

A Need Analysis on Technology for Teaching English to Primary School Students with Specific Learning Difficulties

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KEYWORD

EFL, slow learner, specific learning difficulty, teaching English, technology in education, vocabulary.

ABSTRACT

The teachers implement the use of technology to help them maximize their teaching process. With the variety of students' learning needs, the teachers need to choose the proper technology such as in studying English. This research discovers how the teachers integrate technology for teaching English to students with specific learning difficulties (SpLDs) in SD Negeri 010 Samarinda Seberang. This is one of the schools in Samarinda Seberang that provides a classroom for students with SpLDs such as slow learner, ADHD, autism, dyslexia, dyscalculia and dyspraxia called Ruang Sumber. The data sources were collected through qualitative data analysis by interviewing the Shadow teachers (Guru Pendamping Khusus) to find out how the English teaching method is conducted and how the technology is implemented. The research shows that the teachers focus on introducing numbers, alphabets, vocabulary, simple conversation in English, practicing reading, speaking, writing and listening skills. They only utilize Canva and Pinterest to create worksheets and find printable images because they have joined training on using the applications. However, they realized that the applications are not significantly help the students with SpLDs to learn English. Therefore, the researchers recommend assistive applications such as Speak for Yourself, Strigi's 9998, Graphogame, DysEggxia, Let's Learn Math, Mathletes, Writing Wizard and iWriteWords to teach English for students with SpLDs. The applications are more personalized to assist students to study based on their learning difficulties in Ruang Sumber at SD Negeri 010 Samarinda Seberang.

INTRODUCTION

The variety of students' characters and learning needs become a challenge for the teachers to choose the proper technology as their teaching tools. Each student has a different capability to catch up with the learning process. Moreover, the teachers need to be concerned for the students who have slower capability in learning process especially those who have specific learning difficulties (SpLDs). There are 10 – 15% population has been confirmed with learning difficulties in the world (Shah & Trivedi, 2017). Therefore, the teachers need to implement the technology to maximize their teaching process for the students with SpLDs. Utilizing tools such as laptop, tablet and LCD projector, coupled with learning media such as video materials, animated image and

interactive digital quizzes will enhance interactivity to facilitate the understanding and acquisition of English among students with special learning needs (Ramadani, 2024). Moreover, the use of proper applications enables the students' to engage with the learning process and exhibit higher motivation to learn (Barua, et al, 2022). Yet, among various types of technologies that are implemented, the teachers must be aware of the students' learning needs.

This research is conducted to discover the implementation of technology for teaching English to students with SpLDs. We would like to find out how the teachers implemented the use of technology for diverse students' learning needs especially those with SpLDs. We chose State Elementary School 010, Samarinda Seberang, Kalimantan Timur which is the first school in Samarinda Seberang that provides a classroom for students with SpLDs called *Ruang Sumber* since 2010. There are 34 out of 690 students which are diagnosed as students with specific learning difficulties. They are categorized into 6 types of specific learning difficulty such as first is Slow Learners, children whose performance is poor in schools yet are not eligible for special education; their intelligence test scores are too high for consideration as a child with mental retardation (Mercer, 1996) (MacMillan, Gresham, Bocian, & Lambros, 1998). Second is ADHD, a psychiatric condition that affects children's ability to function. This disorder makes someone show the patterns of developmentally inappropriate levels of inattentiveness, hyperactivity, or impulsivity (Magnus, et al, 2023). Third is Autism, behaviorally defined neurodevelopmental disorder associated with the presence of social-communication deficits and restricted and repetitive behaviors (Ousley & Cermak, 2013). Fourth is Dyslexia, a language-based learning disability that affects individuals' ability to learn to read and the development of spelling skills (Roitsch & Watson, 2019). Fifth is Dyscalculia, a specific learning condition that affects the comprehension and manipulation of numerical concepts, which can impact students' academic performance and well-being in mathematics education (Salisa & Meiliasari, 2023). Dysgraphia is used to describe those individuals who, despite exposure to adequate instruction, demonstrate writing ability discordant with their cognitive level and age (Chung, et al, 2019). The use of technology can help students to learn how to write and memorize the alphabet. It will improve their ability to learn writing words and recognizing letters in English.

METHOD

The source of the data was taken in SD Negeri 010 Samarinda Seberang as one of the schools in Samarinda, Kalimantan Timur that provides a class for students with specific learning difficulties called *Ruang Sumber*. There are 34 students with SpLDs that are being taught based on their schedules in this classroom. The class is quite similar with other regular classes, but they also provided particular tables which are designed for students with ADHD. It also has a LCD projector and several learning mediums such as flashcards, wooden blocks, alphabet blocks and printed vocabulary which are stuck on the wall.

We conducted a semi-structured interview to find out how the teachers implement the use of technology to teach English for the students with SpLDs. There were two teachers, Miss N and Miss L who worked as the Shadow teachers (*Guru Pendamping Khusus*). Miss N started teaching in 2017 and she is a teacher for 3rd grade students. She was chosen to be the coordinator of the shadow teacher (*Guru Pendamping Khusus*) in SDN 010 Samarinda Seberang. Furthermore, she had joined the training program by the Indonesian Ministry of Education called *Program Guru Belajar dan Berbagi Seri Pengelolaan Pembelajaran (SPP) di Sekolah Penyelenggara Pendidikan Inklusif (SPPI)* in 2021. Through this training, she obtained five main materials such as universal design learning, preparing learning process for students with disabilities, conducting assessment

for students with SpLDs, compiling lesson plan and evaluation for students with disabilities and learning difficulties. On the other hand, Miss L started teaching in 2020 and she was chosen to be the shadow teacher for teaching inclusive students in SDN 010 Samarinda Seberang. She was trained by Miss N who had obtained the official training from Indonesian Ministry of Education and had to train other teachers in the targeted schools.

RESULTS AND DISCUSSION

According to the interview which conducted 30 minutes for each teacher, Miss N and Miss L who were assigned as the shadow teachers (*Guru Pendamping Khusus*) for the students with SpLDs in SD Negeri 010 Samarinda Seberang. They conducted a learning modification where they personalized the teaching process to the SpLDs students. We recorded by handphone and transcribed the recording files into textual. Thus, to figure out how the teachers taught in the class and used technology, we asked two main questions as follows:

1. How do you teach English to the students based on their SpLDs?
2. How do you implement the technology to teach English for students with SpLDs?

Based on the questions above, they explained the English teaching practice that they used for six types of students with SpLDs and how they implemented the technology during the learning process.

1. Slow Learner

“We usually ask the students about the learning activities they want to do” (Miss N)

a. Teaching process

In the beginning of the lesson, the teachers always start by giving the choice to students to choose whether they want to read, write, coloring or drawing. After that the teachers will focus on increasing students’ interest by repeating the activity and keep guiding the students. The teachers implement the repetitive methods to slow learner students.

b. Technology implementation

The teachers use the worksheet about spelling letters to improve reading skill, following line of letters to improve writing skill, coloring and drawing worksheets that are printed from *Canva* and *Pinterest*.

2. ADHD

“We bring the students to play outside the class” (Miss L)

a. Teaching process

Teachers start the teaching by conducting an outdoor activity such as playing “*Simon says*”, English vocabulary dancing and many other outdoor activities to make the students express their hyperactivity and inattentiveness. After that, the teachers bring them to the class and start the learning process in the class. The ADHD students sit on their particular table that is designed for them which have hyperactivity movements. It has curved patterns that will give the space for the students to move more flexibly while sitting. Then, the teachers directly conduct the explanation of the material in front of the students. The teachers introduce the English vocabulary by using several learning media such as vocabulary flashcards and using printed worksheets.

b. Technology implementation

The teachers do realize about the interaction between teacher and student that must be intense for ADHD students. Therefore, the teachers mostly use printed images to explain the English materials. For example, to teach about a part of the body, the teachers usually print

some part of body animated images from *Canva*. After that, the teachers will start explaining and introducing the vocabulary to the students.

3. Autism

“Getting the attention of the students by sitting and interact closely with them” (Miss N)

“Provide some motoric activities before we start learning in the class” (Miss L)

a. Teaching process

To teach the students with autism, the teachers conducted the teaching process which is quite similar with the ADHD students. However, the teachers focus on increasing the ability of students to pronounce the English words and write the alphabet or words in English. To get the attention of the students, the teachers teach the students by sitting closely with them and train them to pronounce the vocabulary by repeating after the teachers.

b. Technology implementation

To introduce the vocabulary in English, the teachers focus on developing the ability of the students to pronounce and write the vocabulary. They usually display a vocabulary song from YouTube with an LCD projector and let the students listen and repeat. The teachers can attract the students’ attention by displaying a video or vocabulary song in the classroom.

4. Dyslexia

“Giving jumbled words and the students will arrange and pronounce the words” (Miss L)

a. Teaching process

The teachers focus on increasing the ability of the students to know the alphabet, identifying vowels and consonant sounds, and learning to spell and read simple words or sentences. Therefore, the teachers use a reading book practice and jumbled alphabet worksheet to help the students know and identify letters.

b. Technology implementation

To increase the students’ ability to read and identify letters, the teachers only use reading book practice and jumbled alphabet worksheets. They do not implement the use of technology or application for teaching dyslexia students.

5. Dyscalculia

“We usually use stick or blocks to count together and use printed worksheet to practice the simple calculation” (Miss N)

a. Teaching process

To help the students with numerical problems, the teachers utilize the wooden number blocks to practice students’ ability to identify the numbers. They also use number flashcards and printed worksheets to teach summation and subtraction.

b. Technology implementation

The teachers provided numbering practice, summation and subtraction by printing some worksheets and pictures of animal or thing animations in *Canva*.

6. Dysgraphia

“In the teaching, we provide a paper with dot patterns” (Miss L)

a. Teaching process

The teachers usually start teaching by showing two or three short words in English. After that, they will spell the letters and ask students to repeat the letters. After that, the teachers will give a worksheet that has been made with the dot patterns of the words. The students will be assigned to follow the dot patterns which will shape the words.

b. Technology implementation

During the class, the teachers only use *Canva* to create the worksheet, especially to create the dot patterns and provide animated images related to the writing vocabulary activity.

According to the interview results of the teachers about English teaching process and technology implementation, it is concluded that the teachers still used limited technology in English classrooms for students with SpLDs. The teachers mainly used *Canva* and *Pinterest* as the applications to create worksheets, providing visual learning with images, coloring and drawing activities. They also used LCD projectors as the learning tool to display images or videos to introduce vocabulary for the students. However, *Canva* is not significantly personalized helping the students with specific learning difficulties to learn English. It tends to be explored and only used by the teachers to create worksheets and images that will be assigned for the students to do.

Discussion

The finding of our research shows that the Shadow teachers utilized *Canva* and *Pinterest* to create worksheets and printable images for teaching English to the students with SpLDs. To teach slow learners, students with ADHD, dyscalculia and dysgraphia, the teachers used *Canva* to create various types of worksheet such as the missing letter worksheet, the following line and dot patterns worksheet, numbering worksheet, summation and subtraction worksheet with pictures of animals, fruits and things. Furthermore, the teachers create flashcards from *Canva* to introduce new vocabulary for the students. *Canva* provides an easy way to create learning mediums such as flashcards because it has complete tools to find elements, related pictures, adding text, music and more, although the users have low capability to operate digital devices (Yuana, et al, 2024). However, the implementation of teaching with worksheets that were created on applications such as *Canva* and *Pinterest* to students with SpLDs does not significantly help the students and take a long time for teachers to prepare (Asmaveedu, 2021). Due to the different needs among the students with SpLDs, the worksheet is unable to fit all their needs especially if the worksheet created by the teachers is one-size-fit-all.

Thus, the implementation of proper technology plays an important role in teaching practice. Technology is able to cater to diverse learning difficulties such as visual and auditory impairments, attention deficits and language acquisition difficulties (Trostle, et al, 2012). This research delivers the applications that will be beneficial for teaching English with technology to students with SpLDs. The following are the introduction of the applications and how they can potentially assist students with SpLDs to learn English in the classrooms.

1. Application for teaching English to Slow Learner and ADHD students

a. Speak for Yourself (SfY)

This application is an Augmentative and Alternative Communication (AAC) application that was created by speech-language pathologists. It provides a voice to adults and children who are not able to speak or have limited in their ability to express themselves verbally. It provides the technology which helps slow learners that have difficulties in expressing their utterances and expressions with voices (Vlachou, et al, 2017). There are some students who have limited understanding in vocabulary so this app will increase students' vocabulary because it provides hundreds of communication vocabulary. However, it can only be operated in IOS such as *Iphone*, *MacBook* and *Ipad*.

b. Strigi's 9998

A mobile game application which focuses on increasing students' ability to recognize numbers, colors, letters and patterns. Kakoura, et al, (2024) stated that the app is designed to

engage ADHD students to enjoy learning while playing mini games which train and challenge their brain. The application provides mini games such as computational puzzles, intellectual teasers, memory games and analytical brain games. The students with ADHD find it difficult to control their emotion and usually cry if they are unable to finish the tasks. Thus, this application will help them to increase their problem-solving skills, critical thinking and train their memory. However, it doesn't provide any features for parents or teachers to see the students' improvement report. To figure out their improvement, the parents or teachers have to accompany students' doing the games one by one.

2. Application for teaching English to Dyslexia students

a. Graphogame

This application will allow dyslexic children to learn how to read with the assistance of technology that increases reading acquisition. Madeira, et al, (2015) discovered that it provides an algorithm that can analyze the students' ability to read so it can provide the suitable challenge in the game for the students. Most of the students with dyslexia find difficulties to recognize the alphabets. Hence, this game will deliver spoken sounds and words corresponding to written text which will develop students' ability to recognize and read the words or sentences. Moreover, there are various types of games such as matching words with sound, balloon-text shooting games and more fun learning games in the application. Yet, this application will not be accessible if the users do not have internet connection.

b. DysEggxia

An application that provides games to develop dyslexia students to do spelling exercises. There are various types of mini exercises such as adding a letter, removing a letter, cutting into words and changing letters. According to Relo, et al, (2014) stated that this game lets students with dyslexia to recognize words from error writings. By presenting them with error writing that must be solved into correct written words, will stimulate their ability to understand how to arrange, read and write the correct words. However, the application does not provide the text to voice which actually can help students to learn pronunciation. It only focus on recognizing letters, words and sentences.

3. Application for teaching English to Dyscalculia

a. Let's Learn Math

An application which is designed to help students to increase their ability in learning numbers, matching numbers and sequencing numbers. The students with dyscalculia mostly used printed papers and wooden blocks to learn numbers which tend to be boring for them. Thus, this application can be one of the tools to teach dyscalculia students. Jing and Ismal (2023) stated that this application is engaging for students with dyscalculia because it delivers audio that pronounce the numbers, number song videos, multi-color to count, text and interactive animations.

b. Mathletes

A mobile application that provides a game to develop critical math skills in summation, subtraction, multiplication and division. Dhingra, et al (2022) stated that this application helps to improve students with dyscalculia to do the challenges in numeracy skills. It delivers interactive math quizzes with animation and various levels which encourage students to learn while understanding the numbers in English words. However, it doesn't have an age proficiency level feature to set the game but it can be adjusted with the level such as easy, medium and hard level.

4. Application for teaching English to Dysgraphia

a. Writing Wizard – Learn Letters

An application that is designed for students to learn how to write and memorize the alphabet, numbers and words. There are some features and activities provided in the application that enable the dysgraphia students to learn writing, recognizing numbers and letters. It trains students' ability to trace and recognize letters or numbers with their fingers. After finishing the tracing, there will be a sound mentioning the letters and numbers which help students to understand the pronunciation of them. This game is suitable for dysgraphia students because it trains students' writing speed and writing properly (Polat, et al, 2023). The game has many words for practice and parents/teachers can input a new word. We can also create and print worksheets so that students can practice writing with pencil or pen. However, this application will be better to be used on a big screen such as a tablet. Especially if the students want to practice writing by following line dots in the application.

b. IWriteWords

It is an application that helps students who are struggling with handwriting to enable them practicing writing while playing fun games. According to Polat, et al (2023), the application significantly develops students' fine motor skills by drawing characters and tracing letters or numbers. Thus, this application will engage students who have been diagnosed with dysgraphia to write appropriately. However, this application is only accessible in IOS such as *iPhone* and *iPad*.

CONCLUSION

The integration of technology in English classrooms has become increasingly important, particularly in addressing the diverse needs of students, including those with specific learning difficulties (SpLDs). This research highlights that, while teachers have made efforts to incorporate technology into their teaching, the primary tool utilized, Canva, presents certain limitations. Canva, although useful for creating visual aids and worksheets, lacks personalized features to support the unique needs of students with SpLDs. It does not provide tools for interactive practice in skills such as writing, reading, or listening, nor does it offer functionalities for providing feedback or correcting grammar. As a result, while technology plays an essential role in enhancing the learning experience for students with SpLDs, its effectiveness is compromised by these limitations. To address these challenges, this study introduces a range of applications specifically designed to support students with various types of SpLDs. These applications cater to different learning styles and offer personalized tools that are better suited for English language instruction. By incorporating these tools into the classroom, teachers can better engage and motivate students with SpLDs, offering them more tailored and interactive learning experiences. In conclusion, while the use of technology in English classrooms is critical for supporting students with SpLDs, further integration of specialized tools will be essential for enhancing the educational outcomes of these students. Teachers should consider adopting more comprehensive, customizable technology solutions that better align with the diverse needs of their students.

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