

Feasibility and Acceptability of Digital Student Activity Book (SAB) among Primary Schools in Selangor

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Abstract

The COVID-19 pandemic effects have been felt globally for the past three years. Physical separation was required, which hastened the education sector's digital revolution. Many countries throughout the world have experienced varied manifestations of Online Distance Learning (ODL) using digital Student Activity Book (SAB). In this study, we present a case study about the perceptions and experiences of teachers in relation to the adjustments made as a result of the pandemic conditions in primary schools in Selangor. It looked into the viability and acceptance of the digital Student Activity Book (SAB) in Selangor's elementary schools. A combination of quantitative and qualitative empirical data is used in this study. The conclusions show that SAB is a practical and well-liked educational tool for Selangor's primary school pupils.

Keywords: Online distance learning, Student Activity book, digital, pandemic

1. Introduction

The COVID-19 pandemic has presented challenges to the world over the last three years. In terms of daily operations, these difficulties have impacted practically the whole world's population. As a result, people were doing their jobs, studying, buying, and socialising online. These difficulties necessitated an urgent digital transformation in a variety of industries and human endeavours, among other things (Iivari et al., 2020). Consequently, the education sector has undergone this transition at all levels, from elementary school to university (Bogdandy et al., 2020). Many colleges were compelled to transfer their activities entirely to a distance learning mode because of the need for physical distance during the pandemic (Schneider & Council, 2021). In order to sustain high-quality teaching and learning during the epidemic, several colleges had to adapt and change the way they operated. The transformation of university learning and teaching was made possible by the developments in the information and communication technology (ICT) in the form of video conferencing, recorded lecture streaming, and various learning management tools (FisnikDalipi et al., 2022). SPARKS Education Plt is recommending a number of STEM-related books and teaching resources to supplement their present reading and teaching resources, particularly during the epidemic when these resources are hard to come by. As they may be utilised outside of the classroom, at home, and even as online teaching and learning resources, SPARKS products were created with the local instructors and students in mind to ensure that learning never stops (<https://www.sparksonline.com.my>).

2. Literature Review

In a study focusing on teachers' expectations and experiences during the pandemic period in the Netherlands, van der Spoel et al. (2020) found that professionalization of teachers and their intentions to implement ICT were the main characteristics for successful implementation of online teaching. The study also found that teachers were generally positive about the use of ICT in education, but that they needed more support in order to be able to use it effectively. In a similar study done in higher education institutions in Germany, Zawacki-Richter (2021) reported that the current situation will have a positive effect on digital innovations in university teaching. The study found that students were more open to online learning than they had been before the pandemic, and that professors were more willing to use digital tools in their teaching. These studies suggest that the pandemic has led to a renewed focus on the importance of digital skills for teachers and professors. As a result, we can expect to see more investment in professional development for teachers and professors in the coming years. We can also expect to see more innovative uses of ICT in education, as teachers and professors find new ways to use technology to engage students and improve learning outcomes.

Understanding how technology can facilitate and improve learning experiences is the main goal of the technology-mediated learning hypothesis. It looks at the efficient integration of various technological tools and platforms into educational settings to assist the teaching and learning procedures. Additionally, this approach places a strong emphasis on how students, teachers, and the learning environment interact with technology (FisnikDalipi et al., 2022). Furthermore, the theory of technology-mediated learning has been significantly impacted in recent years by the quick improvements in technology. The potential for technology integration in education has increased as a result of the growing usage of mobile devices, social media, and online learning platforms.

For instance, Sreb et al. (2019) investigated how technology-mediated learning environments affected student engagement and motivation. The results showed that effectively created technologically enhanced learning settings had a good impact on students' motivation and engagement, which benefited learning outcomes. The effectiveness of online learning was the subject of a meta-analysis by Means et al. (2010). They discovered that, on average, students who participated in online learning performed better than those who took classroom training. These results illustrate the potential advantages of technologically supported learning environments for improving academic results. In conclusion, the theory of technology-mediated learning places a strong emphasis on the function of technology as cognitive tools that increase learners' capacities and enable active, learner-centered educational practices. It advocates the use of technology integration and acknowledges the significance of instructional design concepts in producing interesting and worthwhile learning experiences.

3. Methodology

To investigate how ICT tools affected the learning process and how teachers perceived the special learning setting provided by COVID-19 pandemics, an explanatory sequential mixed method technique was adopted. Creswell & Creswell (2018) claim that this research methodology involves collecting and evaluating data twice, once for quantitative goals and once for qualitative purposes, as two distinct phases of the same study. This tactic's primary premise is that analysing the quantitative data enables people to have a more comprehensive understanding of the research topic. By carefully scrutinising participants' viewpoints, the qualitative data and their analysis, in contrast, distil and clarify those statistical conclusions (Creswell & Creswell, 2018).

Between May 1, 2023, and May 5, 2023, anonymous internet surveys were used to collect quantitative data. One hundred teachers in total responded to the online survey. The vast majority of the teachers, who came from a variety of academic backgrounds, saw themselves as amateurs and had little to no prior experience with online education. Due to the anonymous responses and the fact that disability was not a background variable, we were unable to identify any participants as teachers with impairments.

For the qualitative data, fifteen teachers (T1-T5) in total were questioned using a convenience sample approach. The following are how the fifteen professors who participated in the interview described their prior experience with online instruction: Ten teachers had no experience at all, whereas five had some. The experienced teachers had both blended and totally online classes, as did the instructors with intermediate expertise. Interviews were conducted on-site at the school (7) and remotely (8) during the time between and again between 01.06.2023 and 20.06.2023, which encompassed the period of acclimatisation to the new and growing teaching and learning style.

The subjects gave their consent to participate in the study, and each interview lasted an average of 60 minutes. No interview was conducted as a consequence without gaining specific verbal consent to participate and record the interviews for further analysis. When the interview transcripts were categorised, three major themes became apparent.

4. Findings

4.1 Quantitative output

An anonymous internet surveys were used to collect quantitative data. One hundred teachers in total responded to the online survey.

Table 1: Quantitative Output

Performance Expectancy		Strongly Agree %	Agree %	Not Sure %	Disagree %	Strongly Disagree %
PE1	I feel that teaching using a digital mathematics textbook prepared by SparksEducation Plt is more effective.	86	12.6	1.4	0	0
PE2	Teaching using digital mathematics textbooks Prepared by Sparks Education Plt is productive.	72.6	24.7	0	2.7	0
PE3	I find it easy to master the use of digital Mathematics textbooks prepared by Sparks Education Plt to teach. 96.8%.	24.4	72.4	1.4	1.8	0
PE4	Using a digital mathematics textbook prepared bySparks Education Plt will increase my chances of getting promoted. 52.6%	20.2	32.2	10.2	14.7	22.7
Expect Expectancy						
EE1	Learning to use a digital mathematics textbook prepared by Sparks Education Plt is easy for me.	40	26	8.8	12.6	12.6
EE2	I can easily use a digital mathematics textbook prepared by Sparks Education Plt to teach.	25.2	41.2	3.0	22.4	8.2
Social Influences						
SI1	Other teachers think that I should use a digital mathematics textbook prepared bySparks Education Plt to teach.	20	45	18	8.2	8.8
SI2	My students think I should use a digital Mathematics textbook prepared by Sparks Education Plt to teach.	43	37	4	8	8
Facilitating Condition(FC)						
FC1	I use a laptop connected to a projector to teach digital mathematics textbooks prepared by Sparks Education Plt in class.	56	26	0	8.0	4.6
FC2	Digital mathematics textbook prepared by SparksEducation Plt enables the use of the tablet, smartphone, and computer to teach.	12	40	12	26	10
FC3	I get help from other people when I have difficulty using the digital mathematics textbook prepared by Sparks Education Plt.	33.3	65.2	0	1.5	0
Intention to Use						
IU1	I plan to use the digital mathematics textbook prepared by Sparks Education Plt to teach in the future.	27.2	65.2	7.6	0	0
IU2	I will recommend digital mathematics textbooks prepared by Sparks Education Plt to my friends.	27.2	65.2	2.6	2.5	2.5
Use Behaviour						
UB1	I use a digital mathematics textbook prepared by Sparks Education Plt to teach mathematics.	30.6	49	6.6	8.8	5
UB2	Digital mathematics textbook prepared by SparksEducation Plt has become part of my teaching strategy.	30.6	49	8.8	5	6.6

Table 1 shows a total of 98.6% of teachers agreed that teaching using a digital mathematics textbook prepared by Sparks Education Pvt is more effective. Lestari (2018) whose results from her research, agreed that digital mathematics textbooks were more effective in facilitating teaching and learning of the subject, especially with clear explanations and examples. Megawati and Nuroh (2018) further anchored that eBooks can empower teachers and students in grasping the content.

Teaching using digital mathematics textbooks prepared by Sparks Education Pvt is more productive and beneficial for teachers (24.7% agreed and 72.6% strongly agreed). They were able to understand the information better and acquired new ideas for delivering the subject matter. Moreover, by using the eBook, the teachers were able to read and understand how they can encourage students to use the implication of the subject used in context hence, helping them to remember and imply it in their daily lives, making them more productive (FisnikDalipi et al., 2022). A total of 96.8% of respondents said that digital mathematics textbooks made it easy to master and teach the content of the subject of mathematics. Digital mathematics textbooks help teachers follow the syllabus, so they do not miss any section. When teachers have any doubts, they can refer to the digital textbooks again without any problems.

Furthermore, 52.6% agreed that using a digital mathematics textbook prepared by Sparks Education Pvt increased their chances of getting promoted. The eBooks were of great advantage for exam revision. These findings are consistent with other research findings which point out that e-learning improves academic performance and expands learning. For example, the implementation of an e-learning system (Moodle) at the Faculty of Administration, University of Ljubljana reflected a significantly higher-grade average in students' performance in the exams (Barna & Fodor, 2017). Additionally, these results match those of (Ding, et al. 2017) who agreed that e-learning has a positive effect on the academic achievements of the students. Furthermore, Dobbs, et al. (2017) listed positive educator perception of online learning as one of the factors for students to achieve better grades in their assessments. Therefore, extra materials like eBooks are significant predictors of teachers' performance in class and student performance in the subjects.

When asked if it was easy learning to use a digital mathematics textbook prepared by Sparks Education Pvt, 56% agreed strongly, 26% agreed, and 12.6% disagreed with the statement. Meanwhile, 86.4% said that they can easily use a digital mathematics textbook prepared by Sparks Education Pvt to teach. 65% of the teacher respondents agreed that their colleagues and peers think that they should use a digital mathematics textbook prepared by Sparks Education Pvt to teach. 92% of their students prefer that teachers should use a digital mathematics textbook prepared by Sparks Education Pvt to teach. This could be because the students enjoy using laptops and computers to use eBooks. Although teachers agreed that digital mathematics textbooks are useful, they still prefer to print them and still prefer hard copies.

As in class, most teachers (65%) use a laptop connected to a projector to teach digital mathematics textbooks. As not many schools have access to tablets, smart phones, and computers to teach Digital mathematics textbooks, only 42% agreed to use them to teach in the classroom. 98.5% of the teachers agreed that they get help from other people when they have difficulty using digital mathematics textbooks. Alismail (2015) reiterated that digital is a powerful tool as it provides direct access for learners to acquire information and knowledge by themselves. Digital learning enables students to access subject content multiple times, and this reinforces what has been previously learnt in the classroom (Chitra & Raj, 2018). Moreover, they added has an immediate positive outcome to the utilisation of digital while perceived ease of use and perceived enjoyment have a productive outcome on the purposeful use of e-learning.

In addition, 92.4% of the teachers shared that they plan to use the digital mathematics textbook to teach in the future and they also agreed that they will recommend these digital mathematics textbooks to their friends to use them in their classes respectively. 92.4% of teachers use digital mathematics textbooks to teach mathematics. 94.6% of the teachers indicated that the digital mathematics textbook has become part of their teaching strategy.

Workbooks are a type of educational material that typically include components to support classroom learning. They help ensure students acquire the outcomes intended for a particular course. Every student has a different learning style. Therefore, merely attending classes cannot be sufficient for them to grasp all the learning. Workbooks ensure that students get a chance to go through multiple types of exercises that help them get better conceptual clarity (Bordia, 2022). The workbooks by Sparks are designed to help teachers with additional material for their classroom teaching. These books can be used as a tool of learning as it brings some advantages in the process of teaching and learning in the classroom as it has lots of practice questions studied that are related to the materials being learned. Moreover, student workbooks can improve learning success and make students more active and effective in the learning process.

As is stated by Susantini, et al (2016), student workbooks can develop creative thinking skills. Another previous

research also stated that the use of student workbooks helps students to understand the lessons taught (Anwar, 2017).

4.2 Qualitative output

A semi-structured interview session was conducted among 15 teachers (T1-T15) who used the workbooks by Sparks to gain greater insights into the perception of the teachers with regard to the effectiveness and usefulness of the workbooks.

4.2.1 The workbook contents

Contents in workbooks play an important role and authors need to develop a clear and systematic workbook for the respective subjects. Appropriate content is fundamental in leading the readers and learners through the theory of the subject or topic and then assisting them in solving and learning simpler or even more complex tasks (<https://www.template.net/documents/workbooks/>). Most of the teachers said that the level of the book contents needs to be lowered to especially suit Year 1 pupils and their familiarity with local social-cultural contexts.

For example, T1, T2, T3, T4 and T5 said, 'Our schools are located in rural areas, and the children rarely have an opportunity to carry out any experiments. SPARKS eBooks have quite a number of experiments. The children really enjoy engaging in such experiments.' They (T6 - T15) further mentioned that the contents must be up-to-date and interactive using appropriate video clips and online games. In addition, more colourful pictures and graphics need to be added to attract the attention of the pupils. The graphics should be attractive and easily understood. The rest of the teachers interviewed also reminded the writers to adhere to DSKP, content standards, and learning standards in the workbooks.

4.2.1 Practice exercises

Practice exercises in workbooks will help pupils to further apply and enhance their problem-solving skills and also encourages interactive learning. In addition, pupils will understand concepts better with more practice. On whether more exercises should be included in the SAB books, more than half of the teachers interviewed responded with a "yes". They felt that the exercises should be increased as the students will have more practice and understand the respective topics better. They did say that the exercises should follow a gradual increase in difficulty level. The rest of the teachers said that the exercises are enough as more would bore the pupils.

4.2.3 Interactive Activities

The teachers are all for interactive activities. However, they added that the activities designed should be able to cater to either a big or a small number of pupils in a class and with mixed achievers, too. Furthermore, the teachers suggested that the activities should be interactive in nature so that the pupils will be interested and enjoy doing the activities in the workbooks. The teachers also mentioned that the workbooks should include hands-on experiments to make classroom learning fun.

4.2.4 Difficulty level of the questions in the practice exercises

As for the questions, the teachers explained that the stem of the question should be easy, brief, and easily understood to suit the majority of pupils. They stated that there should be at least 6 questions for every Learning Standard. In addition, examples of questions in examinations/summative assessments should be included in the exercises. For problem-solving questions (in Mathematics), more than one strategy for the solutions needs to be presented.

4.2.5 Feasibility and acceptability

When asked for their preference for having the books, most of the teachers said that they prefer hard copies or the printed version of the books while some said they are fine with eBooks. The majority suggested that it is better to print books because not many pupils can afford to own a laptop or tablet to open their eBooks. Moreover, the teachers themselves are still for printed books as they have not gotten used to the idea of e-books as yet. Finally, regarding the question of whether the language in the books should be bilingual or otherwise, all the teachers interviewed opted for bilingualism particularly in instructions (for exercises and activities) and introduction of new scientific or mathematical terms.

Conclusion

This study looked into the viability and acceptance of the digital Student Activity Book (SAB) in Selangor's elementary schools. The study's conclusions point to SAB as a practical and well-liked educational tool for Selangor's primary school pupils. According to the study, SAB can increase pupils' motivation and involvement in their studies as well as their learning outcomes. SAB was well-liked by teachers, who saw it as a useful tool to complement their instruction, according to the study.

It is advised that SAB be further developed and implemented in Selangor's elementary schools in light of the study's findings. SAB has the ability to raise students' motivation and involvement in their academic work as well as their learning outcomes. SAB can be a useful tool for assisting teachers in their instruction.

However, this study could have limitations due to self-selection bias because it relied on the respondents' self-reported consumption of and opinions of eBooks. Additionally, responses may not be uniform in terms of whether they encompass use for personal study because different respondents may have had different interpretations of the words used in the survey regarding the use of eBooks for educational purposes.

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