

A Quality and Efficacy Assessment
using The Mobile Application
Rating Scale:

Speech Blubs: Speech Therapy App

Authors: Ina Lalic, Jaka Zabukovec
Advisor: Stoyan R. Stoyanov



Speech Blubs
Helping Kids Speak!

TABLE OF CONTENTS:

Abstract

Introduction

Methods

Results

Discussion

Conclusion

Abstract

The Speech Blubs speech therapy app has achieved excellent recognition from its users. While in its design it is grounded in research, its quality and effectiveness as perceived by professionals and experts has not yet been evaluated. For this purpose, the current study applied the Mobile Application Rating Scale (MARS). Twenty-two Speech and Language Pathologists were asked to evaluate the quality of the Speech Blubs speech therapy application. Therapists used a slightly tailored version of the MARS, and domain-specific questions were added to hone the precision and utility of the assessment. They awarded the app a rating of 3.9/5.0. When compared to published data on the quality of similar apps, Speech Blubs ranks amongst the highest quality speech therapy apps.

Introduction

The Speech Blubs speech therapy app has been on the market since 2016 and has achieved excellent recognition in the form of 5+ million downloads, over 100,000 subscribers, and over 13,000+ 5-star ratings. The app aims to help children to start speaking and uses video modeling, speech games, and riddles. It is deeply grounded in research and the developers focus heavily on its robust evaluation. While originally designed with the help of hundreds of speech therapists, through an iterative design process, with the current study the developers sought to assess Speech Blub's quality and perceived effectiveness by a cohort of esteemed professionals and experts in the area of speech therapy. To ensure the accuracy and objectivity of the assessment scores, the MARS was selected as the most appropriate method for quality evaluation, as the scale has been widely applied and validated in the area of eHealth, both in terms of education and awareness as well as tracking treatment and outcomes.

Methods

The study used a modified version of the MARS (Mobile Application Rating Scale), that was tailored in coordination with [Stoyan Stoyanov](#), one of the original creators of the MARS in order to assure that the integrity of the scale was preserved while being most relevant to the Speech Blubs app. The following adjustments were made:

- Item 19 was removed, as we knew that the N/A option would have been the only correct selection for this item, since this research constitutes the first phase of the app evaluation research;
- The first two questions of the subjective sub-scale E were altered to make more sense for the speech therapists who were responding to the survey, and not the primary users of the app (who would be the children themselves). The questions changed in the following ways:

- “Would you recommend this app to people who might benefit from it?” became “Would you recommend this app to be used as a supplementary tool by families outside of therapy sessions?”
- “How many times do you think you would use this app in the next 12 months if it was relevant to you?” became “I would use this app as a supplementary tool to my speech therapy practice.”
- Following the advice of Stoyanov, as stated in the original scale that “These added items can be adjusted and used to assess the perceived impact of the app”, the “Perceived Impact” factor was modified to meet the specific needs of accurately measuring raters’ perceived effectiveness of Speech Blubs. The new subscale consisted of 13 items, following the logic of the original factor and including the following questions
 - The initial assessment ...
 - ... is thorough.
 - ... asks relevant questions.
 - ... offers useful tips for parents/guardians.
 - ... is informative.
 - Knowledge: the app as a whole is likely to increase the parent/guardian’s...
 - ... awareness of a child's speech and language difficulties.
 - ... understanding of a child's speech and language difficulties.
 - ... ability to help their child meet speech and language goals.
 - Attitude: the app as a whole is likely to...
 - ... improve child attitudes toward speech therapy.
 - ... facilitate children’s engagement during a speech therapy session.
 - ... engage children to work on their speech and language skills.
 - The exercises and activities in this app...
 - ...are in line with relevant speech therapy practices.
 - Behavior change: Use of this app as whole is likely to increase the child’s
 - ... expressive language.
 - ... receptive understanding.

Over the course of two weeks in June and July of 2022, SLPs (Speech and Language Pathologists) were invited to spend around an hour exploring the Speech Blubs app and all of its components before completing our survey. Participant inclusion criteria were: 1. Official SLP certification; 2. Expressed interest in the application of technology for speech therapy; and 3. Fluency in the English language.

A total of 22 SLPs participated in our study in July 2022. The MARS score was calculated as per the method’s stipulations, which is an average of all scores for each section, followed by an overall average score.

Results

The raters found Speech Blubs to have an overall MARS rating of 3.9. The overall rating per section is as follows:

Section A: Engagement Score: 4.0 (SD: 0.7)

Section B: Functionality Score: 4.3 (SD: 0.9)

Section C: Aesthetics Score: 4.5 (SD: 0.7)

Section D: Information Score: 4.0 (SD: 0.7)

Section E: Subjective Quality Score: 3.2 (SD: 1)

Section F: Perceived Impact Score: 3.7 (SD: 0.8)

Within Section F, results were as described in Figure 1 below:

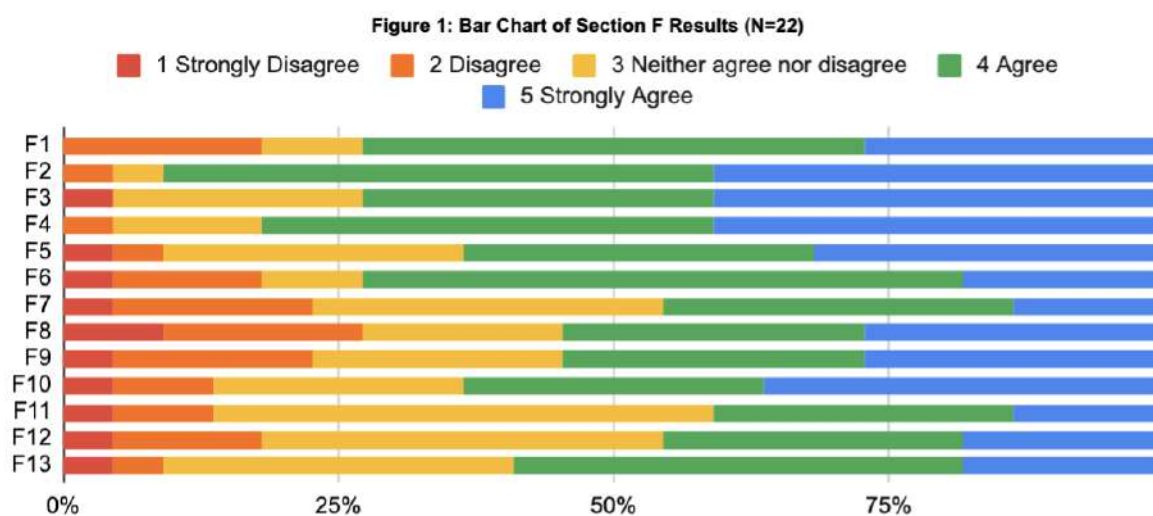


Figure 1 can be found in Appendix 1

A more precise breakdown of each question is as follows:

- The initial assessment ...
 1. ... is thorough. (Mean: 3.8, SD: 1.1)
 2. ... asks relevant questions. (Mean: 4.3, SD: 0.8)
 3. ... offers useful tips for parents/guardians. (Mean: 4.0, SD: 1.0)
 4. ... is informative. (Mean: 4.2, SD: 0.9)
- Knowledge: the app as a whole is likely to increase the parent/guardian's...
 5. ... awareness of a child's speech and language difficulties. (Mean: 3.8, SD: 1.1)
 6. ... understanding of a child's speech and language difficulties. (Mean: 3.7, SD: 1.1)
 7. ... ability to help their child meet speech and language goals. (Mean: 3.3, SD: 1.1)
- Attitude: the app as a whole is likely to...
 8. ... improve child attitudes toward speech therapy. (Mean: 3.5, SD: 1.3)

- 9. ... facilitate children's engagement during a speech therapy session. (Mean: 3.5, SD: 1.2)
- 10. ... engage children to work on their speech and language skills. (Mean: 3.8, SD: 1.2)
- The exercises and activities in this app...
 - 11. ...are in line with relevant speech therapy practices. (Mean: 3.4, SD: 1.0)
- Behavior change: Use of this app as whole is likely to increase the child's
 - 12. ... expressive language. (Mean: 3.4, SD: 1.1)
 - 13. ... receptive understanding. (Mean: 3.6, SD: 1.0)

Discussion

These results show that overall, Speech Blubs proves to be an above average digital health app. It is notably stronger in aesthetics, functionality, engagement, and information, but loses points in terms of subjective quality and perceived impact. These results indicate that Speech Blubs is objectively a high-quality product.

Questions that were lower in rating were:

- 18. Credibility: Does the app come from a legitimate source (specified in app store description or within the app itself)? 3.0/5
- 20. I would use this app as a supplementary tool to my speech therapy practice 2.7/5
- 22. Would you pay for this app? 2.6/5

These results suggest that the developers of the application should include a section in the app itself and in the app store description, clearly outlining the credentials of the team and the expertise involved in the development process. Speech Blubs is designed by a specialized company that relies heavily on the input of professionals and extensive testing in order to ensure the quality reflected in other parts of the application. We hope that this study will further showcase the rigorous approach applied to the development and evaluation of the Speech Blubs app.

The raters appear impartial to using the app in their practice, or pay for it. This result was expected, since the app primarily targets intervention outside of therapy, either to reinforce a child's specific personalized speech and language goal behaviors outside of therapy, or to provide introductory access to children who are waiting to see a therapist. Indeed, the app needs to appeal to parents as the parties responsible for their children's health decisions, as well as to the 1-3 year olds who are the target users. Hence, the app is not made to have all the tools a therapist may need, since those would hinder the primary audience; parents and children.

Some questions that were notably high in rating were:

- 10. Layout: Is arrangement and size of buttons/icons/menus/content on the screen appropriate or zoomable if needed? 4.55

11. Graphics: How high is the quality/resolution of graphics used for buttons/icons/menus/content? 4.5

17. Visual information: Is visual explanation of concepts – through charts/graphs/images/videos, etc. – clear, logical, correct? 4.5

These results show that Speech Blubs is remarkably visually appealing. Since the target users are aged 1-3, it is absolutely critical to have clear, appealing, and simple visuals. Indeed, if the basic layout, graphics, and overall visuals in Speech Blubs do not work, the content beyond cannot be accessed nor explored. Therefore, this result is very positive.

The results from the personalized Section F suggest that participants are overwhelmingly positive about the Speech Blubs app's perceived effectiveness. Section F was designed to target elements of Speech Blubs that make it unique, namely the initial assessment, and the app's impact on the child as a whole, inclusive of their attitudes about speech therapy. Therapists were overwhelmingly positive about the quality of the initial assessment, as it is the subsection with the least 1/5 and 2/5 ratings (See Fig.1). Furthermore, the app appears to be successful as an educational tool for parents (although it is critical to note that the app is not the only tool made available to parents. Outside of the scope of this evaluation, parents also have access to a website, speechblubs.com, where they can find more blogs and information). Since the children using the app are so young, it is often difficult to engage them in pedagogical or speech-therapy related games and activities. However, the raters believe Speech Blubs is capable of being especially engaging to this age group. These positive results in the attitude sub-category are very promising, especially as Speech Blubs continues to grow, keeping utility and enjoyability at the forefront of their mission. The mission dovetails into the SLPs finding that the app is in line with speech therapy practices, securing almost 80% approval. Finally, the speech and language pathologists were optimistic about Speech Blubs' potential to prompt behavior change in children, a datapoint many parents, as well as the team behind the application find essential.

With this study we aimed to invite ratings from experienced, professional SLPs in order to ensure the rigor and reliability of our results. As such, the achieved ratings suggest that Speech Blubs is highly interactive, functional, visually attractive and appropriate app, containing high quality information. In 2018 Lisa Furlong et al. published a MARS evaluation of 132 tablet mobile apps for speech and sound disorders. The study found that speech apps rated at an average MARS score of 3.7 (SD = 0.3). Based on the results of this study it can be concluded that Speech Blubs would fall into the upper fifth of tablet mobile apps for speech and sound disorders.

Conclusion

This study evaluated the quality of Speech Blubs with the help of professional SLPs to increase user confidence in the quality of the app. The results were positive and identified certain areas for improvement which will be addressed by the Speech Blubs team. In the future, the app developers plan to implement design updates to further improve Speech Blubs' functionality and aesthetics, at which point it would be interesting to reevaluate the app with another MARS score.



Speech Blubs
Helping Kids Speak!