



King Abdulaziz University  
Faculty of Computing and Information Technology  
Computer Science Department



*iEN Bag*

CPCS 381 – Human Computer Interaction  
Course Project – **Phase II**  
Spring 2021, April 1

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## PHASE II

### 1. Establishing Requirements

This section includes a description of the iEN Bag application requirements based on the data collection and analysis and the main problems found in the application.

#### 1.1. Persona

AMANDA



**PERSONAL INFORMATION**

**Nam:** AMANDA JOHN

**Age:** 15

**Education:** Middle School

**Languages:** Arabic – English

**PERSONAL SKILLS**

- Organization • Planning • Problem-Solving • Leadership • Effective Communication
- Time management • Flexibility • Quick learning

**What I like** 😊

I like to use the applications and websites instead of using books and papers in learning. I like screens that contain as much information as possible, but it is clear and understandable way. I love learning step by step, it organizes my information and makes me remember it easier and faster.

**What I do not like** ☹️

I do not like sites and applications where there is a lot of information and make me more confused and I do not know what to do. I do not like programs that do not allow me to undo my mistakes or alert me if there is anything I should pay attention to

**INTEREST**

- Video Games
- Online Shopping
- Read online books
- Learning and development

Figure 1

## 1.2 Requirements

The five main user requirements that we reached throughout our questionnaire are:

- The application should allow new users to make signing up functionality button displays the needed information, because the current signing up button transfer the user to a web page that does not display anything regarding the process.
- The application should avoid showing error message without a reason.
- The application should re-allocate search button position to avoid placing on the social media symbols.
- The application should add a scrollbar for quiz options to show that there are more options in the bottom.
- The application should add functionalities to support deaf, dumb and novice users, like sign language and instruction sound.

## 2. Prototyping

In this section, we will document the development of a complete prototype for our application interface based on the established requirements.

### 2.1. Prototyping tool

The tool used to develop the prototype is proto.io application.

## 2.2. Prototype interface



Figure 2

## 3. Usability Testing

The process of developing a product needs the user's point of view because in the first place we aim to improve their experience with the application, and they are the one who will use it and determine if the application will succeed first. So, we must specify the users who are familiar with the chosen application to get their opinion on the improvement process.

### 3.1. Participants

Developing a prototype is a process to enhance user requirements in the application, then to get their opinion we need to specify a target user to apply usability testing.

As iEN Bag application is an educational application that is targeting school age students, so we choose a group of children attending school. In addition, we choose parents who use the application with their children and a teacher who use it with their students.

Participant #	Name	Age	Description
1	Fahad Alamri	11	Intermediate school student who is familiar with the smartphone but never used the app.

2	Sara Ahmad	17	High school student who owns a smartphone and used the application during the pandemic.
3	Zahra Khalid	16	High school student who owns a smartphone and used similar app like iEN.
4	Saad Alghamdi	14	International school student, familiar with smartphone and used the app before.
5	Taher Ali	18	University student who owns a smartphone and used iEN app before in high school.
6	Salim Sleem	15	Intermediate special school student, who is familiar with smartphone and used the app before for revision.
7	Ahlam Ali	11	Primary school student who owns a smartphone and used the app before for studying.
8	Renad Tareq	47	Intermediate school teacher who has used the app with her students before the pandemic to explain lessons.
9	Ammar Azhar	44	Father of a child in elementary school, familiar with the smartphone and used the app for revision and quizzes with his son in primary school.
10	Thamir Adnan	45	High school teacher, familiar with smartphone who used the app with her students in quizzes.

### 3.2. Testing environment

The testing was conducted at the participants' homes while they used their cell phones/tablet and iEN Bag app.

### 3.3. User tasks

Users were given 2 minutes to explore the prototype. After users exploration, they had to complete 4 tasks in 2 minutes for each task to measure the usability goals and user experiences.

List of tasks used for evaluation of the prototype are:


- Task 1: Create a new account in the application.
- Task 2: Activate hear the sound, voice recording and sign language options and back to homepage.
- Task 3: Do one of the short quizzes (Consisting of 2 question) in the application.
- Task 4: Search for math books.

### 3.4. Evaluation

- a. The results of the usability testing after the users have performed the assigned tasks.

#Task number	Participant #	Task1	Task2	Task3	Task4
<b>Time to complete the task</b>	1	100s	3s	65s	10s
	2	60 s	4s	60s	12s
	3	70s	2.5s	70s	15s
	4	77s	3.5s	70s	10s
	5	60s	3s	60s	11s
	6	63s	3s	66s	12s
	7	60s	2.5s	78s	12s
	8	75s	4s	65s	10s
	9	86s	2.5s	60s	11s
	10	60s	3s	65s	14s
<b>The average of the time</b>		71s	3s	66s	12s
<b>Number of errors per task</b>	1	3	0	0	0
	2	1	1	0	0
	3	2	0	0	1
	4	2	0	0	0
	5	1	0	0	0
	6	1	0	0	0
	7	2	0	1	0
	8	3	1	0	0
	9	3	0	0	0
	10	2	0	0	1
<b>The average of the errors</b>		2	0	0	0

## b. Post-test questionnaire



### حقية عين التعليمية

#### post-test questionnaire for iEN Bag application after improve it

this questionnaire aims to know the user satisfaction with the improvement we did in the iEN Bag application. Note that the information that will be collected is not personal information, and it will be used for the purpose of developing the iEN Bag application interface, and it will not be used for other purposes.

يهدف هذا الاستبيان إلى معرفة مدى رضا المستخدم عن التحسين الذي قمنا به في تطبيق حقيبة عين. علماً بأن المعلومات التي سيتم جمعها ليست معلومات شخصية، وسوف يتم استخدامها لغرض تطوير واجهة تطبيق حقيبة عين وأن يتم استخدامها لأغراض أخرى.

**\*questionnaire**

بأي لغة تود متابعة الاستبيان؟


العربية ☐

English ☐

التالي

#### iEN Bag

\*?How easy is it to create a new account in the application




5 4 3 2 1

Hard ☐ ☐ ☐ ☐ ☐ Easy

How easy is it to operate the basic features in the application, such as hearing or recording sound, or activating sign language

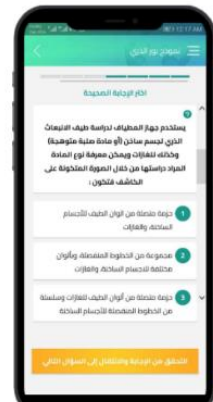
\*?recording sound, or activating sign language



5 4 3 2 1

Hard ☐ ☐ ☐ ☐ ☐ Easy

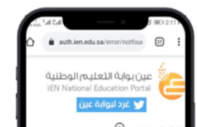
\*?How clear are the number of possible answers available on the exams



5 4 3 2 1

unclear ☐ ☐ ☐ ☐ ☐ clear

\*?How easy is it to search for something in the app



5 4 3 2 1

Hard ☐ ☐ ☐ ☐ ☐ Easy



## ○ The Result

How easy is it to create a new account in the application? (1 very easy-5 very hard)

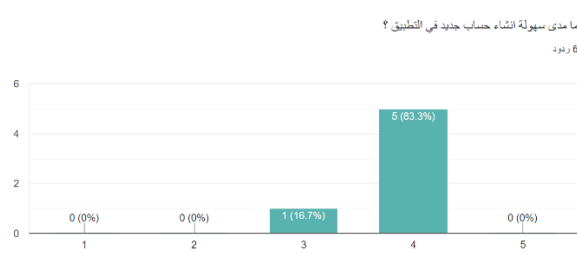


Figure 3-a

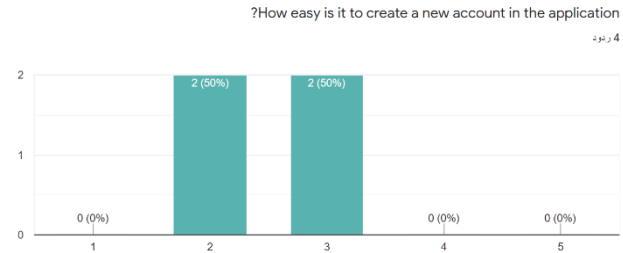


Figure 3-b

5 out of 10 found that create a new account in the application is hard and 3 out of 10 found that create a new account in the application is reasonable and 2 out of 10 found it is easy.

How easy is it to operate the basic features in the application, such as hearing or recording sound, or activating sign language? (1 very easy-5 very hard)

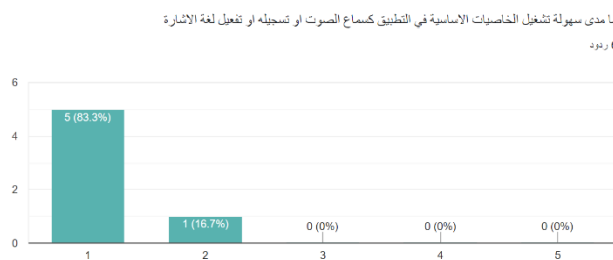


Figure 4-1

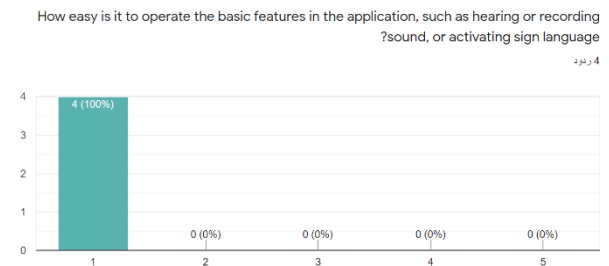


Figure 4-b

9 out of 10 found that operate the basic features in the application is very easy and 1 out of 10 found that operate the basic features in the application is easy.

How easy is it to search for something in the app? (1 very easy-5 very hard)

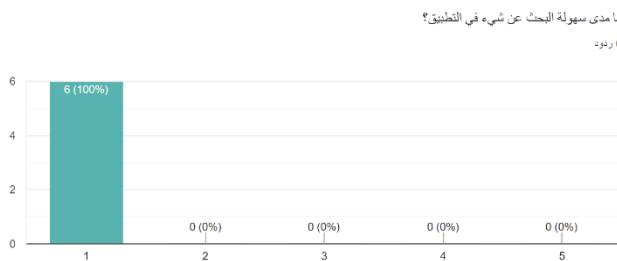


Figure 5-a

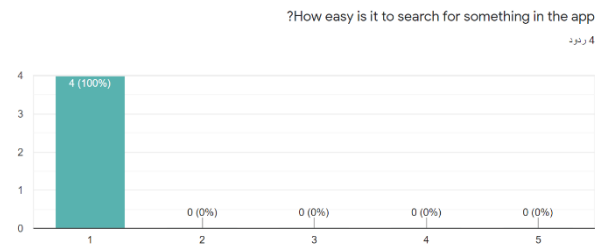


Figure 5-b

10 out of 10 found that search for something in the app is very easy.

How clear are the number of possible answers available on the exams? (1 very clear-5 very unclear).

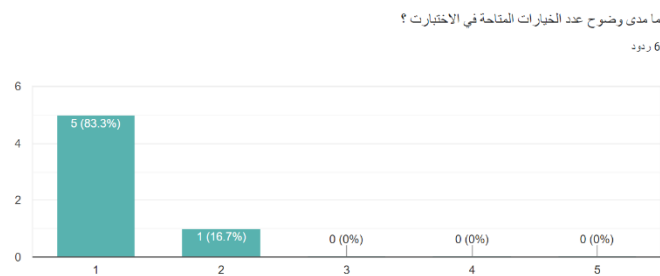


Figure 6-a

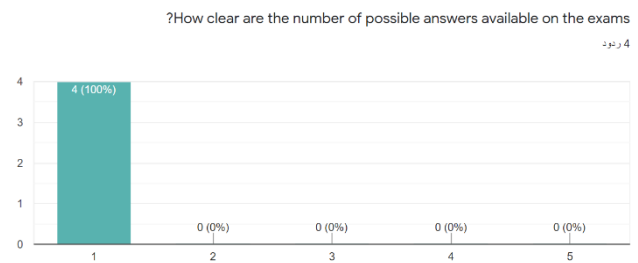


Figure 6-b

9 out of 10 found that the number of possible answers available on the exams is very clear and 1 out of 10 found that the number of possible answers available on the exams is clear.

- c. Usability testing helped us to recognize mistakes in our improvement model. Such as that the user still did not like the signing up page, they found it inconvenient to locate the filling info in the bottom of the web page, also found it inconsistent with signing in page. In addition, they noticed that the grey is unattractive color for the children.

#### 4. References

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