Practicality of Mathematic Learning Material Based on Sway 365 for Sixth Grade Primary School Students

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ARTICLE INFORMATION	ABSTRACT
  Author Correspondence: Yola Monica Efriani Basic Education Universitas Negeri Padang Prof. Dr. Hamka St, Air Tawar Padang, Sumatera Barat, Indonesia E-mail: yolamonicaefrianii@gmail.com	This research is development research that aims to reveal the practicality level of Microsoft Sway 365-based mathematics teaching materials for sixth-grade elementary school students. For the research instruments, we used questionnaire sheets to measure students' and teachers' responses in terms of the practicality of the developed material. The subject of the study was a fourth-grader of SD Plus Marhamah. The results suggested 4.23 and 4.4 practicality scores from students and teachers, respectively, categorized as excellent. So it can be decided that Microsoft sway 365-based mathematics teaching materials are practical to be used for sixth-grade elementary school students.

Along with the progression of time, technology has also massively developed. In this initial phase of the 4.0 revolution era, we have been introduced to the new 5.0 society era, where technology dominates all aspects of human life. In this era, human life has mingled with technology, marking digital modernization and facilitating humans to attain and disseminate information (AMaulana & Firdian, 2020; Salsabila et al., 2020.). This technological advancement also facilitates the creation of new lifestyles and job fields, such as being a YouTuber, online seller, and online taxi. The digital platform also enables us to fulfill our needs through the application for online shopping, online taxi, and online health information, as well as online educational platforms, such as G*oogle Classroom, Shoology, Microsoft sway*365, and *Flipbook.* Consequently, the progression of time is the catalyst for technological advancement, along with the development of education (Ajizah.I,2021). Thus, as the progression of the era is unstoppable, we have to formulate a strategy to face it.

In this 21st century, the utilization of technology has been a challenge in the education field. Especially during the global spread of Covid-19, the adoption of technology in the education field has become urgent. In the time of the pandemic, school activities were dismissed to lower the transmission of Covid-19. Thus, the previously face-to-face learning that was limited to space and time has become limitless, allowing students to learn anywhere and at anytime (Noviansyah & Mujiono, 2021). Accordingly, teachers have to be ready for every situation. The field of education has to continuously respond and adapt to the progression of time, which requires the enhancement of teachers' competencies and creativity. Additionally, the teachers' skills and knowledge to use the new technology and face global challenges also carry effects on students (Agusta & Sa'dijah, 2021).

The field data suggested the teachers' low knowledge of using digital applications to design learning. One of the essential parts of the learning process is the availability of learning material. The learning materials can be developed in the form of printed material, audio-visual material, and computer-based material (Angelica, 2021; Arofah & Cahyadi, 2019). Ideally, good learning material facilitates the learning process while also enhancing students' competency comprehensively. Additionally, technology-based learning material carries various influences and reflects the advancement of education (Maskar & Dewi, 2020).

In addition, *Microsoft Sway 365* is a platform that can be used to develop digital learning material for free. S*way 365* is a digital storytelling platform from Microsoft that can facilitate the creation of presentation material, a summary of materials, and other interesting documents (Mujahidin,2021). It is also equipped with complete learning features, such as video and virtual handle features (Itsyaniyah & Lestyanto, 2021). Therefore, *Microsoft sway 365* aids teacher-student communication, learning material presentation, accessible cloud storage for the user, information sharing to other users, access to documents from anywhere and everywhere through the Internet connection, easy collaboration between users in completing the project, even in its upgraded version its tools, buttons, and features are familiar for the users, accessible through smartphone, tablet, and laptop (Angelica, 2021). For learning material, it has to be practical. A practical learning material should fulfill a number of criteria for product attractiveness and convenience (Maulana, 2020; Maulana & Firdian, 2020). Thus, this study aims to investigate the practicality of Microsoft Sway 365-based mathematic learning material for sixth-grade elementary school students.

METHOD

This study used a research and development approach with the procedural model. The procedural model is a descriptive model that exposes the procedural stages for creating a product (Setyosari, 2016). The development research aims to generate a product based on a tryout. In this study, we developed a learning instrument focusing on the learning media component.

In specific, we used the plomp model since we constructed an educational product involving a formative evaluation of each of the prototypes to generate an excellent product. Then, we also used semi-summative evaluation in the final project to ensure the product's efficiency. The research stages consisted of preliminary research, development or prototyping, and assessment (Plomp, et al. 2013).

Preliminary Research

In this stage, we analyzed the needs and contexts, conducted a literature review, as well as developed a conceptual and theoretical framework (Plomp et al., 2013; Pudhito, 2019). This preliminary study contained a number of activities, such as exploration and analysis of context and needs, along with the literature study and development of a theoretical framework (Putrawarsya, 2018). In this study, the preliminary investigation focused on the identification of the problem and need, along with the learning characteristics.

Development or Prototyping Phase

In this stage, we developed and tried out the prototype, which included the cyclical design process, followed by a more micro-research process and formative evaluation to improve the intervention model (Plomp et al., 2013; Pudhito, 2019).

Table 1. Criteria for the Prototype Quality

Relevance	The need to construct a prototype and its design based on the novelty and scientific knowledge for the product's content validity
Consistency	The prototype is designed in a logical manner to ensure the product's validity
Practicality	The prototype is designed to be used
Effectiveness	It is made to reach the desired results

Source: Plomp, et al. (2013)

The developed prototype was tried out repeatedly on a micro-scale. During this process, the formative evaluation was carried out as fundamental to improve and revise the quality of the intervention (Putrawarsya, 2018).
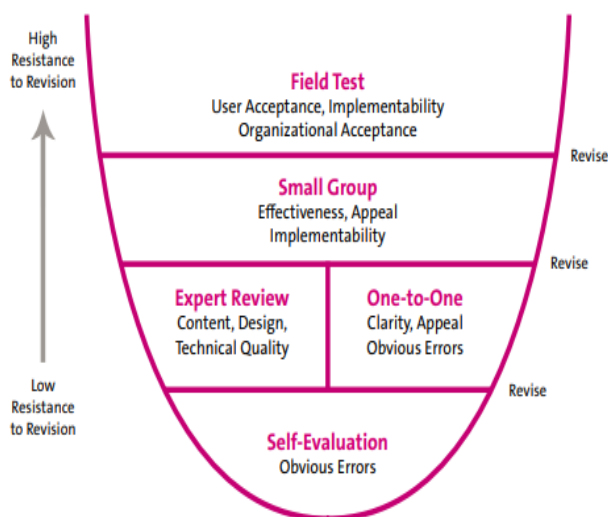

Figure 1. Development Stages of the Plomp Model

As presented in Figure 1, the product tryout is carried out repeatedly, involving self-evaluation, expert review, one-by-one trials, the small group tryout, and field tryout. For the research subject, a number of sixth-grade students from Elementary School Plus Marhamah, Padang, Indonesia, participated in this study with moderate, low, and high capability. In the tryout stage, we found the practicality of the Microsoft Sway 365-based mathematic learning material.

Assessment Phase

In this stage, we conducted a final evaluation where we identified the quality of Microsoft Sway 365-based mathematic learning material for sixth-grade primary school students.

Instrument and Data Analysis Technique

In this study, we distributed a practicality questionnaire to students and teachers to measure the product's practicality. The practicality of a product can be measured through the product's ease of use and presentation (Agustyaningrum & Gusmania, 2017). Further, the data analysis was completed using the Likert scale, which was conversed and analyzed using criteria presented in table 2. Meanwhile, the practicality category for the developed mathematic material for the final assessment is shown in Table 3.

Table 2. Criteria for Students' and Teachers' Questionnaire Responses

Score	Criteria
1	Strongly disagree
2	Disagree
3	Somewhat agree
4	Agree
5	Strongly agree

Table 3. Formula for Evaluation of Students and Teachers' Questionnaire Results

Score Range	Category
$X > \overline{X}_i + 1{,}8\,sbi$	Very practical
$\overline{X}_i + 0{,}6\,sbi < X \leq \overline{X}_i + 1{,}8\,sbi$	Practical
$\overline{X}_i - 0{,}6\,sbi < X \leq \overline{X}_i + 0{,}6\,sbi$	Sufficiently practical
$\overline{X}_i - 1{,}8\,sbi < X \leq \overline{X}_i - 0{,}6\,sbi$	Impractical
$X \leq \overline{X}_i - 1{,}8\,sbi$	Very impractical

Description

$\overline{X}_i$ $= \frac{1}{2} X$ (maximum score + minimum score)

X = ideal score

Sbi $= \frac{1}{6} x$ (maximum score – minimum score)

RESULTS

This study involved sixth-grade primary school students in Plus Maharmah Elementary School, Padang, Indonesia, focusing on developing a Microsoft Sway 365-based mathematic learning material. In the preliminary study, this learning material underwent a validity test, and the results suggested that this material was valid. Thus, in this study, we focused on the practicality of the material using a questionnaire instrument disseminated to the students and teachers. The criteria for decision-making are presented in table 4.

Table 4. Scoring Scale for Students' and Teachers' Questionnaire

Range (%)	Criteria
$X > 4{,}2$	Excellent
$3{,}4 < X \leq 4{,}2$	Good
$2{,}6 < X \leq 3{,}4$	Relatively good
$1{,}8 < X \leq 2{,}6$	Poor
$X \leq 1{,}8$	Highly poor

As shown in table 4, the Microsoft Sway 365 mathematic learning material is said to be practical if it attains a higher than a 3.4 score. The obtained practicality score from the total of 22 respondents is summarized in table 5. Table 5 shows that from the three evaluation category, the Microsoft Sway 365-based mathematic learning material attained 4.4, 4.2, and 3.9 scores for attractiveness, ease of use, and efficiency, respectively, with higher than 3.4 average scores. Therefore, the students perceived Microsoft Sway 365-based mathematic learning material as practical. Additionally, the teachers' responses toward the Microsoft Sway 365-based mathematic learning material are summarized in table 6. The summary of teachers' responses toward the Microsoft Sway 365-based mathematic learning material presented in table 6 showed scores of 4.25, 3.57, and 4.0 for the attractiveness, ease of use, and efficiency criteria, respectively. On average, from teachers' responses, we obtained an average

score of 3.4, indicating that Microsoft Sway 365-based mathematic learning material is practical to be used. The average scores obtained from the students' and teachers' questionnaire results are presented in table 7.

Table 5. Results of Practicality from Students' Respond

Criteria	Average Score	Category
Attractiveness	4.4	Excellent
Ease of use	4.2	Excellent
Efficiency	3.9	Good

Table 6. Practicality Results from Teachers' Response

Criteria	Average Score	Category
Attractiveness	4.25	Excellent
Ease of use	3.57	Excellent
Efficiency	4.0	Good

Table 7. Average Practicality Scores from Teachers' and Students' Responses

Practicality	Total Score	Average Score	Category
Student	12.7	4.23	Excellent
Teacher	8.25	4.13	Good

As summarized in table 7, the total and average scores from the students are 12.7 and 4.23, which are categorized as excellent, while the total and average scores from the students are 8.25 and 4.13, in the good category. Consequently, the Microsoft sway 365-based mathematic learning materials are practical to be used by sixth-grade elementary school students and teachers.

DISCUSSION

The results of analysis on data obtained from sixth-grade students of elementary school Plus Marhamah, Padang, Indonesia, showed that the Microsoft sway 365-based mathematic learning material attained 4.23 scores, categorized as excellent. The practicality questionnaire for students contained three aspects of evaluation, namely the, attractiveness, ease of use, and efficiency. In the aspect of learning material attractiveness, we obtained a 4.4 score in the excellent category. Meanwhile, in the ease of use and efficiency, we obtained 4.2 and 3.9 scores, respectively. The average score of Microsoft Sway 365-based mathematic learning material has reached higher than 3.4, suggesting that it is practical to be used by students, even for independent learning. Besides, the obtained results also showed that the developed learning material can facilitate the learning process. Using this learning material, students can enjoy learning as described in a previous study that specific learning material activates students to learn independently, enthusiastically, and properly (Anissa, 2021). Besides, good learning material should be communicative, so the content should be systematic, easy to process, clear, and free from linguistic error (Anditasari, 2018).

In addition, from the analysis of the teachers' responses, the developed Microsoft Sway 365-based mathematic learning material attained a 4.13 average score, in the good category. Similar to the questionnaire for students, the questionnaire for teachers also contained three categories, namely attractiveness, ease of use, and efficiency. For the attractiveness, ease of use, and efficiency categories, we obtained scores of 4.25, 3.57, and 4.0, respectively. Thus, on average, the Microsoft Sway 365-based mathematic learning material can be classified as the material with good practicality. Therefore, this learning material can facilitate students' understanding of the learning material. Good practicality indicates that the developed learning material has followed the criteria (Maulana, 2020).

CONCLUSION

The developed Microsoft Sway 365-based mathematic learning material for sixth-grade primary school students obtained a practicality score of 4.23 and 4.13, categorized as good by the students and teachers, respectively. Thus, the developed learning material is applicable to sixth-grade elementary school students and teachers. This study only developed a mathematics learning material for sixth-grade elementary school students using Microsoft Sway 365, followed by a practicality test involving the teachers and students. Consequently, future studies are suggested to conduct the effectiveness test and develop the learning material with different methods or in different fields.

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