CONTEMPORARY RESEARCH IN INDIA
ISSN 2231 - 2137

IMPROVING MATHEMATICAL ADDITION SKILL OF LEARNING DISABILITY CHILD THROUGH MOBILE APP - A CASE STUDY

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Received: 10/02/2018 | **Edited: 19/02/2018** | **Accepted: 27/02/2018**

Abstract: *The main purpose of this case study is analyse the mobile app can improve the mathematical addition skill of learning disabled child and is it possible. The descriptive narrative method is used to answer the research questions based on objectives. In this study the researcher chose one X standard student suffered dyscalculia & dyslexia. Triangulation approach will apply through the use of multiple data sources i.e. Interview the student, teaching addition to use of mobile app, analyse the student's outcomes in learning addition with appropriate test. The student made great progress during the term the study was done. He got 80% on his final mathematics exam. He give an accurate result of addition with processing speed. In this research the researcher chosen an only one student and addition concept only taken to teach. This article shows evidence of mobile learning or mobile app to improve learning ability of children with learning disability. Since children are digital natives, if technology introduced through app, it creates interest and lead to better understanding the concept especially in mathematical application. This article will give a proper guideline for teachers to handle learning disabled children with technology in their learning.*

Keywords: *Case study, Mathematics, Technology, Mobile App, learning, disabilities.*

Introduction

Assistive technology refers to the devices and services to increase, maintain, or improve the capabilities of a student with a disability and student without disability in learning. Wireless mobile devices like smartphones, tablets, could be used to benefit students' learning in or out of the classroom. In front of the idea of inclusion of mobile learning in educational process some important case studies which examine the consequence of using mobile tools and apps, as well as online applications in mathematics teaching, at all educational levels. Smartphone and tablet devices come with a limited range of functionality built in and this is extended through software applications called 'apps'. Case studies have long been used in business schools, law schools, medical schools and the social sciences, but they can be used in any discipline when instructors need, students to explore how and what they have learned applies to real world situations.

Background of the Case

Name: R. Naveenkumar
Standard: X Standard
Research period: One Months *(From 1st September 2017 to 30 September 2017)*
Student demographic background: The student was X standard fail. His father is auto driver & his mother is homemaker. The student have one younger sister and one younger brother. They are living in single family. His father & mother both are illiterate. The student (case) & his brother is studying same school, boys only studying in that Government aided school in Salem district of Tamilnadu state. The student was fail in mathematics subject & passed in all other subjects in X public exam. Therefore, student was identified as a struggling student in mathematics.

Learning Characteristics

The student is an introverted character; he seems depressed all the time. When the researcher met him, he always smiled, a form of greeting. When his parent talked about him in front of him, he would escape to his room. The studentparent believed that he was a nice boy, listened to his parent, and studied hard. He used to study until midnight from the time he went to primary school. He did well in other

subjects, except mathematics. He has failed mathematics exams many times. Due to his learning character, parents did not give pressure to him and only hoped the class mathematics teacher would be able to help him and teach him effective learning skills in order to make him more relaxed in learning. Actually this student did well in middle school. However, the student did not catch up with his classmates in high school. His mother felt responsible for his family to improve student's scores. Therefore, he was looking forward to the researcher to be able to understand this particular situation and continue to be patient with him.

Diagnostic Assessment

The researcher chatted to the student and asked: "Do you like mathematics?"

Student said: "I don't know, I only learn mathematics because of teacher's requirements."

The researcher: "What has happened so far in learning mathematics?"

The student was surprised and hesitant to answer this question and kept silence a while, then said: "Because I have to take mathematics exams."

The researcher: "Anything else?"

Student told the researcher that he learns mathematics in order to comfort his mother; he knew that it was not an easy life for his mother, and also he felt guilty for his poor performance in mathematics. After the researcher contacted student a few times, the researcher discovered that the student is indeed a sensible boy but feeling stressed. For example, the student was asked the reasons why he could not do well in mathematics. He kept saying that he has low ability in mathematics and could not remember the methods for solving problems with flexibility, and his brain cannot match this challenge. In addition, he felt he was not as clever as his classmates. The researcher attempted to guide him, and asked: "What do you think about your teacher's teaching? Did the teacher care about you?"

The student said: "My mathematics teacher is excellent, although I am not good at mathematics; the majority of students in the class do well. It can be proved that I was not good at learning mathematics. I supposing my teacher doesn't know my name. It is understandable because he is usually busy and I am not good at mathematics."

The researcher: "It can be sure that teachers care about every student. Your teacher believes that you can behave yourself and don't need to be controlled by him."

The student: "Maybe."

When talking about his parents, the student believed that there is no direct relationship between his mathematics results and his parent.Therefore, his parents always argued because of his poor performance with him and his teachers. He felt really guilty about this. The researcher told him it was wrong that he always blamed himself, he should not have to burden himself, because adults should have their own life. The student felt very stressful in daily learning; he told the researcher that he felt nervous when he saw a new topic in mathematics; he thought he could not do it, and stupid, and lost confidence completely.

Analysis of Reasons for Poor Performance in Mathematics

During the period of contact with student, the researcherthought that student's involvement in learning mathematics led to an apparently negative trend in learning based on his personal character circumstances. A possibly reason for his unsatisfactory results in learning mathematics is his learning skills not being suitable for learning mathematics.

In addition, the student always depended on remembering some results and concrete methods to solve problems, and ignoring comprehension of mathematics concepts in high school, and being less focused on the summary of the method for solving problems. Therefore, he would like to practice some topics using a series of fixed and connected steps. When changing topics, he would not be able to deal with it, even he did a problem right, and he always doubted it. The student personally believed that his weak foundation in mathematics led to his failure.

Based on this particular learner's character and lack of help, the researcher attempted to develop his addition skill with use of mobile app.

Intervention

The basic 1+1 has been with us from beginning. The very first sum you most possibly learned was 1+1. Do realize that as time goes by and technology enhances that the basics are still the same. Nothing has changed, only the creativity in which teach, learn and present them. Addition is still the same process of adding two or more numbers composedto find their total. No matter on age, but addition is and will always be a part of your life. So the research first will develop addition skill of this students with use of mobile app.

According to Samual Roy (2017), in these changing times, students are more driven towards using a mobile phone for every purpose. A smartphone they call it. The world is at the fingertips and a student can get access to any information from anywhere. This reduces the chance of visiting a library and searching for the data. Here the researcher used to "ADDITION" mobile app downloaded from google play store. This app is an English language, then the research guide the students & translate.

Praise at proper time and enhance the student's confidence

When analysing topics of mathematics, the researcher often asked student whether he could find a good idea, and if his thoughts were reason base. The researcher would agree with his responses and praised the student, built his confidence, and had him see the hope in improving his learning. In addition, the researcher often showed the process of thinking and told him how to "think" when the researcher and the student studied the topic. Sometimes, the researcher failed to identify his thinking. Sometime, it took several trials. Later on, the student was not afraid to solve addition problems in mathematics.

Encourage developing addition skills

The researcher not only developed student attention but also pointed out his weaknesses in learning skills and required him to exchange ideas with classmates via information and communications. The student found many of his classmates always re-solved addition problems that they could not solve the first time, and recorded the strategies of problem solving in their notebooks so that they would be able to review before exams. The researcher also told him to write down the reasons why he could not solve problems, and the key factors in solving these problems via doing various practices to master them. Later on, he realized that there are differences between high school and middle school mathematics. In high school, there should be more focus on thinking and not only simply imitate examples. More focus should be on trial-and-explore solving methods. He started to explore methods in solving problems and learned how to think mathematically, not only remember results while doing mathematics.

Provide guidance to identify reasons beyond personal factors

The researcher trained the student to objectively organize positive aspects and to realize that successful learning depends on various factors. It does not only include personal work, personal abilityand learning strategies and also relates to the level of tasks, teachers, teaching methods and family background, etc. Finally, the researcher helped him to develop some methods to deal with these factors to different concepts in mathematics.

Results & Conclusion

The student made great progress during the term the study was done. He got 80% on his final mathematics exam. The researcher asked him to talk about his experience of improvement. He was able to relate clearly, why and how he thought. He likes mathematics now and has learned how to enhance his mathematics learning in difference concepts. The researcher continued to encourage him to apply effective learning skills. For example, his effective learning skills include outlining the structure of the topic, re-doing problems with mistakes in him homework, exchanging ideas with classmates, regularly reviewing the content, and focusing on the

connection between mathematics concepts. learning.
Therefore technology must enhance the students

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