

KING ABDULAZIZ UNIVERSITY  
FACULTY OF COMPUTING & IT

CPCS381 - HUMAN COMPUTER INTERACTION  
PROJECT REPORT

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## **Improving MyKAU's UX**

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## 1 Introduction

Learning applications are a big category of mobile applications. They have a wide range of users, and they are essential to members of an educational organization as they are the primary form of communication between them, the primary file manager, and serve many more functionalities. Since the role of these applications is so important, most designers lack the interest in designing for a good user experience, because it's given that users are going to use these apps, there is no **need** to care for the satisfaction of the users. Forgetting that proper use of interaction design improves the user experiences, which in turn increases users' productivity, entices more people to use the app, and reflects well on the organization.

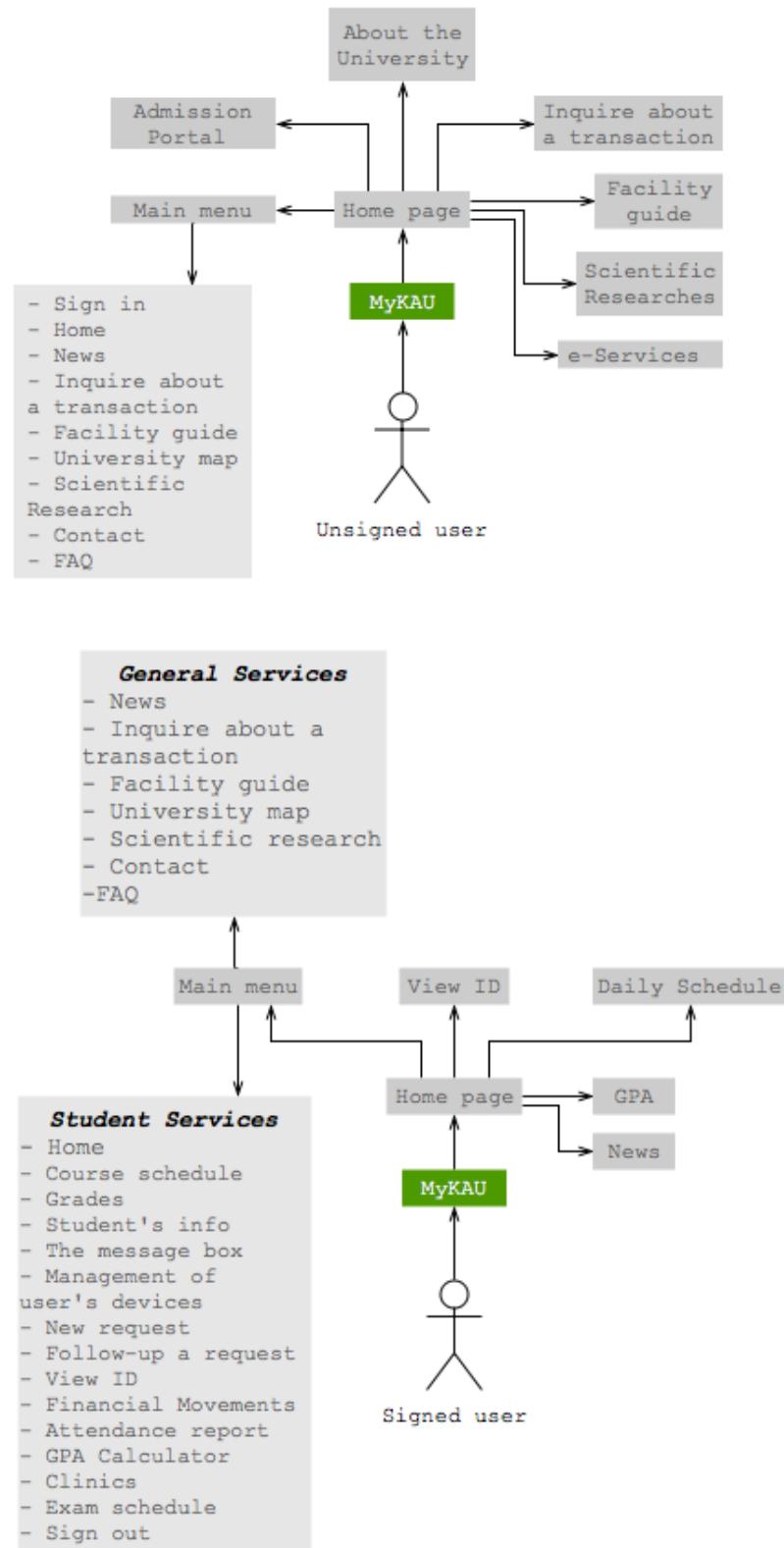
For our report we will look at MyKAU as an example of such application where there was little consideration for user experience. We will try to review good practices and rules in interaction design, research user needs, and implement a prototype of a suggested improved version of myKAU.

## 2 Process of Interaction Design

The target users of myKAU are Students & faculty members of King Abdulaziz University (KAU). The context of the application is the use for most of the student's actions *on the go*: messaging between students and faculty members, browsing registered subjects, academic affairs, checking their monetary history, GPA calculators, official exam schedules, etc, rather than using the desktop version of academic affairs manager "ODUS". The problem with the current version of myKAU is that the user interface is not intuitive, functions of the app are not clear, and even the clear functionalities don't work well. Users prefer traditional methods over using the app. Figure 1 shows the conceptual model of the current system.

## 3 Interaction Types

Interaction with MyKAU app consists of tapping a touch screen, messaging, writing, browsing and other interactions like calculating the GPA in a graphical user interface.

**Figure 1:** Conceptual Model - My KAU

## 4 Phase 1

### 4.1 User-Context combination

The user demographic of MyKau app are adults aged between 18 to 40, educated, have internet connection, that are students of KAU (MyKAU has two different main use cases, students use it and an entirely different interface and experience for faculty members, here we focused on the student's experience). The app is on mobile personal devices: IOS and Android, both phones and tablets. The context of use is either on campus or off campus, in regular situations: mostly stress free, regular weather, etc, and when the student is away from the computer - To do some main tasks like checking the schedule, messaging between students and instructors, managing financial operations, etc.

A number of examples of **user - context combination**:

- A student is late to class, and wants to check in which room is his class?.
- A student with a number of absences wants to know how close is he to an DN.
- A student want's to contact his professor at home away from the computer.

### 4.2 Data Collection

#### 4.2.1 Writing The Survey

To gather our data We followed the questionnaire method, we aimed to gather the data from the users of MyKAU. The questionnaire consists of eleven questions. The first five questions were about general information about the user such as age, gender, level of education, and the level of their knowledge about the User Experience (UX) design to ensure that the data was gathered from our target users (students from different levels of education). The second part focused on measuring the users' knowledge about the functionalities the application has, their satisfaction level, whether they use it or not and why they might not use it, to help focus on what should be improved in the UX of this application. The final part was to gather some opinions and suggestions to identify users' needs.

#### 4.2.2 Pilot Test

Before relying on the survey we wrote, we conducted a pilot test with a student already familiar with both MyKAU app & HCI principles (as she is a KAU graduate and has taken the HCI subject before), she sugested we add one last open question for more feedback, and

make it optional. The question was "What additions do you want to see in MyKAU?", it was an open question, to collect more qualitative data from users, it was an optional question as we understand not everyone has input in that matter.

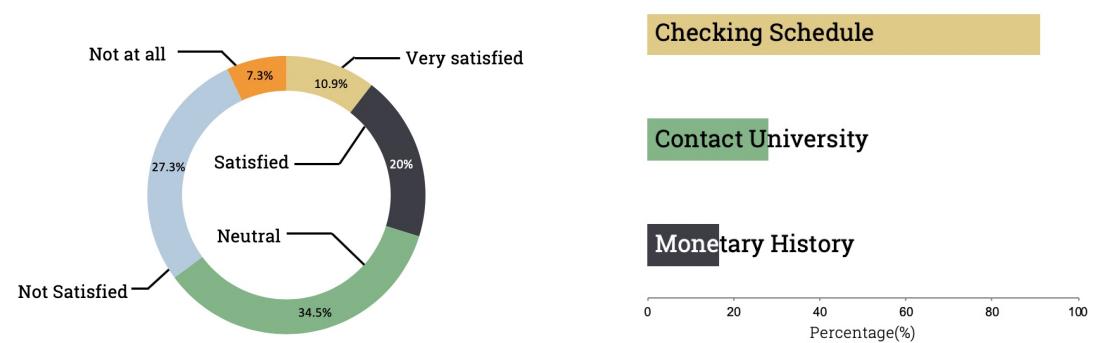
#### 4.2.3 Analysis of Survey Results

Questions	Results												
Age	18-25		26-30			31-above							
	53(96.4%)		1(1.8%)			1(1.8%)							
Gender	Male					Female							
	53(96.4%)					2(3.6%)							
Level of Education	Bachelor (first level – fifth level)		Bachelor (sixth level and above)			Master		PhD					
	17(30.9%)		37(67.3%)			1(1.8%)		-					
Do you have a previous knowledge about UX/UI?	I've never heard of it		Yes, but I've never designed for UX/UI before			Yes, and I've designed for UX/UI before							
	21(38.2%)		22(40%)			12(21.8%)							
	Very satisfied		Satisfied		Nuetral		Not satisfied		Not satisfied at all				
What is your level of satisfaction about MyKAU?	6(10.9%)		11(20%)		19(34.5%)		15(27.3%)		4(7.3%)				
	Daily		Once a week			Once a month		Less than that					
How many times do you use MyKAU?	24(43.6%)		17(30.9%)			7(12.7%)		7(12.7%)					
	Attendance	Schedule	Scientific research	KAU map	Contact	Clinics	Transitions	OdusPlus notifications	Blackboard notifications	Facility guide	Financial History		
Which of the following functionalities you think MyKAU has?	6(10.9%)	52 (94.5%)	8 (14.5%)	14 (25.5%)	24 (43.6%)	9 (16.4%)	12 (21.8%)	13 (23.6%)	7 (12.7%)	6 (10.9%)	22 (40%)		
Which of the following functionalities you use?	3(5.5%)	9(16.4%)	3(5.5%)	6 (10.9%)	16 (29.1%)	2 (3.6%)	5 (9.1%)	5 (9.1%)	8 (14.5%)	2(3.6%)	9(16.4%)		
	I didn't know they exists		The app is complex/confusing		I didn't find them when I needed them			I don't think they're activated		I use them all			
Why don't you use all/some of the functionalities that MyKAU offers?	30(54.5%)		14(25.5%)		13(23.6%)			27(49.1%)		2(3.6%)			
	Simpler interface		familiar design		Modern Interface			Easy Accessibility		Adding more functionalities			
How can MyKAU be improved?	24(43.6%)		20(36.4%)		18(32.4%)			41(74.5%)		25(45.5%)			

**Figure 2:** Questionnaire results

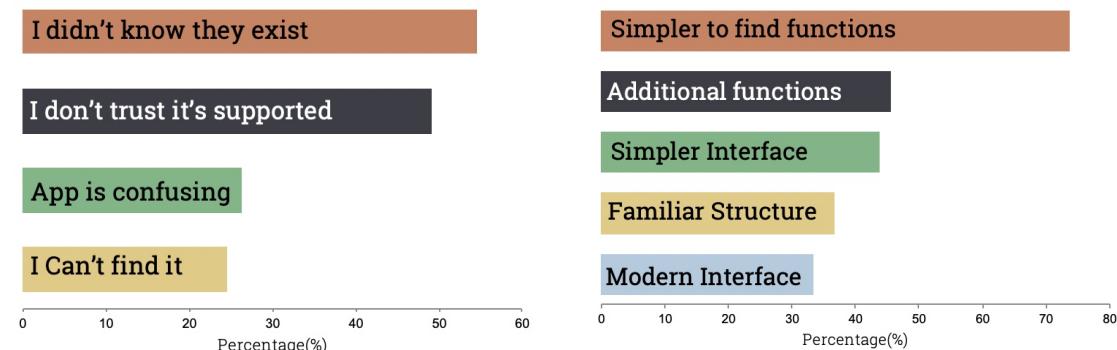
Figure 2 summarizes the survey answers in numbers. As for the last question, the answers varied, some answers wanted more functionality added to the app, some answers suggested improvements to the current functionality (better interfaces and easier navigation), some wanted an overall quicker app. It is worth noting that some answers suggested adding functionality that was already existing in the app. All input will be taken into consideration as we work to improve MyKAU.

For more insight we look at the following figures:



(a) Q: How satisfied are you with MyKAU?

(b) Q: Which of these functions do you use? (These are the most selected choices).



(c) Q: Why did you not choose the other functionalities?

(d) Q: How can MyKAU improve?

**Figure 3:** Data Summary

From **Figure 3a** we first observe that  $(27.3+7.3) = 34.6\%$  are not satisfied with the current MyKAU app, but as we studied in HCI, we don't only aim that an app is "not bad" we aim for a satisfying and enjoyable user experience, so we count the students which answered *Nuetral* in with the negative feedback of MyKAU to reach a final percentage of 69.1% are not satisfied with MyKAU.

As for studying user preferences, to know which functionalities to improve first in the

prototyping phase and which are the most important to bring to the front, we listed 11 main functionalities MyKAU offers and asked students "*Which do you use of these?*" to measure each function's importance: **Figure 3b.** It is no surprise that only three functionalities were selected by more than 20% of the students, as students don't know the other functionalities even exist. The top selected functionalities are:

1. Checking schedule.
2. Contact university.
3. Monetary transactions

So we plan to concentrate on these functionalities first.

We asked users for a reason - to identify main weak points - why they don't use the other functions (in case they didn't select all functions *although all 11 functionalities are useful for students*), results in **Figure 3c** and the main problems were (in order):

1. I don't know they exist.
2. I don't trust it's supported.
3. App is confusing.
4. I can't find it.

So these are the problems we plan to solve according to HCI and user experience principles.

Finally last insightful figure is the users' suggestions on how to improve the app, their suggestions are important as we are following a user - centred approach to improving MyKAU, in **Figure 3d** users prefer simplicity first, so goal no.1: Make the app simpler. users wanted more functionalities but we're attributing this to them not knowing functionalities already exist but are hidden behind menus and pages etc. Main approaches to improving MyKAU are (in order):

1. Make it simpler to find functionalities.
2. Simpler Interface.
3. Follow a familiar structure.
4. Make the UI more modern.

And that was the analysis of the survey we published. They full survey can be taken in the appendix.

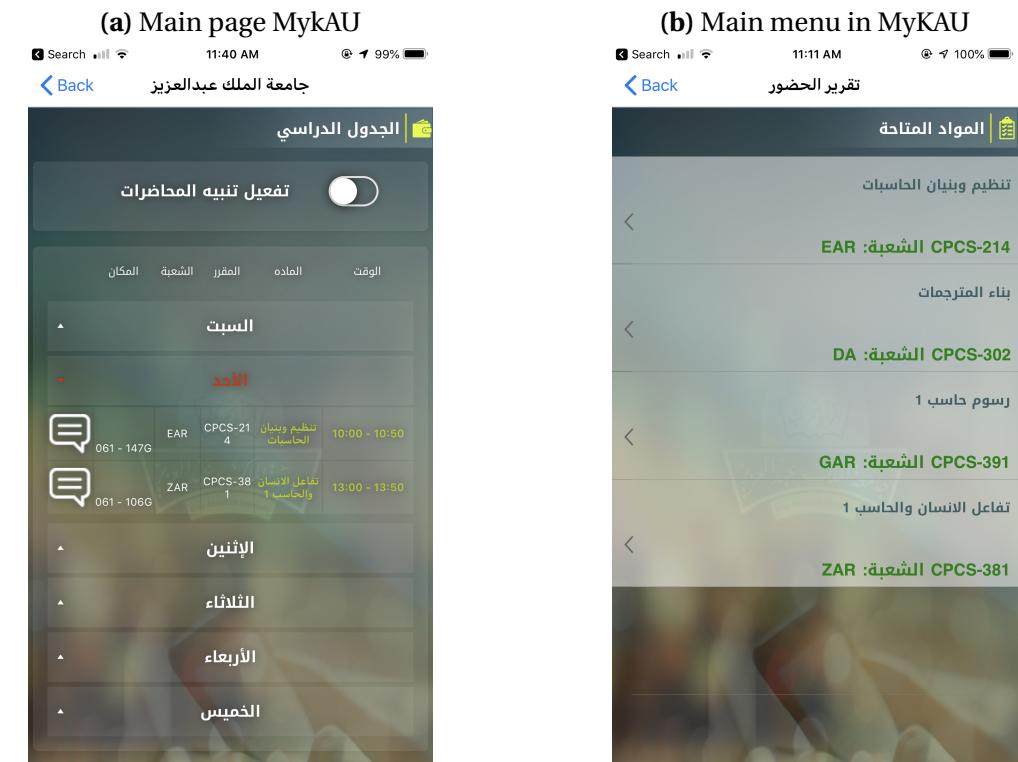
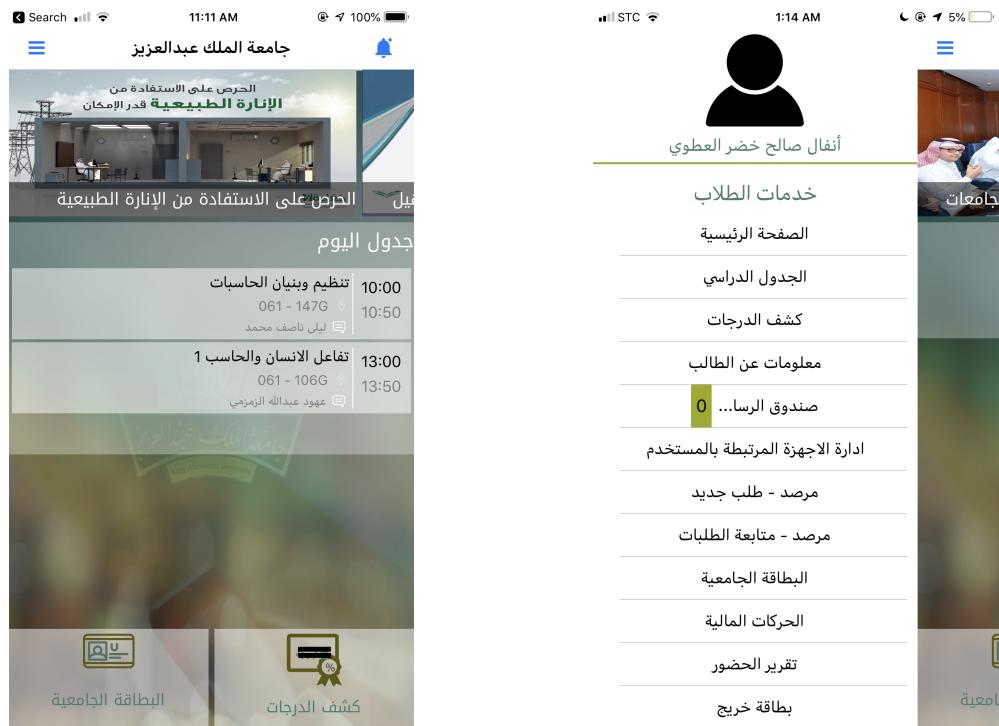
### 4.3 Pre-Design

Cognitive Process	User Attribute	Design Implication
Perception	Settings in wrong panel (Hard to find)	Move settings to main menu
	Sign in in main menu	Make sign in in the home page
	Messages box written as text in main menu	Make it visible at the top of home page as message icon
Learning	User is confused with long menu	Restructure main menu to a shorter version
	Student schedule design is too complicated	Display the schedule in more,organized way
	User used to a certain design principles	Restructure main menu to follow a design principle
Reading	User is used to standard fonts that easy to read	Use standard fonts and color
	Lectures times are not chronological	Arrange the timeline chronologically
	Some important information are written,in a light color (Similar to the background)	Make the color more visible and clear

### 4.4 Prototype

To design the prototype for an improved version of MyKAU we used Notabilty to make the initial wire-frames, Adobe Illustrator to design the UI & Adobe XD to make the UIs interactive.

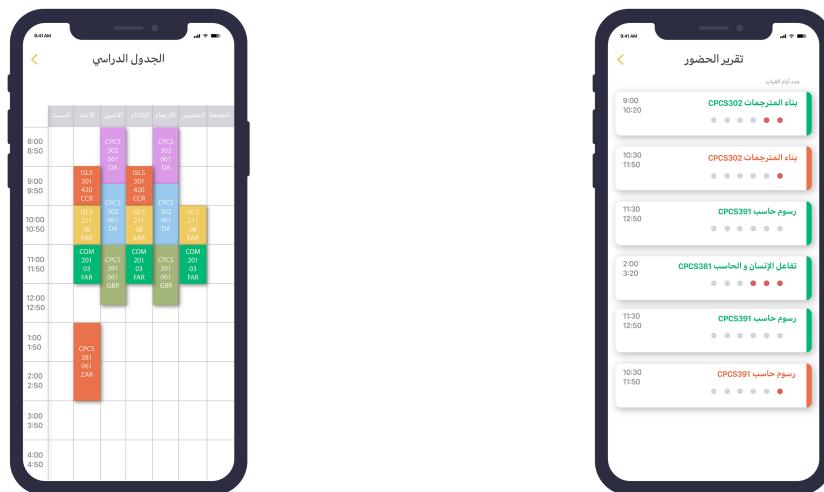
The interface type of MyKAU is a **Mobile - Touch - GUI**. We picked the main page of MyKAU to improve; because it is where we plan to place the most important functionalities the users need. We picked the attendance page to improve the feedback, and because students don't know it exists although its important to them, we picked the menu sliding page to improve and shorten the very long menu, we also picked the semester schedule page as it has room for improvement and it is a main page students frequently use.

**Figure 4:** Original UI of MyKAU



(a) Main page in MyKAU prototype

(b) Main menu in MyKAU prototype



(c) Semester Schedule page in MyKAU prototype      (d) Attendance page in MyKAU prototype

**Figure 5:** Improved UI of MyKAU



(e) supporting attendance page in MyKAU prototype

**Figure 5:** Improved UI of MyKAU

The main points we improved according to HCI are as mentioned and justified in details in Figure 6

UI	Old UI	New UI	Improvement & justification
Main page	<b>Figure 4a</b> Notice distracting background	<b>Figure 5a</b> Clean white background	Based on HCI, visibility is at its best when there's high contrast between content and background.
	<b>Figure 4a</b> Only one main function in the main page	<b>Figure 5a</b> took functions from long menu to shorten it and added them as swiping pages in the main menu	This improves accessibility of functions as they are in front of the user, this also improves visibility of important functions as they are semi-appeared even when not in use.
Menu page	<b>Figure 4b</b> Very long menu, two pages to scroll, no obvious structure or order.	<b>Figure 5b</b> Shorter menu, functions rearranged in main menu, or in sub categories of main menu	This reduces anxiety for users, achieves simplicity in finding functions and a cleaner app.
Schedule page	<b>Figure 4c</b> Simple tasks are distributed over many drop-down menus, covers the whole screen, no structure, icons not uniform.	<b>Figure 5c</b> We adopted a more familiar structure to the schedule, at a glance a user knows his schedule by time, and color coding helps with the grouping of classes of one subject.	This improvement makes the app more effective to use, faster to find class & time and gives user visibility on his classes, externally consistent with other schedules as it uses a timeline.
Attendance Page	<b>Figure 4d</b> Attendance is separated by each subject which is good, but it is not counted.	<b>Figure 5d</b> At a glance without entering a subject, the user can see his attendance and how much he is close to allotted hours of absence, subjects are colored dependent on whether this is a theory or practical class.	This is more visible than before, gives user simple clear information that he needs, and has good utility as we used one page to both display subjects & display attendance count.
		<b>Figure 5e</b> Upon clicking a subject, a calendar is displayed informing the user in a graphical way when the absences were recorded.	This gives users feedback on their actions in class and improves the experience as information are presented to them: more effective, and the calendar format is more consistent.
Overall	Outdated design, uncomfortable colors, stretched out images and busy background and fonts.	Cleaner, simpler, more modern design, simpler color scheme & simpler fonts	This increases desirability and user satisfaction, and the sliding motion increases fun in using the app.

**Figure 6:** UX Factors improved

## 5 Phase 2

### 5.1 Usability Testing

Evaluating the tasks yielded the following results **Figure 7**. We tested the original app on a number of 10 users, some where at college and some where at their home, we asked them to

perform the specified tasks and we recorded the objective measures (no. of clicks & seconds it took them to perform the task) and the subjective measures (their ability to find a function, impression of the app, overall opinion about the prototype which we asked about after the test concluded). the comments in **Figure 7** refer to our comments, why we think the results turned out this way.

<b>Criteria</b> <b>Task</b>	<b>Original app</b>			<b>Improved prototype</b>			<b>Comment</b>
	No. of clicks	Seconds	User Satisfaction	No. of clicks	Seconds	User Satisfaction	
Check daily Schedule	1	1s	Users not satisfied with how the schedule is organized.	1	1s	Users find the UI appealing and easy on the eye.	Although no. of clicks & seconds are the same, UX vastly differs on user's opinion.
Check Attendance	4	15s	Users don't know their attendance, no feedback.	2	5s	Users are informed of their attendance, satisfied.	Improved time greatly & satisfaction.
Calculate Attendance	0	180s	Users had to calculate attendance manually, they didn't enjoy that.	2	5s	Attendance is displayed at the same page as before, users liked that.	Simple calculation done in the background improves UX significantly.
Navigate to settings	7	50s	Users had no idea where settings were, they were frustrated.	2	5s	Users knew where to find settings, they were satisfied.	Moving settings to the menu follows the familiar structure of mobile apps.

**Figure 7:** Testing summary; Tasks & measures

## 6 Conclusion

After data was collected to identify main issues about MyKAU's user experience, a prototype of new version of MyKAU was developed according to HCI principles and according to user preferences, the prototype was tested and approved, the user experience of students improved significantly.

## 7 Appendix



(a) Scan this code to take the survey.



(b) Scan this code to try the interactive prototype

**Figure 8:** Interactive Material produced for this project

## 8 References

- Interaction Design: beyond human-computer interaction. 4th Edition. By Rogers, Preece and Sharp.
- A Practical Guide to Usability Testing by J. Dumas & J. Redish
- UX Blog: <https://blog.tkmeel.com>
- L<sup>A</sup>T<sub>E</sub>XReference: <https://www.overleaf.com/learn>