

## **Users Perception of the Mobile Usability of a Global Bicycle Sharing Platform**

<https://doi.org/10.3991/ijim.v13i11.11298>

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**Abstract**—Global bicycle sharing platform offers commuters an accessible, convenient and eco-friendly alternative mode of transport. The study reports on the users' perception about the mobile usability of oBike, a global bicycle sharing platform. Fifteen participants were recruited for the study. The study outcome reveals that most of the participants found that the oBike mobile application needs to be enhanced to improve their satisfaction. Some recommendations were proffered that if implemented will guarantee the improvement of the application.

**Keywords**—Mobile app; perceived usability; usability test evaluation

### **1 Introduction**

oBike is a Global Bicycle Sharing Platform that offers commuters an accessible, convenient and eco-friendly alternative mode of transport. It is the first homegrown smart stationless bike-sharing platform available 24/7. It was launched in Singapore in February 2017 and has expanded to 24 countries including Malaysia. Its latest smart Bluetooth technology improves the location accuracy of its bicycles, enabling users to identify the nearest oBike. Users scan the QR code via the oBike application and cycle their way to better fitness. In addition, via oBike application the user can be guided to simply park the oBike at any designated public bike-parking areas. UUM students (15 in number) conducted an onsite usability test using smart phones and the latest version of oBike App. The usability test procedure include: i) introduce the group members and their background. 2) explain the system and what it is used for; ii) give the users the smart phones to execute a list of tasks with emphasis that they are testing the application and not the users; iii) give the user apost-task questionnaire to complete. 5) Collect the questionnaire from users. The test session captured each participant's navigational choices, task completion rates, comments, overall satisfaction ratings, questions and feedback [1-15].

### 1.1 Methodology

Fifteen (15) students in the UUM campus were recruited for the study. The recruitment was done in two places: at the Mall and the Sport Centre. The participants were purposively selected to conduct the test, complete the given tasks and give feedback about their use of the application in the form of questionnaire after completing the required tasks. The instrument used to capture data includes the following: Screen: the participants assessed the screen layout of the app (i.e., the user interface). Terminology and application information: participants were asked about the suitability of the terminologies and information provided in the application. Learning: participants assessed the learning tips shown in the application. Application capabilities: the application performance and capabilities to serve the customers was assessed. General impressions: this was designed to assess the overall user impression about the application. Other reactions, impressions and comments: this section is an open-ended question to give user an opportunity to express their sentiments [16-29].

The five tasks used in the study are as follows:

- Pay now “Top Up”
- Check my wallet
- Search and reserve
- Unlock bike
- Logout.

Task 1: Make a payment “top up” can be done after logging in to the oBike application account. The user must have a bank account to complete this task as shown below in figure 1.

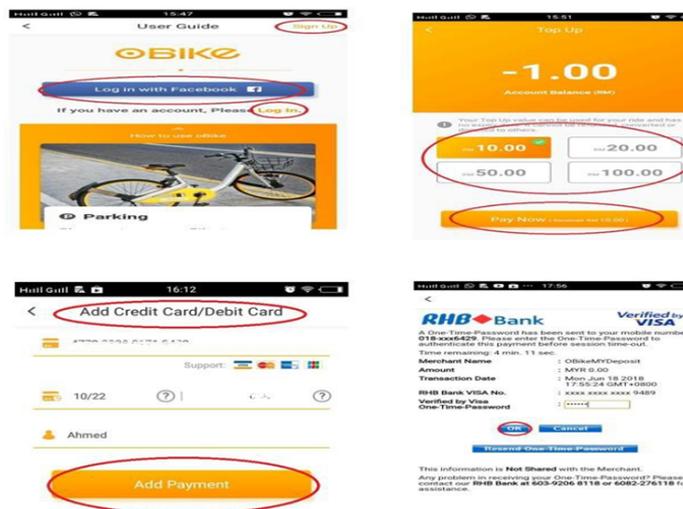


Fig. 1. Task 1: Make payment

Task 2: Check my wallet can be done straight after starting the application as shown below in figure 2. The steps are: starting an application, click the menu icon, click my wallet.

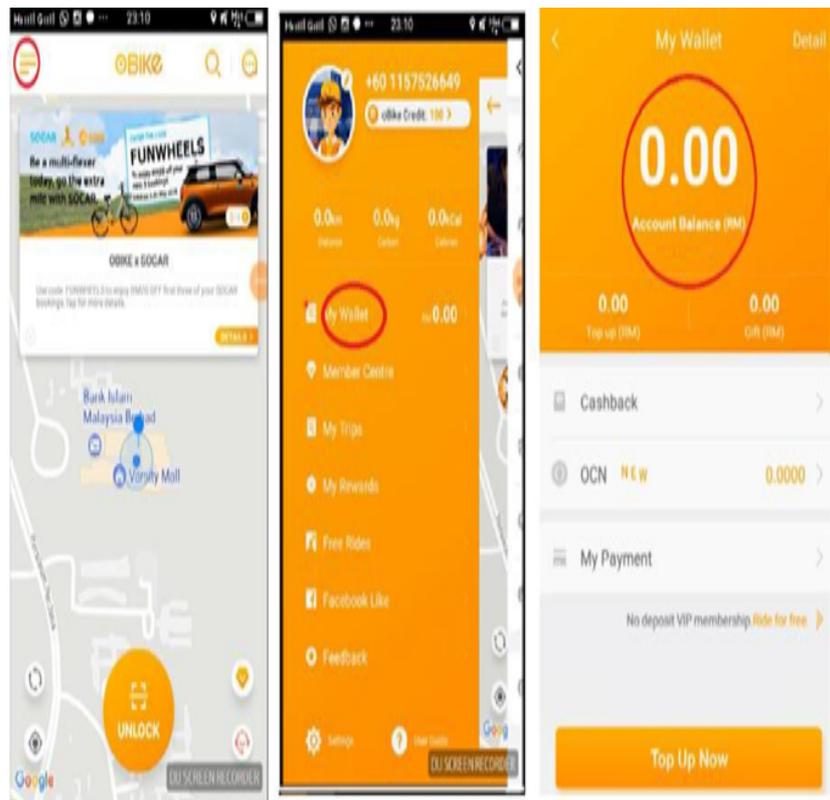


Fig. 2. Task2-chick my wallet

**Figure 2: Task 2 - Check my Wallet:** Task 3: Search and reserve oBike bike. This task demonstrates that the user can search for the bike around him/her or can search for it in any location that bikes are available to reserve the oBike bike. The steps involved are: search for the required location that user want to reserve, search the required location, select the oBike bike icon, click reserve (figure 3).

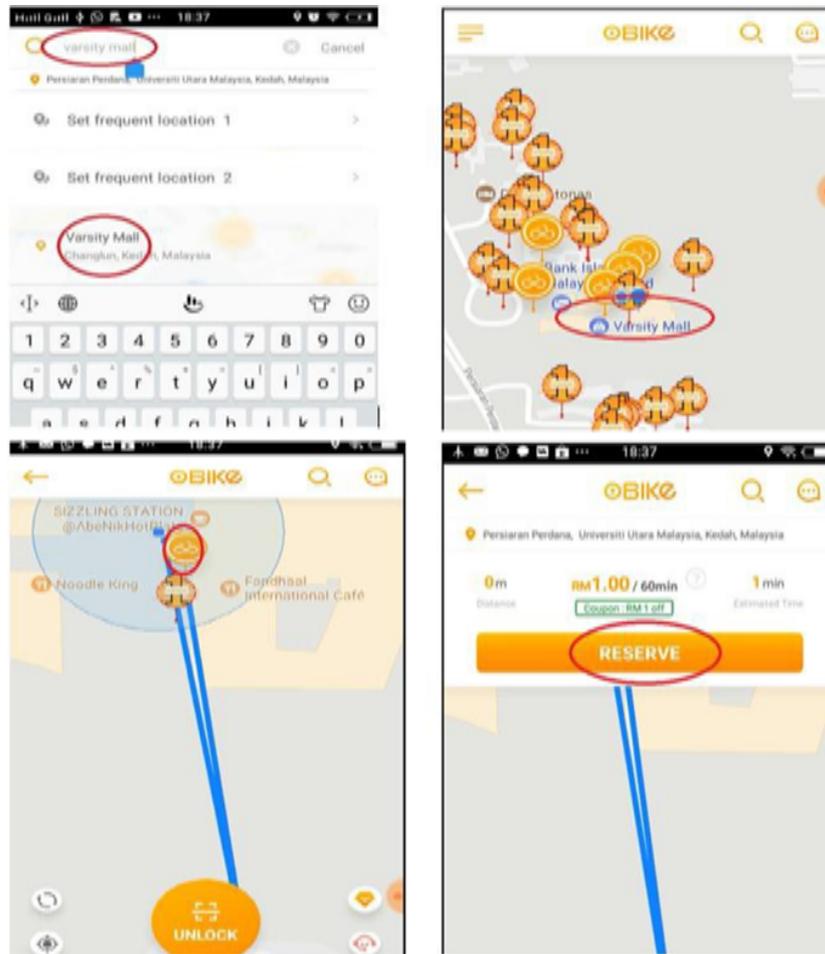


Fig. 3. Task3 - Search and Reserve

In this task most users took long time and faced difficulties in finding the reserved oBike bike. It took a long time following the path that the reserved bike takes even when the bike is close to the user.

Task 4:Unlock locked oBike bike. This task demonstrates that the user can unlock the locked oBike bike by scan QR or by entering the bike ID number. The steps include: click unlock icon, scan QR or enter the bike ID number (figure 4).

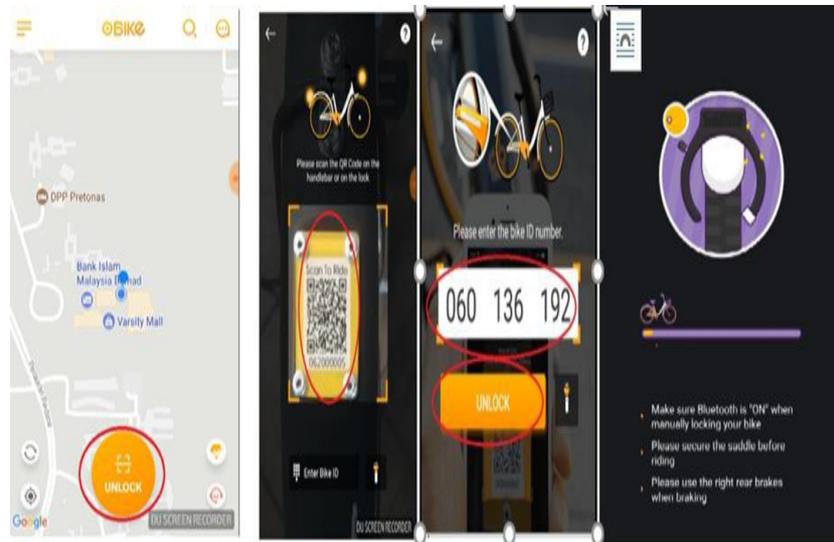


Fig. 4. Task 4 – Unlock locked oBike Bike

Task 5: Log out. In this task, the user logs out from their oBike account. The steps are: click menu icon, click settings icon, click log out icon, and click ok (figure 5).

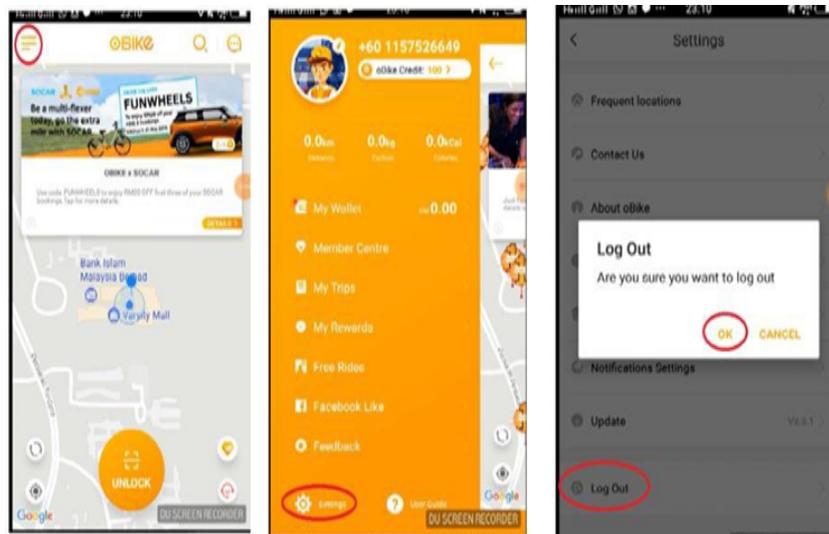


Fig. 5. Task5 - Log out from oBike account

Participants: as afore mentioned, 15 participants were conscripted from among the Universiti Utara Malaysia (UUM) students. The sampling was donepurposively. The

testing was done in two places at the UUM campus, Sintok: Sport Centre and beside Varsity-Mall between 26/04/2018 to 13/6/2018. Seventy-three percent (73%) of the participants were male while 27% were female. Age wise, 60% of participants were aged 25-below, 33% were aged 26-35 while 7% were aged 36-45. While forty percent (40%) were expert users, 60% were novice users.

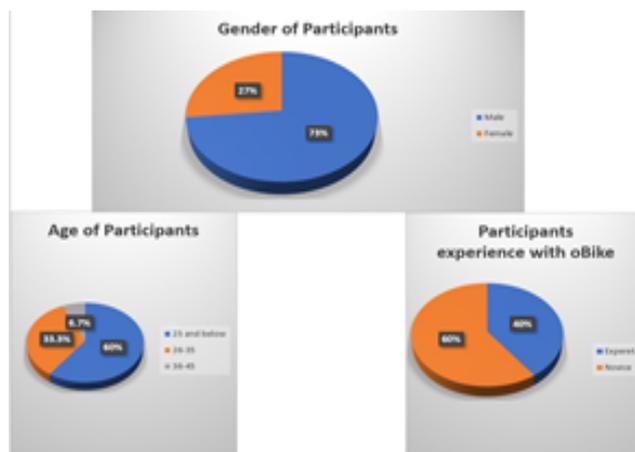


Fig. 6. Participants' Demographics

## 2 Results and Discussion

After the task session was completed, participants rated the app (site) with twenty-one overall measures. The result is shown in Table 1. Of the 21 items, 5 were low performance ratings (below 50%). Participants rated the items as follows: The menu items were well organized and functions were easy to find (33.40%). Uses of terms throughout application are consistent (46.70%). Messages (feedback) which appear on screen are NOT confusing (40%). Error messages are helpful (46.70%). Tasks always can be performed in a straight-forward manner (46.70%). The low ratings indicate that there usability issues that need to be attended to. However, items with high ratings indicate good usability. They are as follows: Characters on the touch screen are easy to read (80%). I immediately understand the function of each menu item (53.30%). Screen items are easy to select (60%). Instructions to the user are clear (53.30%). Application keeps you informed about what it is doing (66.70%). Learning to operate the application is easy (66.70%). Explorations of features by trial and error are encouraged (73.30%). Remembering terms and use of commands is easy (80%). Help messages on the screen are clear (60%). Application speed is fast enough (53.40%). Application sounds tend to be appropriate (60%). Correcting your mistakes is easy (66.70%). The needs of both experienced and inexperienced users are taken into consideration (60%). Screens are aesthetically pleasing (66.70%). Application is very much impressive (66.70%). Application is user friendly (60%) [30-45].

In addition, Table 2 stipulates recommended changes that should be made on the interface along with justifications for such recommendations and the risks (severity ratings) associated with not effecting the changes.

**Table 1.** Overall Ratings

S/N	Measure	%
1	Characters on the touch screen are easy to read.	80%
2	The menu items were well organized and functions were easy to find.	33.40%
3	I immediately understand the function of each menu item.	53.30%
4	Screen items are easy to select.	60%
5	Uses of terms throughout application are consistent.	46.70%
6	Messages (feedback) which appear on screen are NOT confusing.	40%
7	Instructions to the user are clear.	53.30%
8	Application keeps you informed about what it is doing.	66.70%
9	Error messages are helpful.	46.70%
10	Learning to operate the application is easy.	66.70%
11	Explorations of features by trial and error are encouraged.	73.30%
12	Remembering terms and use of commands is easy.	60%
13	Tasks always can be performed in a straight- forward manner.	46.70%
14	Help messages on the screen are clear.	60%
15	Application speed is fast enough.	53.40%
16	Application sounds tend to be appropriate.	60%
17	Correcting your mistakes is easy.	66.70%
18	The needs of both experienced and inexperienced users are taken into consideration.	60%
19	Screens are aesthetically pleasing.	66.70%
20	Application is very much impressive.	66.70%
21	Application is user friendly.	60%

**Table 2.** Recommendations

Change/Update Requirements	Justification	Risk (Severity)
The icons should be re-fixed (Task 3). The bike and promotions icons should be clear to the users to let them distinguish between the icons and to make the app easily learnable especially for those who are novices. Sometimes the expert users also face this problem especially with some versions of the application.	Took the maximum time to finish. Took 30% of time required to finish all tasks in addition to user comments in the questionnaire. Task3 required the highest amount of time to learn.	High
Task 5 - Logout: the logout button should be in the main menu of the application. It should be redesigned.	Many users find it problematic to find the logout function. This took the second highest time to learn.	High
Metric: menu items were well organized and functions were easy to find. This is the metric that measures how the functionalities are easy to use. It should be redesigned so that the functions can be easy to find	Got the lowest percentage rating(33.4%).Particularly the finding of the logout functionality.	High
Metric: Uses of terms throughout application are consistent. The terms throughout an application should be consistent.	Got low percentage rating of 46.7%. The payment task for instance, has two terms: pay now and top up. This confuses users.	High
Metric: Messages (feedback) which appear on screen are NOT confusing. The messages (feedback) which appear on screen should be clear.	Got low percentage rating of 40%.	High
Metric: Error messages are helpful. The error	Got low percentage rating of 46.7%.	High

messages should be helpful for user to learn easily.		
Metric: Tasks can always be performed in a straight-forward manner. Tasks should be done in a straight-forward manner.	Got low percentage rating of 46.7%.	High

### 3 Conclusion

In this study, 15 participants from UUM were involved in the usability test and results were quite informative. Most of the participants found that oBike mobile application needs to be enhanced to improve the satisfaction of user needs. Implementing the recommendations guarantees enhancing the application and will ensure a continued user-centered mobile application. The study recommends changes and justifications driven by the participant success rate, behaviours, and comments. Each recommendation includes a severity rating. The following recommendations were suggested to improve the overall ease of use and address the areas where participants experienced problems or found the interface/information architecture unclear. Task 3 requires the participants to Search and reserve, Task 5 requires users to logout from oBike account. These two tasks showcased the need for improvement of the interface. The response of users to the following measures like “ menu items were well organized and functions were easy to find”, “uses of terms throughout application are consistent”, “uses of terms throughout the application are consistent”, “error messages are helpful” and “tasks can always be performed in a straight-forward manner” elicited need for interface enhancement [45-53].

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Article submitted 2019-07-15. Resubmitted 2019-09-19. Final acceptance 2019-09-22. Final version published as submitted by the authors.