# IMA 2 - Usability Testing Report

# Memrise

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## Introduction

Memrise is a mobile application designed to teach users a multitude of skills with the primary focus being on language learning acquisition. The Memrise app houses over 300,000 courses that reinforce learning through the use of imaginative games and tasks. Learned information is consequently assessed at checkpoints with the intended purpose to convert new knowledge into long-term memory.

Our team conducted a remote usability test using the current version of the Memrise app located on our personal mobile devices. Team members recorded users’ comments and navigation choices as they completed seven predetermined tasks within the app. Each session captured a participant’s errors in navigational choices, rate (time) of completion, ability to complete the task, satisfaction ratings, and recommendations for improvement.

## Methodology

### Sessions

The recruitment process occurred through a snowball sampling procedure. The test administrators used his or her social contacts to seek out potential participants. Test administrators were responsible for recruitment of potential participants via phone, email, or text. Participants responded based on their convenience with the appropriate date, time and place to perform the usability testing. Each individual session lasted approximately 20 minutes.

Before the test, administrators introduced themselves to the participants and explained the need for the usability testing. Administrators also explained that participants had the right to choose whether they wanted to participate in the testing or not. To assure participants safety and comfort, test administrators clarified that nothing would be harmful, participants’ privacy would be secure, and that the test would be used to improve the quality of a mobile application.

During each session, administrators explained the testing process and asked the participant to perform certain tasks. After a task was explained, the participant attempted to perform the task within the mobile language application. Test administrators recorded the amount of time participants spent completing each task. Additionally, the administrators took notes about participants’ comments and struggles throughout testing.

Errors were also recorded.

After each task was attempted, the test administrator asked the participant to comment on the task’s level of difficulty (see Task Questionnaire Table under *Satisfaction*).

The tasks were categorized in the following manner:

1. Easy
2. Super easy
3. Neither easy or hard
4. Hard
5. Super hard

After the final task was completed, the test administrator asked the participant to complete a satisfaction questionnaire about their overall satisfaction of the mobile application. The participant rated each subjective matter using a 7- point Likert scale for 19 subjective matters (see Satisfaction Questionnaire Table under *Satisfaction*).

Areas of interest include, but are not limited to, the following:

* Ease of use
* Effectiveness of task completion
* Recommendations for improvement
* If they want to add anything to the application and what it would be
* Fastness and easiness of moving around the app
* Comfort level of using the app

Finally, test administrators asked participants the following questions in regards to the language learning mobile application (see Recommendation Table under *Recommendations*):

* What did you like most about the app?
* What did you like least about the app?
* Do you have any recommendations for improvement?
* If you would add something to the application, what it would be?

**Participants**

The four test administrators are graduate students at the University of South Florida. Each administrator selected two participants. The eight participants formed a diverse group of two males and six females with an age range of 27 to 60 years old. All of the participants were able to complete the seven tasks in approximately 20 minutes

### Evaluation Tasks

Test participants were presented with the following tasks:

1. Complete the steps necessary to create a new account on the Memrise app and stop after your account has been created.
2. Find one language you would like to learn and add it to your profile/ account.
3. Change the language to another language you would like to learn.
4. Turn off and turn on the auditory sound.
5. Go to the setting/ preference page and change one (any) setting option.
6. Edit the age in your profile.
7. Switch between learning languages and complete a task.

## Results

### Task Completion Success Rate

Each team member (test administrator) recorded the participant’s ability to complete the tasks without prompting. Each of the seven tasks were fully completed by all participants, despite differences in number of errors and length of time to complete the task.

**Task Completion Rates**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Participant** | **Task 1** | **Task 2** | **Task 3** | **Task 4** | **Task 5** | **Task 6** | **Task 7** |
| **1** | √ | √ | √ | √ | √ | √ | √ |
| **2** | √ | √ | √ | √ | √ | √ | √ |
| **3** | √ | √ | √ | √ | √ | √ | √ |
| **4** | √ | √ | √ | √ | √ | √ | √ |
| **5** | √ | √ | √ | √ | √ | √ | √ |
| **6** | √ | √ | √ | √ | √ | √ | √ |
| **7** | √ | √ | √ | √ | √ | √ | √ |
| **8** | √ | √ | √ | √ | √ | √ | √ |
| **Success** | **8** | **8** | **8** | **8** | **8** | **8** | **8** |
| **Completion Rates** | **100%** | **100%** | **100%** | **100%** | **100%** | **100%** | **100%** |

### Learnability: Time to Complete a Task Successfully

### Each test administrator recorded the amount of time on task for each participant. Some tasks took more time to complete than others. This was reflected by the average time on task.

* Task 1 required participants to create an account. This task took the longest time to complete (mean= 40.63 seconds), however, the completion times ranged from 20 to 57 seconds (less than one minute) with most times lasting less than 50 seconds.
* Task 2 required participants to find a language they were interested in learning and add it to their account. The mean time for this task was around 15.13 seconds. The completion times of this task ranged from 4 to 31 seconds with most of the completions occurring in less than 30 seconds
* Task 3 required participants to change the language setting to another language they would like to learn. This task took the second highest amount of time (mean=27.38 seconds). The completion time ranged from 10 to 90 seconds with the majority of participants completing the task in less than 50 seconds.
* Task 4 required participants to turn off and turn on the auditory sound within the application. The mean time for this task was around 19.25 seconds. The completion times for this task ranged from 5 to 33 seconds with most taking less than 30 seconds.
* Task 5 required participants to go to the setting/ preference page and alter one setting option. This task took the shortest amount of time (mean= 8.63 seconds). Completion times ranged from 4 to 13 seconds.
* Task 6 required participants to change or edit the age in their user profiles. The mean time for task completion was around 10.25 seconds. The completion times of this task ranged from 5 to 16 seconds with most times of completion occurring in less than 15 seconds.
* Task 7 required participants to switch between the two previously set language options. The mean time for the completion of this task was around 14.5 seconds. The completion times for this task ranged from 5 to 21 seconds with most participants taking less than 20 seconds.

**Time on Task**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **P1** | **P2** | **P3** | **P4** | **P5** | **P6** | **P7** | **P8** | **Total** | **Avg.** |
| **Task 1** | 20 | 23 | 61 | 45 | 35 | 41 | 57 | 43 | 325 | **40.63** |
| **Task 2** | 4 | 10 | 15 | 10 | 22 | 31 | 19 | 10 | 121 | **15.13** |
| **Task 3** | 20 | 16 | 90 | 40 | 22 | 19 | 2 | 10 | 219 | **27.38** |
| **Task 4** | 22 | 33 | 5 | 8 | 24 | 21 | 20 | 21 | 154 | **19.25** |
| **Task 5** | 10 | 6 | 4 | 10 | 13 | 11 | 8 | 7 | 69 | **8.63** |
| **Task 6** | 6 | 9 | 15 | 12 | 9 | 16 | 10 | 5 | 82 | **10.25** |
| **Task 7** | 10 | 17 | 20 | 18 | 21 | 14 | 5 | 11 | 116 | **14.50** |

### Errors

All the errors that the test administrators observed were mostly non-critical. All the participants completed all of the tasks despite slight errors and time of task completion as reported in the table listed below. Participants experienced the majority of errors during Task 1 which prompted users to create an account. Creating an account was not clear and direct based on the participants’ comments. An average of 2 errors (by excess) were encountered by participants when creating an account, meaning that almost all participants recorded an error with Task 1.

The second-ranked task by number of errors was Task 4, which prompted participants to change a setting option. The task itself was not seemingly difficult; the frequency of the error, it has been surmised, probably occurred due to the application’s organization. The least errors were committed during Task 5 and Task 6, each having an average of only 0.13 errors. Consequently, most participants described Tasks 5 and 6 as “easy.”

**Errors**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **P1 Abrar** | **P2 Abrar** | **P3 Kelly** | **P4 Kelly** | **P5 Patrick** | **P6 Patrick** | **P7 Audrey** | **P8 Audrey** | **Total** | **Avg.** |
| **Task 1** | 3 | 3 | 1 | 2 | 2 | 1 | 2 | 0 | 14 | **1.75** |
| **Task 2** | 2 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 5 | **0.63** |
| **Task 3** | 0 | 2 | 1 | 1 | 0 | 1 | 0 | 0 | 5 | **0.63** |
| **Task 4** | 3 | 0 | 0 | 2 | 0 | 0 | 1 | 2 | 8 | **1.00** |
| **Task 5** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | **0.13** |
| **Task 6** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | **0.13** |
| **Task 7** | 1 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | **0.50** |

We can attribute the high level of errors from Task 1 to familiarity with the application, the setting in which we conducted the testing and the level of affinity with the participants. Two approaches were used prior to conducting Task 1- either the phone was handed to the participant with the Memrise app currently open or the participant was asked to locate and open the application before proceeding. There were no noticeable differences in outcome using either of the methods.

The table below displays a summary of the test data: completion rates, time on task and number of errors in each task.

**Summary of Completion, Learnability, and Errors**

|  |  |  |  |
| --- | --- | --- | --- |
| **Task** | **Task Completion** | **Learnability** | **Total Errors** |
| **(Total Time on Task)** |
| **1** | 100% | 325 | 14 |
| **2** | 100% | 121 | 5 |
| **3** | 100% | 219 | 5 |
| **4** | 100% | 154 | 8 |
| **5** | 100% | 69 | 1 |
| **6** | 100% | 82 | 1 |
| **7** | 100% | 116 | 4 |

**Satisfaction**

Following the usability testing, participants were asked to provide information regarding difficulty experienced throughout the completion of each task, as well as provide feedback regarding overall satisfaction of the application. Task 1 received a mean rating of “Hard” while all other tasks were rated either Easy or Not Easy or Hard. In the end, one-hundred percent of participants agreed or strongly agreed that they could effectively complete the tasks using this language learning application (see number 3 on the Satisfaction Questionnaire Table).

**Task Questionnaire Table**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Super**  **Easy** | **Easy** | **Not Easy**  **or Hard** | **Hard** | **Super**  **Hard** | **Mean**  **Rating** | **Percentage of Agreement** |
| **Task 1** |  | XX | XXX | XXX |  | **Hard (3.50)** | **Not Easy or Hard & Hard tied at 37.5%** |
| **Task 2** | XX | XXXX | XX |  |  | **Easy (2.00)** | **50.0%** |
| **Task 3** | X | XXXX | XXX |  |  | **Easy (2.25)** | **50.0%** |
| **Task 4** |  | XXXX | XXXX |  |  | **Not Easy or Hard (2.50)** | **Easy % Not Easy or Hard tied at 50.0%** |
| **Task 5** | XXX | XXXX | X |  |  | **Easy (1.50)** | **50.0%** |
| **Task 6** | X | XXXXX | XX |  |  | **Easy (2.13)** | **62.5%** |
| **Task 7** | XX | XXX | XXX |  |  | **Easy (2.13)** | **Easy & Not Easy or Hard tied at 37.5%** |

**Satisfaction Questionnaire Table**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Strongly Disagree**  **1** | **2** | **3** | **Neutral**  **4** | **5** | **6** | **Strongly Agree**  **7** | **Mean Rating** | **Percentage of Agreement** |
| **1. Overall, I am satisfied with how easy it is to use this language learning app.** |  |  |  | X | XX | XXX | XX | **5.75** | **37.50%** |
| **2. It was simple to use this language learning app.** |  |  | X | X |  | XXX | XXX | **5.75** | **6 & 7 tied at 37.50%** |
| **3. I could effectively complete the tasks using this language learning app.** |  |  |  |  | XXX | XXXX | X | **5.75** | **50.00%** |
| **4. I was able to complete the tasks quickly using this language learning app.** |  |  |  | X | XXXX | XXX |  | **5.25** | **50.00%** |
| **5. I was able to efficiently complete the tasks using this language learning app.** |  |  |  | XX | XX | XXX | X | **5.38** | **37.50%** |
| **6. I felt comfortable using this language learning app.** |  |  | XX |  | X | XX | XXX | **5.5** | **37.50%** |
| **7. It was easy to learn to use this language learning app.** | XX |  |  | XX | X |  | XXX | **4.5** | **37.50%** |
| **8. I believe I could become productive quickly using this language learning app.** |  |  | XX | X |  | X | XXXX | **5.5** | **50.00%** |
| **9. This language learning app gave error messages that clearly told me how to fix problems.** | X |  |  | XX | XX | X | XX | **4.88** | **4,5,&7 tied at 25.00%** |
| **10. Whenever I made a mistake using the language learning app, I could recover easily and quickly.** |  |  |  | XX | X | XXX | XX | **5.63** | **37.50%** |
| **11. The information (such as online help, on-screen messages and other documentation) provided with this language learning app was clear.** |  |  |  | XX | X | XXX | XX | **5.63** | **37.50%** |
| **12. It was easy to find the information I needed.** |  |  |  |  | XXX | XXX | XX | **5.88** | **5 & 6 tied at 37.50%** |
| **13. The information provided for this language learning app was easy to understand.** |  |  |  |  | XXX | XX | XXX | **6** | **5 & 7 tied at 37.50%** |
| **14. The information was effective in helping me complete the tasks.** |  |  |  |  | XXX | XXX | XX | **5.88** | **5 & 6 tied at 37.50%** |
| **15. The organization of information on the language learning app screens was clear.** |  |  |  | XX | XX | XX | XX | **5.5** | **4, 5, 6, & 7 tied at 25.00%** |
| **16. The interface of this language learning app (buttons, menus, graphics) was pleasant.** |  | X |  |  | XX | XX | XXX | **5.63** | **37.50%** |
| **17. I liked using the interface of this language learning app (buttons, menus, graphics).** |  |  |  | X | X | XXX | XXX | **6** | **6 & 7 tied at 37.50%** |
| **18. This language learning app has all the functions and capabilities I expect it to have.** |  | X | XX | X |  | X | XXX | **4.88** | **37.50%** |
| **19. Overall, I am satisfied with this language learning app.** |  |  | XX |  | X | XXX | XX | **5.38** | **37.50%** |

## Recommendations

Based upon our observation and participant comments, we recommend improvements to the following areas: User Interface Design (UI Design), User Experience (UX), and the overall application performance. We further suggest reviewing the Instructional Design approach of the application as it does not appear to effectively support the learning objective. Participants have questioned whether our objective is to learn “vocabulary in a new language” or to “learn to speak new language.”

The following table summarizes our recommendations grouped by category and ordered by severity.

**Recommendation Table**

|  |  |  |  |
| --- | --- | --- | --- |
| **Categories** | **Changes** | **Observations** | **Severity** |
| **UI Design** | 1. Make UI more intuitive   * Switching language * Creating account   2. Correct Back button functionality to return users to previous page | -Users struggle completing tasks and asked for more directions (Tasks 1 and 3)  -Back button should return user to previous page not prompt for exiting the application. | **High** |
| **UX** | 1. Use native speaker for voice  2. Social media plugins | -Learning experience can be enhanced if the voice is that of a native speaker.  -Leveraging social media can boost learning as users can measure progress | **Medium** |
| **Performance** | 1. Improve overall performance   * Latency when changing pages * Slow response when entering data | -Page loading seems to affect overall navigation. While intermittent, users have reported 2-3 seconds delay during navigation. | **Low** |

## Conclusion

Despite initial frustrations experienced during the completion of Task 1, most participants found that Memrise was a useful mobile application for those interested in learning a new language. The mean rating for each of the questions presented in the Satisfaction Questionnaire ranged from 4.5 to 6 which indicates that participants experienced moderate to high satisfaction with both the aesthetics and the functionality of the app. Test administrators agree that the navigation difficulties experienced by the participants would most likely decrease with continued exposure. Implementation of the recommendations and frequent use of the application will ensure an effective mobile language learning application for all users.