**A Newly Designed UC Davis Student Portal**

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**ABSTRACT**

This paper presents a newly designed UC Davis student portal that addresses the shortcomings of the current one and provides students with a more intuitive and effective user experience. Our newly designed portal includes features such as streamlined navigation, personalized dashboards, and clean graphic design that enable students to better access and arrange their academic and administrative information. Our portal also integrates with other existing university functional portals and services like Student Housing Portal or My Clubs, offering a one-stop service for all students.

To design the student portal, a user-centered approach was taken, with feedback for the current design gathered from university students. The design process also involved iterative prototyping and heuristic testing to ensure that our new design met user needs and was easy to use.

**INTRODUCTION**

A university student portal is a crucial tool for students to manage their academic and administrative tasks. Students nowadays rely on the portal to perform crucial tasks. However, the current design of MyUCDavis, the student portal used by UC Davis students, lacks accessibility and has an outdated interface. These design issues cause students to miss out on essential resources and information. Therefore, the aim of our project is to create an efficient, user-centered, and user-friendly student portal that addresses these issues with the current design of the UC Davis student portal, MyUCDavis.

In the very early stages of the project, issues with the current MyUCDavis student portal were determined after we navigated the portal. The problems we identified are related to the design and user experience of the MyUCDavis student portal, including issues with the interface and organization of features, hidden or confusing functions, a lack of customization options, and difficulty accessing help and feedback sections. These general ideas would later be consolidated together with the result we generated from interviews.

To better understand current UC Davis students’ needs and pain points, we conducted interviews with them to gather their feedback, opinions, and suggestions regarding the current portal design. The data we collected from those interviewees became the guideline of the design process which we would later use to create a new portal that meets the needs of its users.

After examining the outcomes of the interviews, we discovered that the feedback from interviews revealed many issues with the current portal, including an overwhelming amount of functionalities and some visibility problems. To address this, multiple potential solutions were proposed by some of our group members during the brainstorming section, such as removing or hiding non-essential functions and allowing users to personalize their portal pages. Other proposed suggestions include adding a search feature, providing a user manual or tutorial, and implementing a help function. All the proposed solutions would be reviewed in the redesign stage.

In the redesign stage, all solutions were analyzed to identify the most concise approach. We decided to remove redundant functions based on user feedback from the interview. The redesign includes a customizable "My Dashboard" page and unadjustable tiles to present information directly, reducing user effort. The portal is divided into four major screens on the menu bar: "My Dashboard," "Academics," "Finance," and "Campus." Tiles for each screen present related information directly to the user. Users can customize their dashboard through the "My Dashboard" page, and a personal profile tile is always shown on the screen. Once these design concepts were established, a low-fidelity prototype was created. Based on the low-fi prototype, we utilized code programming to develop the high-fidelity prototype.

**METHOD**

In our project, we closely followed the 5-Step Stanford D. School Design Thinking Process presented in the class discussions [1]. Our progress can be categorized into five main phases - the Empathize Phase, Define Phase, Ideate Phase, Prototype Phase, and Testing Phase. While these phases are presented here as a series of steps in sequential order, our actual utilization of this Design Thinking Process involved iterating back and forth between steps to continually improve our design to better meet user needs.

Within the Empathize Phase, we interviewed seven different UC Davis students, as these are our target users and will provide us with essential feedback about the current MyUCDavis design. We were careful to ask open-ended questions in the interviews we conducted, so as to not limit the responses the interviewees gave and to encourage them to share their personal experiences. We recorded each of the interviews and took notes on the feedback that the interviewees provided, and then applied the results of each of these interviews in the next phase of the process.

In the Define Phase, we considered the full range of interviewee responses, as well as performed our own heuristic evaluation of the current MyUCDavis website as a team. Using this heuristic evaluation and the feedback the interviewees shared, we were able to develop a list of distinct pain points and poor design aspects within the current design. We also made an effort to match each of these pain points with potential design features that we discussed in class, such as visibility issues, learnability, and design for an elastic user rather than a need-based design. We then applied this list of pain points and heuristic issues to our next phase.

In the Ideate Phase, we brainstormed as a group to come up with innovative and effective design ideas that would combat each of the pain points and heuristic problems discovered in the previous phase. We were careful to only propose solutions to problems that the users had identified to ensure that our design would be user-centric. We discussed each potential solution both conceptually and in terms of design and implementation on a website.

Now that we had a list of solutions we wanted to develop and implement, we were able to move into the next phase of our design process. We iterated through the prototyping and testing phases of our design process multiple times. Each time, we thoughtfully designed a prototype, which we then either presented to target users or performed a heuristic evaluation on ourselves. We then took the feedback from the users to create a new iteration of our prototype.

In the first iteration of our Prototype Phase, we used an iPad to sketch out some sample implementations of the solutions from the ideate phase. We then used these sketches in a heuristic evaluation within the team in our first iteration of the Testing Phase. Based on this heuristic evaluation, we proceeded to the second iteration of the Prototype Phase, in which we designed an interactive prototype in Figma. We presented this Figma model to target users and collected feedback in the second iteration of our Testing Phase. We used this user feedback in combination with yet another heuristic evaluation within our team to design our high-fidelity prototype in the third iteration of the Prototype Phase. Finally, we performed another heuristic evaluation of this high-fidelity prototype in the third iteration of our Testing Phase.

**UNDERSTANDING THE USERS**

Initially, we all thought that MyUCDavis was not a good design for students because we seldom used it. For this problem, the target users are students from UC Davis since they are the only users of MyUCDavis. To explore more, we interviewed 6 students from UCD and asked them about their experiences using MyUCDavis. In this process, we aimed to discover more about MyUCDavis. Therefore, we do not show the strong purpose of the interview and let users talk by themselves. We looked for freshmen and sophomores who just started to use it. Then, we keep users’ answers in documents. From what we have after the interview, we analyze them to the concrete problem of MyUCDavis and focus on it. The first and most frequent problem is that MyUCDavis has too many functions to use, and it is hard to find expected functions. It implies that our design should put simplification as the priority to solve, and we think that we should cancel all the drop-down menus and classify those functions.

**CONCEPTUAL MODEL**

Since there are lots of users thinking that MyUCDavis contains too many items and functions, we made MyUCDavis as simple as possible. We removed the drop-down menu that contains bunches of entries and reshaped some features on the main board. Also, we placed all categorized elements on the board with clear organization and notation. We also kept consistency on MyUCDavis. In the top left is the MyUCDavis logo, and in the top right is where to log out and edit. These can fit well in users’ mental models. With such a design, users no longer need to find items in the complex drop down menu, everything is straightforward to find and navigate.

**PROTOTYPE**

For our project, two low-fidelity prototypes and one high-fidelity prototype are made. These prototypes are used to demonstrate and validate our design.

**Sketch (Low Fidelity)**

First we made a sketch, which provided a guideline for our basic design. In that sketch, it showed that the whole application is divided into four screens, shown on the menu bar. The first screen is called “My Dashboard”, shown by Image 1. In this page, we allow users to add tiles that they are most benefited from / cared most about with a personal profile tile always shown on the screen. If it is the first time the user is using the portal, a page like Image 2 below will be shown on the screen. This screen contains all the tiles that a user can add to their dashboard. All tiles are categorized for easy finding. Users would be able to design their own dashboard through this screen. Also as shown by Image 3, the user can edit that personal dashboard again later in the future.

**A picture containing diagram

Description automatically generated**

**Image 1: User Dashboard**

**Diagram

Description automatically generated**

**Image 2: The interface that allows users to choose their own tiles on the dashboard.**

**Diagram

Description automatically generated**

**Image 3: Dashboard in edit mode**

For the other 3 major screens shown on the menu bar: ”Academics”, “Finance”, and “Campus”. Our design is to have unadjustable tiles to present all related information directly to the user. We think that even though this limits users’ freedom, this design still wins as the current student portal only displays links which require users to try out themselves. This design lowered the effort users need to interact with the portal. Example page are shown below as Image 4. For full sketch, we attached a link of shared folder in the acknowledgement part of this report.

**A screenshot of a computer

Description automatically generated with medium confidence**

**Image 4: Screen Sample for “Academic”, “Finance”, and “Campus”.**

**Figma Prototype (Low Fidelity)**

Next, we turned our sketch into a Figma prototype to test the user flow of our design. This prototype helped us to find some of the flaws of our design and helped us to make further improvements in the future. For detailed prototype, <https://www.figma.com/file/bnzIYq17KFh4KNNTa8RyIQ/ECS-164-Project-Prototype?t=1ZxzCHjk6MdoHxic-1>

**Web Page (High Fidelity)**

Our high-fidelity prototype was created using HTML, CSS, and JavaScript. We deeply modified a sample HTML project provided by RUNOOB [2]. In this high-fidelity prototype, we simulated the general process of a returning user. The first screen that a returning user will see is shown by Image 5. In the dashboard page, a personal profile is shown to create a sense of belonging. In this page, users are also allowed to customize the dashboard by clicking on the “Edit” button. After clicking on that button, a design that matches users’ previous mental model of modifying online services will be displayed, as shown by Image 6. In that page, users can delete previously added tiles using the red delete button or click on the “Add a Tile” Button to go to the categorized tile adding page, as shown by Image 7.

Graphical user interface, application, website

Description automatically generated

**Image 5: Dashboard of our high-fidelity prototype.**

Graphical user interface, application

Description automatically generated

**Image 6: Page after clicking “Edit”.**

A picture containing chart

Description automatically generated

**Image 7: Tile adding page.**

Switching between the main page can be done using the navigation bar on the top of the page. For “My Academic”, “My Finance”, and “My Campus”, we replicated the design we used for our low fidelity prototype. A sample page of “My Finance” is provided below as Image 8 for reference. For full implementation and code, It is also included in the shared folder.

Graphical user interface, application, website

Description automatically generated

Image 8 Sample page for “My Finance”

**TESTING**

We made a heuristic test inside our group for both our low-fidelity and high-fidelity prototypes, and several iterations had been made.The heuristic testing principles are retrieved from [3].

**Visibility of System Status**

One of the key principles of user interface design is to provide visibility of system status, which means that users should always be aware of what is happening within the system, and should be able to easily understand its current progress. However, there are a number of problems that can arise under this principle in our early design. The issue is that our current design lacks visible feedback when performing a task, leaving users unsure of whether the task is going on or has not started yet. We added multiple visual cues such as changing background colors when users click the button or their cursors hover over them.

**Match between System and the Real World**

The second principle of heuristic testing is to ensure that the system matches the real-world context, which can make the whole design easier for users to navigate and reflect the users’ mental model. One problem we found under this principle is that we should change the color for the “Add Tile” button from red to green as the color red is always related to the removing function or something with negative effects. Another upgrade we found we can make is using the same blue and gold colors as the current myUCDavis student portal. Last but not least, we also agreed on adding the feature that users can go back to the home page by clicking either the UC Davis logo on the top left of the webpage or the logo on the website footer, which is considered as a commonly seen feature in many other websites, reflecting users’ mental models.

**Consistency and Standards**

It is crucial to make the whole design using consistent and standard design languages, minimizing possible confusion and frustration. For this heuristic principle, we chose to keep color consistency on the website by using less colors and hominy colors. The tile design also followed one standard, making all of them look uniform.

**Recognition Rather than Recall**

Another heuristic testing principle we found that our design did not follow well is recognition rather than recall, which is important because users have limited cognitive resources and may struggle to use some features if they need to remember the locations or steps of them. One issue is that the sign out button in our sketch displays in a drop-down menu. The users may find its location difficult to notice and remember. To deal with that, we deleted the drop down menu and placed the sign out button directly on the navigation bar instead.

**Aesthetic and Minimalist Design**

There were a lot of comments about graphic or layout design that were made in the discussion about this principle. We summarized those highly similar ideas and updated our website. The first is that we delete all the drop-down menus in our design, as its confusing categories increase the complexity of using. Our design places four buttons named My Dashboard, My academic, My Finance and Campus on the navigation bar, which can redirect the users to the corresponding subpages. The deletion of drop-down menus and the single content subpages can make the original dashboard neater and easier to use. Plus, we deleted the picture background feature as many reported that this feature was making the whole webpage fancy but messy.

**DISCUSSION**

Through this project, we got to experience firsthand the importance of a design thinking process in HCI. We chose a problem that was very relevant to UC Davis students, and because of this, we were able to easily carry out each of the design phases. Students were generally open to being involved in our interview and testing processes and were enthusiastic about the potential of improving the MyUCDavis website. We were able to get plenty of valuable feedback by performing user testing and interviews, and when combined with the many heuristic evaluations we performed as a team, this enabled us to create effective prototypes that were user-centric and enjoyable to use. We also got to utilize prototyping and testing as an iterative process, which was new to many of us. In comparison, most of our previous coursework involving coding and design would simply involve one iteration to meet a pre-set goal. It was a new and enjoyable experience to go back and rework our prototypes following each iteration of testing.

**FUTURE WORK**

At present, what our products can achieve is to clearly display the functions required by users under My Dashboard, My academic, My Finance, and Campus, add a fixed personal profile on the left of the dashboard and edit the function under My Dashboard. There are still some possible extensions of our design in the future.

First, our group will consider how to add a search engine in myUCDavis. If users have specified requirements for myUCDavis, they may still not be able to find detailed information. At this time, the search engine can find the information they need based on the keywords provided by the user.

Second, users don't currently know if our designs are working, experiencing issues, or undergoing maintenance. We will add a system status function and design a sharing of the current status of the myUCDavis website to let users know any problems that the myUCDavis website may face at present.

Third, many users have no related experience before using myUCDavis. In the future, for new users who log in to the system for the first time, we will design a guide for new students to quickly let new users understand the main functions of myUCDavis. Include common issues that users may face in a Frequently Asked Questions page and what they can do to solve them.

Fourth, add a feedback function to allow myUCDavis administrators to receive user feedback on myUCDavis timely and take corresponding actions. In this way, they can see where myUCDavis needs to be improved for using.

Fifth, build a chat community for myUCDavis. In this case, anyone can post their question or request or whatever is interesting on it. Everyone in UC Davis can see them and join the chat. Sometimes some problems about study or daily life can be easily solved by community chat because all members online in the community can receive the message.

The extension of these functions will bring users a better using experience with myUCDavis.

**PEER RATING**

Zheming Pu: 20.02%, Contributions: Proposal Ideate, Interview, Problem-finding based on interview, Brainstorming, Sketch, Progress Report Write-up, Figma, Code, Heuristic Test, Presentation, Final report write-up

Shuhao Gao: 12.22%, Contributions: Proposal Ideate, Interview, Problem-finding based on interview, Brainstorming, Progress Report Write-up, Heuristic Test, Presentation preparation, Presentation, Final report write-up

Zesheng Wang: 17.71%, Contributions: Proposal Ideate, Proposal Write-up, Interview, Problem-finding based on interview, Brainstorming, Progress Report Write-up, Code, Heuristic Test, Presentation preparation, Final report write-up, Sketch, Presentation.

Haihan Yuan: 18.57%, Contributions: Proposal Ideate, Proposal Write-up, Interview, Problem-finding based on interview, Brainstorming, Sketch, Progress Report Write-up, Code, Heuristic Test, Presentation preparation, Presentation, Final report write-up

Zuge Li: 13.87%, Contributions: Proposal Ideate, Proposal Write-up Interview, Problem-finding based on interview, Brainstorming, Sketch, Progress Report Write-up, Heuristic Test, Presentation preparation, Presentation, Final report write-up

Namita Hegde: 17.61%, Contributions: Proposal Ideation, Proposal Write-up, Interviewing, Problem-Finding Based on Interview, Brainstorming, Sketching, Progress Report Write-up, Heuristic Testing, Presentation Preparation, Presentation, and Final Report Write-up

For detailed distribution, see the work sheet in the shared folder in the acknowledgement section.

We are glad that everyone in our team could make decent contributions.

**ACKNOWLEDGEMENT**

We thank Professor Hao-chuan Wang and TA Jingxian Liao, Jia-Wei (Jessie) Liang, and Jingchao Fang for their support. This report is part of course project for ECS164 Winter Quarter 2023.

For all previous project contents, including documents and code, we attach the following link as a reference: <https://drive.google.com/drive/folders/1NXxTxT2w2Nk9OQ5Kg4Cm8VO6IeSAWJ43?usp=sharing>

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