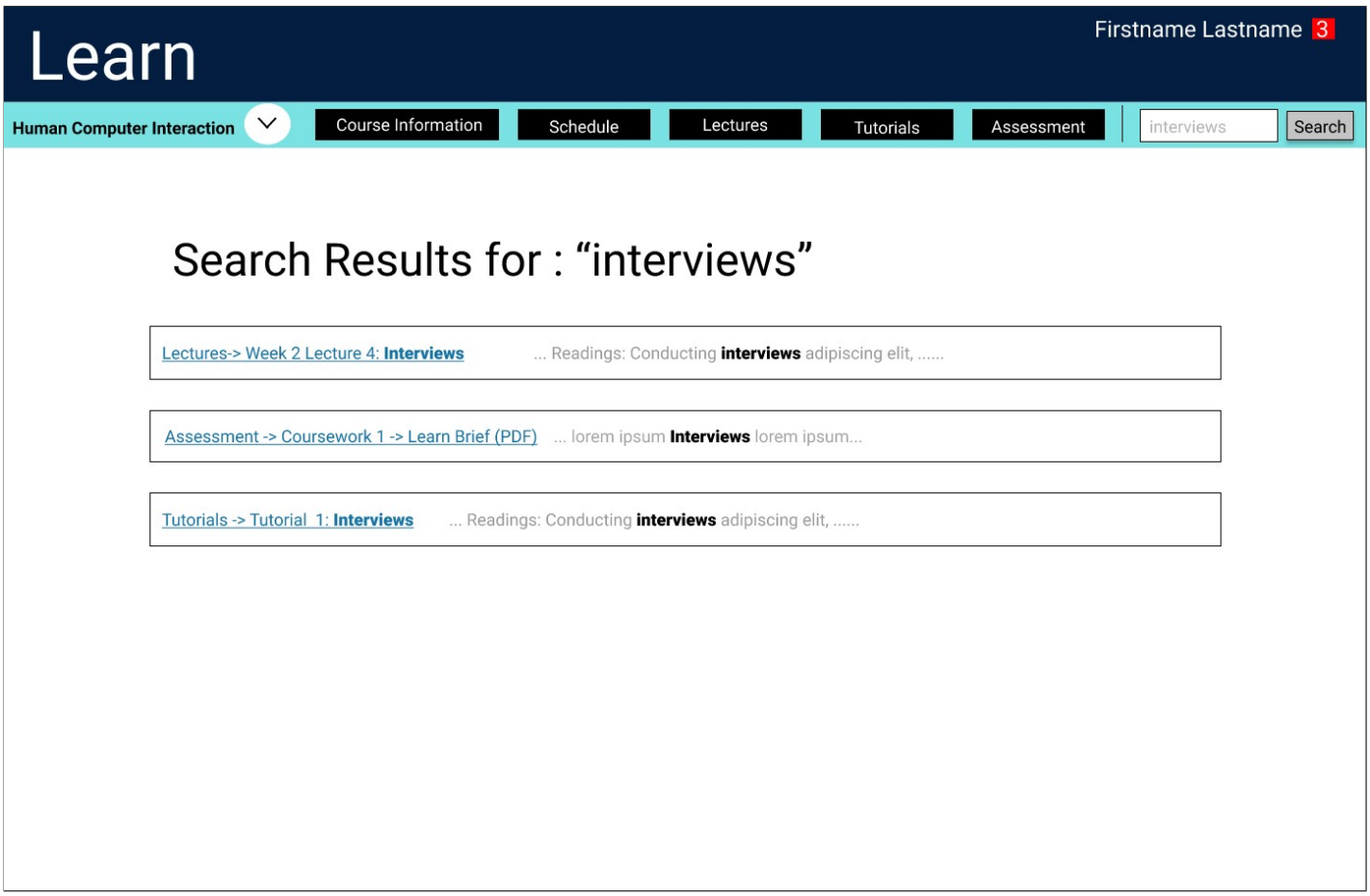

Figure 6: New ”Search Results” Page

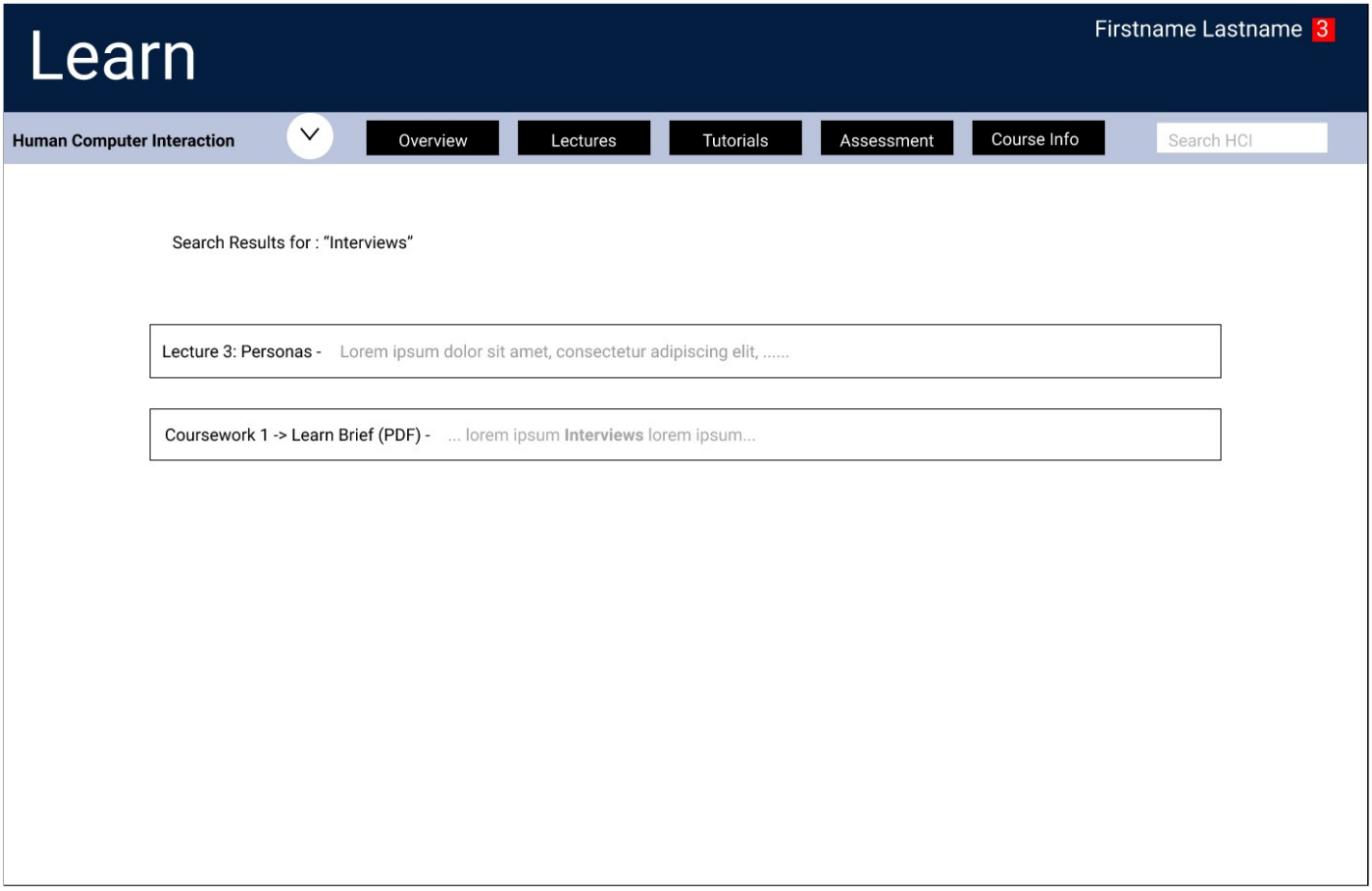

Figure 7: Old "Search Results" Page