





# The Application: RE'BER Line 1.0

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**Abstract:** *Innumeracy is quite frequent at schools and this causes the deficiency in skills to deal confidently with many of the mathematical challenges of modern life. However, most of society does not see it as a problem. In fact, many people boast about their innumeracy. This frivolousness toward the prevalence of mathematics has become an accepted norm that resulted in many school leavers to become innumerate to the extent that they are incapable of dealing with the challenges of everyday life such as in the aspects of finances, to home maintenance, and to personal healthcare. Consequently, halfway through the academic year 2019/2020, learning methods were delivered through distance learning to meet the compulsory physical distancing policy as stipulated by the government. The awareness of online learning is currently adopted by educational institutions worldwide to provide students with ongoing education during this endemic phase, an application called RE'BER Line 1.0 was designed and developed that could be utilized as an adaptable tool for the educational process. Being a contemporary application, it can promote active learning, develop various skills among students, help them to overcome their innumeracy and improve their engagement with the subject. This app is an improved innovation than the previous invention of physical real number line ruler (RE'BER LINE RULER) because it develops their math skills especially in mental calculation, while retaining their entertainment and attention span during lesson. Like any other new tool, this app attempts to take on a new feature to make it more interactive by providing gamification features which can be installed in all technological gadgets. Nevertheless, for today's students who neglect the offline world for the benefit of virtual world, this application is believed to overcome their disabilities and poor academic performance in mathematics.*

*Keywords:* RE'BER Line 1.0; mathematics; application.



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## 1. INTRODUCTION

Poor achievement in mathematics has become a global concern for many countries. Students were inclined to like mathematics but at the same time, they did not quite see the benefits of learning the subject. In other words, students understood the importance and practical implication of mathematics subject but seemed to perceive learning mathematics as unnecessary (Wong & Wong, 2019). This false taboo on mathematics has caused Malaysian students to have poor mathematics performance in school.

It is estimated that in 2020, the percentage of Malaysian individuals using internet increased by 5.4 percentage points from 84.2% in 2019 to 89.6% (Department of Statistics Malaysia, 2021). This means many students of all walks of life adopted at least one game-based learning platform such as Kahoot, Quizizz or Brain Quest in the classrooms. While such technologies, the trend of gamification is not free from dark side like excessive use that can lead to addiction, but they can significantly benefit users. They provide significant benefits such as emotional support, self-expression, and community building (Dalvi-Esfahani et al., 2019).

Consequently, it is predictable that there are potential benefits of using technology in learning mathematics. Extending knowledge of the potential link between RE'BER Line 1.0 app and overcoming innumeracy is the goal of this study. There is no innovation overcoming innumeracy using RE'BER Line 1.0 to the best of the authors' knowledge. Hence, this paper aims to make known this educational application which can encourage students to have more interest towards mathematics.

## **2. BACKGROUND**

The elements in RE'BER Line 1.0 can encourage interest which later spark action from users who might otherwise lack motivation to learn mathematics. For example, users can learn new game or do exercise regularly in this app. The home page of RE'BER Line 1.0 is linked with the elements for all activities to be performed by the users and it also may assist users to coordinate each activity and have fun as they solve mathematics equations of one exercise to another. In addition, the RE'BER Line 1.0 produces stimulating sound at every interaction that helps users to always stay alert while using this app. To perform well in mathematics, users can frequently do exercises with the aid of this app to help them solve equation problems.

## **3. DEVELOPMENT OF RE'BER LINE 1.0**

The process of developing RE'BER Line 1.0 began with defining the app goal. Secondly, developers started sketching the app roughly. Thirdly, the developers proceeded to creating a frame and storyboard. Fourthly, developers defined the end for the app. Lastly, the developers tested the prototype among pre-schoolers to school children to Pre-Diploma students in higher institutions. For the functioning process, users can install Blue Stacks app prior to downloading RE'BER Line 1.0 from Google Play store. After that, users can watch the demonstration video by clicking "how to use" button. This section provides guidance to a first-time user. Then, users can click "exercise" button to complete the tasks given as a warm up boost to use this app. Finally, RE'BER Line 1.0 provides "try me" button with an arrow that can be moved to the right and left to solve addition and subtraction problems. This interesting app provides encouraging clicking sound as users move from one question to another and increase user online engagement with this app.

## **4. FINDINGS**

RE'BER Line 1.0 has a unique feature which offers its own set of services. Here are four advantages of using this app and show the important role of using this app in education:

### *4.1 Promotes Active Learning*

With this app, students can study on their phones or mobile electronic devices. This app has its own unique features and services tailored to users. Each student can learn at their own time and in

their unique way at the click of a button. It is handy, so students can learn from the comfort of their bedroom with their classmates or study peers when the classroom door shut, with no stress involved.

#### *4.2 Develops Various Skills among Students*

The introduction of this app in the education sector will lead to the introduction of new learning methods. These new learning methods develop various non-cognitive (soft) skills among students such as time management, digital literacy, online communication, problem-solving skills, and organizational skills.

#### *4.3 Overcomes Innumeracy*

There are fun tasks available on this app that indulge the students into a healthy thinking/cognitive process and help them understand things from a different perspective. The interactive nature of this app can be effective at supporting the acquisition of basic skills in learning mathematics (e.g., whole numbers) in mainstream preschool and primary school children and overcoming their innumeracy.

#### *4.4 Improves Engagement*

This app provides a new and creative ways of learning mathematics. The exercises and tasks given can make learning enjoyable, resulting in increased student engagement. These kinds of activities are essential to improve students' focus levels.

#### *4.5 Enhances Parent-Teacher Relations*

This app helps in building parent-teacher relations beyond the walls of educational institutes and improves their engagement and relationship in return. This facilitates teachers for responding to the queries from the parents regarding the development of their children. It also helps in maintaining the transparency in the education sector.

## **5. POTENTIAL COMMERCIALIZATION**

RE'BER Line 1.0 incorporates a few activities in this app and features boost engagement through knowledge-oriented activities. As a start, an editorial calendar featuring important dates, ideas, and creative marketing ideas will be drafted. Then, it is also essential to make a list of schools, teachers, influencers, and famous industry bloggers to be contacted in promoting this application. Hands-on demonstration will be provided for the prospects by directly going from school to school and campus to campus and getting their feedback. In this way, user's interests can be easily understood, and the developers can connect with them without any problem.

It is widely known that social media is presently at its high time for commercialization purpose, hence, nurturing relationships with potential customers will be continued and raising the awareness of this application's brand will be widely endorsed through popular social media sites such as Facebook, Instagram, and Twitter. Relevant conferences will also be attended to promote this education app. In addition, different and related events will be visited, and potential users will be met. The focus on using forum or blogs actively will be a part of the plan where users can have two-way communication with the developers in the effort of continuous enhancement of this application. Through these platforms, practical advice will be offered to them and any issues that might arise will be addressed accordingly.

In the future, creating a website along with the app's store page will be considered. These can be the virtual classrooms and enable the developers to sustain a great relationship with the target customers based on their queries, ratings, reviews, and feedback.

## 6. CONCLUSION

Many students struggle with mathematics, and they need extra support. However, they cannot afford extra help lessons or tuitions for any additional costs. To reduce this gap, this app is invented which can be installed in all Android technological devices. This novel app hosts a suite of features that can enhance learning for mainstream students and help them to adapt well with the current challenging education syllabus and system. When using RE'BER Line 1.0, they can sharpen their knowledge on some fundamental concepts of mathematics, succeed in solving challenging problems, and overcome their mathematics anxiety. To conclude, this app will make mathematics less intimidating and provide a solid mathematical education to them.

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