

The Effectiveness of Digital Online Book with Guided Note Taking Model During a Pandemic Period

Lusi Rachmiazasi M^{1*} • Pukky Tetralian B. N²

¹ Mathematics Education, Universitas Terbuka, Semarang, Indonesia.

² Mathematics, Universitas Billfath, Lamongan, Indonesia.

*Corresponding author. Email: lusi@ecampus.ut.ac.id

Article Info:

Received: 08 Feb 2022; Revised: 18 Oct 2022; Accepted: 7 Dec 2022; Available Online: 15 Dec 2022

Abstract

Rapid technological developments in the era of the fourth industrial revolution require lecturers to provide interesting learning opportunities for students through models and learning media that can adapt to student characteristics. One suitable model is the guided note-taking model, which can encourage students to become more active during class-based lectures, while one suitable media is digital online books because they can be accessed on the Internet and thus support tutorial online and lectures. The purpose of this study is to test the effectiveness of using digital online books with a guided note-taking model in a transformation geometry course taught at Universitas Terbuka, where the learning process requires students to be active and study independently. The method used in this study involves a research and development design comprising 10 research stages, namely identifying potentials and problems, data collection, product design, design validation, design revision, product testing, operational product revision, operational field testing, final product revision, and dissemination and implementation. From the results and discussion, it can be concluded that there is a difference in learning outcomes between tutorial online (“tuton”) and media classes, which is 7.03, and that the significance value in the two-tailed t-test is $t_{count} 2.265 > t_{table} 2.086$. The results indicate that using digital online books with guided note-taking in the transformation geometry course has been an effective alternative online learning approach for students at Universitas Terbuka.

Keywords: digital online book, effectiveness, guided note-taking, transformation geometry

1. Introduction

In this era of the fourth industrial revolution, lecturers are required to produce qualified graduates capable of meeting global challenges, in accordance with the Universitas Terbuka strategic plan, which states that lecturers must be able to create interesting learning based on ICT. Thus, lecturers are obligated to engage in ICT-based research, including teaching mathematics using technology.

In the transformation geometry course taught at Universitas Terbuka, there are students who experience difficulty in understanding concepts in this subject matter. This is demonstrated by students who experience difficulty presenting concepts in various forms of mathematical representations, and who experience difficulty painting a geometric object and determining the elements in a picture.

According to Martha et al. (2018), one advantage of digital teaching materials is that learning can be achieved through distance learning, and does not have to happen in a physical classroom. At present,

distance learning is gaining popularity because it can expand the learning and teaching space. In higher learning systems, distance learning has become the most relevant and in-demand mode of learning during the last decade (Leontyeva, 2018). During a pandemic such as the one the world is currently experiencing, distance learning is considered very useful because it can help students learn independently.

One of the learning media that is suitable and easily accessible to Universitas Terbuka students is the digital online book, because it can be accessed anytime and anywhere. A research study on digital online books conducted by Akpokodje and Ukwuoma (2016) showed that students from Nigeria's University of Jos were very enthusiastic about using e-books because they can be read anywhere and can be easily searched through an online system. This is reinforced by research conducted by Roslina et al. (2018), which showed that using e-books can facilitate long-distance communication between friends. This is also consistent with research by Ebied and Rahman (2015), which showed that using e-books makes learning easier at the tertiary level. According to Holmes and Gardner (2006), among the benefits of e-learning are that students can learn e-figuring skills independently, and improve creativity in learning the material. Another advantage associated with teaching is that the learning process can focus on students.

Based on the above description, this study thus aims to use the SPSS statistical software to test the learning outcomes of the effectiveness of digital online books with a guided note-taking model in the transformation geometry course.

2. Literature Review

2.1. Digital Online Book

The teaching material that the researcher developed in this study is a digital book, commonly called an e-book. Thus far, there is no authoritative definition for an e-book, but when the structural components of the word is considered, it is clear that 'e-book' consists of two parts, i.e., 'electronic' and 'book'. The use of the term 'electronic' in learning is also often interpreted as a pattern related to e-learning. E-learning is a special form of distance learning (Darmawan, 2012). As for the term 'book', according to Surahman in Prastowo (2015), a book is a written material that presents the knowledge or thoughts of the author. In addition, books are also interpreted as a source of reading, which also functions as a source of teaching material in the form of printed materials. Meanwhile, according to Munadi (2008), digital books or e-books are e-learning teaching materials that can be studied anywhere and anytime. E-books can be accessed through the Internet (Tafiardi, 2005), through which the learning process can take place online, or the material downloaded for offline use. Students can access the e-books anytime and as often as possible, neither limited to study hours (i.e., the e-books are time-independent) nor dependent on place (i.e., the e-books are location-independent).

2.2. Guided Note-Taking

According to Putri and Eli (2022), strategies in using the guided note-taking model can increase understanding of concepts and variation in student learning activities. Meanwhile, Silberman (2007) states that prepared worksheets provided by teachers can encourage students to take notes while they also focus on the teacher's lecturing. The simplest way to make guided notes is by filling in blanks and making notes while the teaching material is being delivered. The first step is to provide students with a guide containing the main points that will be conveyed. The points that are considered important will be left partially blank, thus there will be empty spaces in the guide that the students will be asked to fill in. The purpose of giving guided notes is to reduce the need for writing while students listen and see examples or pictures in the guide. Students with guided notes cannot simply leave the class.

According to Suprijono (2012), the steps involved in the guided note-taking method are as follows:

- i. Provide students with teaching materials, for example, in the form of handouts.
- ii. Deliver the teaching materials in a lecture.
- iii. Remove some of the important points so that there are blanks in the handout, for example, by emptying terms and definitions, or eliminating keywords.

- iv. Explain to students that the blanks in the handout are deliberate, so that they can concentrate on learning.
- v. During delivery of the materials, ask the students to fill in the blanks in the handout.
- vi. After delivering the lecture materials, ask the students to read the handout.

There are several advantages and disadvantages of the guided note-taking method. According to Zainal (2009), its advantages are as follows:

- i. This learning method is good for both large and small classes.
- ii. Learning methods can be used before or during class, or according to learning activity.
- iii. This learning method is quite useful for introductory materials.
- iv. This learning method is very suitable for materials that contain facts, precepts, pillars or principles, and definitions.
- v. This learning method is easy to use when students have to study material that tests cognitive knowledge.
- vi. This learning method is suitable at the start of a learning session so that students will focus their attention on the terms and concepts that will be developed, and those related to the subject matter that will be later developed into more concise concepts or thought charts.
- vii. This learning method can be used several times to summarise different chapters.
- viii. This learning method is a suitable replacement for narrative summaries or long narrative texts.
- ix. This learning method can be used to assess a person's inclination towards certain information.
- x. This learning method allows students to learn more actively, because it provides opportunities for self-development, and focusing on handouts and lecture materials. Thus, students are expected to solve their own problems by finding (i.e., through discovery) and working alone.

Conversely, the disadvantages are as follows:

- i. If guided note-taking is used as a learning method in every subject matter, teachers will find it difficult to control activities and student success.
- ii. Implementation may take a long time, so teachers may find it difficult to adjust to the allotted time.
- iii. Implementation may also be difficult because teachers must prepare handouts or plan in advance by sorting out which parts or materials to be left blank and otherwise, respectful of the content of the material and student readiness in learning through this method.
- iv. Teachers who are used to old learning methods may find it difficult to adapt to this new learning method.
- v. Demanding teachers to be wider than the standards that have been set.
- vi. The cost involved in doubling handouts may be considered expensive and less economical for some teachers.

2.3. Transformation Geometry

According to Midgett and Eddins (2001), there are five content standards in mathematics, namely, numbers and their operations, algebra, geometry, measurement, and data analysis and opportunity. In addition, there are also five standard processes, namely, problem-solving, reasoning and verification, communication, connection, and representation. Thus, it can be clearly understood that geometry is very important. With reference to this, Walle in Sarjiman (2006) describes that the study of geometry is important help people with having a total enthusiasm for their reality, and encourage the development of critical thinking abilities. Geometry also assumes a significant part in different fields of mathematics which is itself intriguing and brimming with complexities.

Meanwhile, Risnawati in Paradesa (2016) states that from a psychological point of view, geometry is an abstract presentation of visual and spatial encounters, like fields, examples, estimations, and planning. From a numerical perspective, calculation provides ways to deal with critical thinking, for instance pictures and outlines, as well as organise frameworks, vectors, and changes. In addition, the calculation of changes in objects with small dimensions can be illustrated as a mathematical object in a flat plane from one position to another with certain rules (Hardiyanti, 2015). Transformation geometry is an important component of geometry, and is relevant for building spatial and geometrical reasoning abilities, as well as strengthening mathematical proof (Albab et al., 2014). Some of these abilities have been proven to support achievements in mathematics, especially reasoning related to transformation geometry.

2.4. E-learning

According to Ananda (2018), the use of e-learning models can improve the quality of learning. The e-learning system absolutely requires the support of ICT, owing to the fact that everything has gone digital, in terms of both mechanism and content. Meanwhile Smedley (2010) argues that the use of e-learning for students is flexible in learning, one of which can provide an understanding of information and e-learning can improve students' abilities to form communication where discussions occur between students. E-learning can foster students' motivation to work together with others, as well as exchange ideas and provide different points of view. E-learning can redesign learning materials and students can be helped to understand learning. Meanwhile, Wagner et al. (2008) argues that e-Learning provides additional understanding between students and teachers during learning and e-learning can minimize costs because it does not need printing costs. E-learning contains material that can provide students with understanding in reading material and e-learning is made with a certain design. E-learning makes students choose the material they like, while other materials can be studied slowly. The use of e-Learning can increase the speed of understanding students, for example how to work on questions slowly or quickly.

Based on available literature, the benefits of using the Internet in open and distance education may include the following (Elangoan et al., mentioned in Setyoningsih, 2015):

- i. The availability of e-moderating facilities through which teachers and students can communicate easily on a regular basis or whenever communication is carried out without being limited by distance, place, or time.
- ii. Teachers and students can use structured and scheduled teaching materials or learning instructions through the Internet, so that both parties can mutually assess the extent to which the teaching materials are studied.
- iii. Students can study or review teaching materials at any time and from any place as the teaching materials are stored on the computer.
- iv. Students who need additional information related to the material they are studying can easily search for and access them through the Internet.
- v. Both teachers and students can conduct discussions via the Internet, involving and followed by a large number of participants, thereby adding to knowledge and insights.
- vi. E-learning encourages students to exhibit a more active role.
- vii. E-learning is relatively more efficient, as it allows many people to study, such as those who reside far from conventional colleges or schools, those who are busy working, or those on duty on ships or abroad.

However, e-learning also has its shortcomings. Various criticisms against e-learning include the following (Bullen & Beam in Setyoningsih, 2015):

- i. Lack of interaction between teachers and students or even between students themselves. This lack of interaction can impede the formation of values in the teaching and learning process.
- ii. E-learning's tendency to ignore academic or social aspects and instead encourage the growth of business/commercial aspects.
- iii. The process of learning and teaching tends to emphasise training rather than education.
- iv. The change in the teachers' role: from previously needing to master conventional learning techniques, teachers are now also required to know learning techniques utilising ICT.
- v. Students who do not have high learning motivation tend to fail.
- vi. Not all places have Internet facilities. This is perhaps related to the problem of the availability of electricity, telephones, or computers.
- vii. Lack of personnel who know and have skills in Internet-related matters.
- viii. Lack of mastery of computer languages.

Based on the above advantages and disadvantages, it can be concluded that the e-learning method can be used in distance learning so that students can study anytime and anywhere.

The research objective in this study are: (1) to determine the effectiveness of using digital online books with guided note-taking model so that it can be used by students during a pandemic, and (2) to determine the importance of using digital online books with the guided note-taking model for students.

3. Research Method

In this study, the researcher produced a digital online book using a guided note-taking model for the transformation geometry course. The subjects of this study were fourth-semester students in the mathematics education study programme at Universitas Terbuka. This research was conducted between April and September 2021. An experimental design was used to test the effectiveness of learning, thus determining the influence of digital online books on student learning outcomes.

The hypothesis formed by the formulation of the research problem is H_0 : There is no significant difference in the learning effectiveness of tutorial online classes and media classes. As for H_a : There is a significant difference in the effectiveness of tutorial online classes and media classes. The tution class is a tutorial online class or called a conventional class without using learning media in the form of digital online books with guided note taking models while the media class is tutorial online classes that use learning media in the form of digital online books with guided note taking models.

This research used the (research and development) approach developed by (Borg and Gall, 1989). The procedure for developing instructional media relied on a model developed by (Borg and Gall, 1989). There are 10 stages in research, namely identifying potentials and problems, data collection, product design, design validation, design revision, product testing, operational product revision, operational field testing, final product revision, dissemination and implementation (Sugiyono, 2013). The following is an overview of the development of the research procedure (Figure 1).

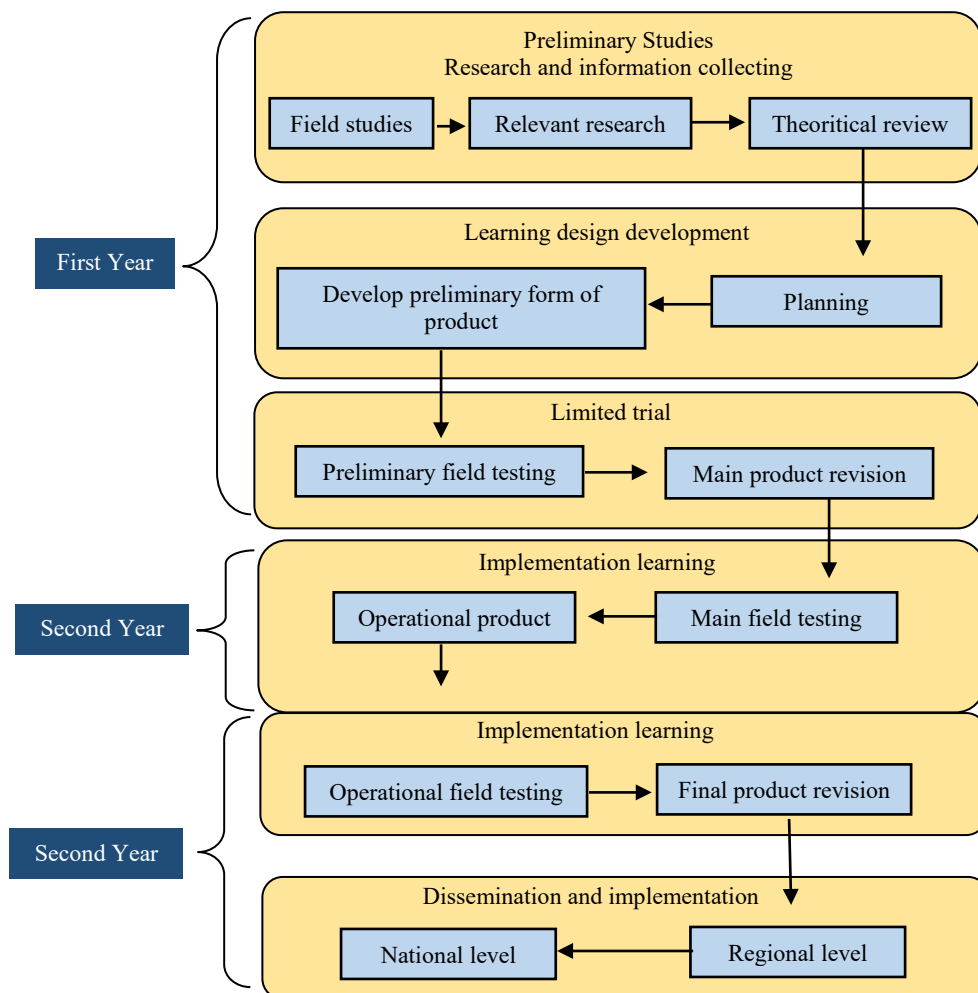


Figure 1. Schematic of the research design

Data collection was performed using a limited test. The test was conducted to determine the influence of digital online books on student learning outcomes. Students were provided with a digital link to the online book and subsequently sent their results back via email. After data collection, the results of the work were processed and analysed using the SPSS statistical software.

4. Findings and Discussion

4.1. Findings

The normality, homogeneity, and t-tests were used to determine the effectiveness of student assessment of the digital online book. The results of the normality test are provided in the table below.

Table 1. Summary of data processing using SPSS

Case Processing Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Values for tuton class	11	100.0%	0	0.0%	11	100.0%
Values for media class	11	100.0%	0	0.0%	11	100.0%

Table 1 shows that the valid value is $n = 11$, and the missing tuton value is $n = 0$. Thus, the total for the tuton value is $n = 11$ with a percentage of 100%. The valid media value is $n = 11$ and the missing media value is $n = 0$. Thus, the total for the media value is also $n = 11$ with a percentage of 100%.

Table 2. Normality test with SPSS

Normality Tests						
	Kolmogorov-Smirnov ^a Test			Shapiro-Wilk Test		
	Statistic	df	Sig.	Statistic	Df	Sig.
Values for tuton class	.229	11	.112	.899	11	.180
Values for media class	.184	11	.200*	.934	11	.458
* This is a lower limit of the true significance.						
a. Lilliefors Significance Correction						

Table 2 shows that the df values for both the tuton and media classes are 11. Because the number of data samples for each group is fewer than 50, the Shapiro-Wilk test was used to determine conformation to a normal distribution. The significance value for the tuton class is 0.180, and for the media class this value is 0.458. Because the significance values for both groups are greater than 0.05, it can be concluded that the data on learning outcomes for both the tuton and media classes are normally distributed. Results of the homogeneity test using SPSS are as follows.

Table 3. Homogeneity test with SPSS

Homogeneity of Variance Test					
		Levene Statistic	df1	df2	Sig.
Value	Based on Mean	1.343	1	20	.260
	Based on Median	.973	1	20	.336
	Based on Median and with adjusted df	.973	1	19.151	.336
	Based on trimmed mean	1.274	1	20	.272

Homogeneity of variance was determined based on the mean significance value of 0.260. Because the 0.260 value obtained is higher than 0.05, it can be concluded that the variance for the tuton and media classes is homogeneous.

A t-test was conducted to determine the effectiveness of the digital online book using the guided note-taking model in the transformation geometry course. The following are the results of the analysis.

Table 4. Group statistics with SPSS

Group Statistics					
Code		N	Mean	Std. Deviation	Std. Error Mean
Value	Tuton class	11	79.97	8.667	2.613
	Media class	11	87.00	5.568	1.679

Table 4 shows that the mean value for the tuton class is 79.97 with a standard deviation value of 8.667, while the mean value for the media class is 87.00 with a standard deviation value of 5.568. It can be concluded that a mean difference of 7.03 between the two groups indicates a difference in the improvement of learning outcomes between the tuton and media classes.

Table 5. Independent samples test with SPSS

Independent Samples Test										
Value		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Value	Equal variances assumed	1.343	.260	-2.265	20	.035	-7.035	3.106	-13.514	-.556
	Equal variances not assumed			-2.265	17.053	.037	-7.035	3.106	-13.586	-.483

The Table 5 shows that the t-count is 2.265 with a df of 20, the t-table is 2.086, and the two-tailed t-test value is significant at 0.35. By comparing these results, the significance value of the two-tailed t-test obtained is 0.035 and lower than 0.05, and the t-count obtained (2.265) is higher than t-table (2.086). Based on the hypothesis that has been formulated this indicates that H_0 is rejected and H_a is accepted, which means there is a difference in learning outcomes between the two groups. This in turn indicates that digital online books using the guided note-taking model can be effectively used by students at Universitas Terbuka during the pandemic.

4.2. Findings

The digital online book can be accessed via this link: <https://online.fliphtml5.com/xrsjy/jdez/>. This is an online-based textbook with the following nine chapters:

- Chapter one: Relations, functions, and transformations
- Chapter two: Isometry and mirroring
- Chapter three: Half-turn and directed line segments
- Chapter four: Translation
- Chapter five: Rotation
- Chapter six: Shear reflection and isometric groups

- Chapter seven: Isometric basic theorem
- Chapter eight: Similarity
- Chapter nine: Symmetry group and the dihedral group

This book uses a guided note-taking model to activate the teaching and learning process by prompting students to fill in the blanks. The book is equipped with practice questions so that students can measure their level of understanding specifically in transformation geometry. The following is a screen capture of the book.

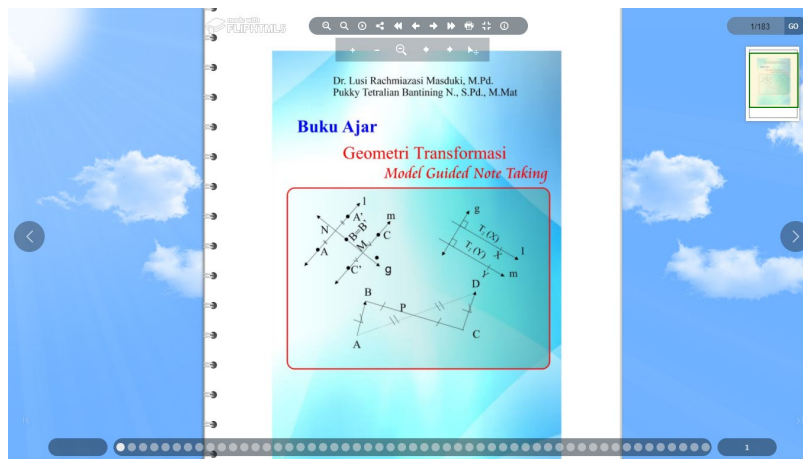


Figure 2. The cover display of the first chapter on relationships, functions, and transformations.

In Figure 2, the cover page for the first chapter shows the identity of the author and title of the module that has been made into the digital online book. The design is very simple and straightforward, making it easier for readers to understand the purpose of its contents.

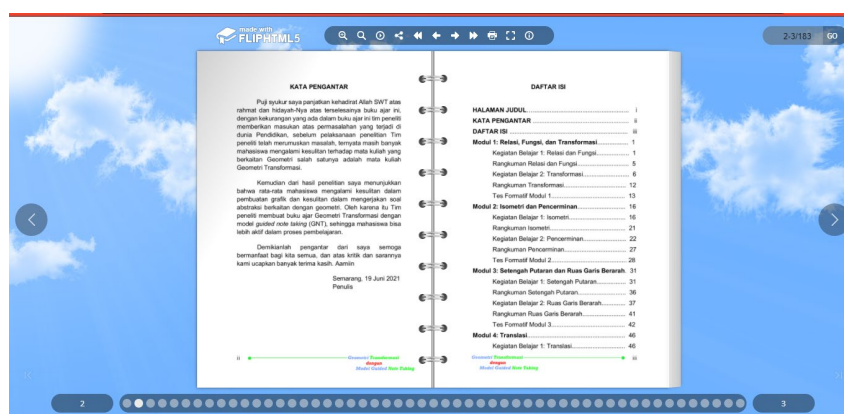


Figure 3. The introduction and table of contents.

Figure 3 shows the pages for the book's introduction and table of contents. The introduction describes the objectives in completing the work, what the author has gone through in the preparation of the book, and the assistance received throughout the process.

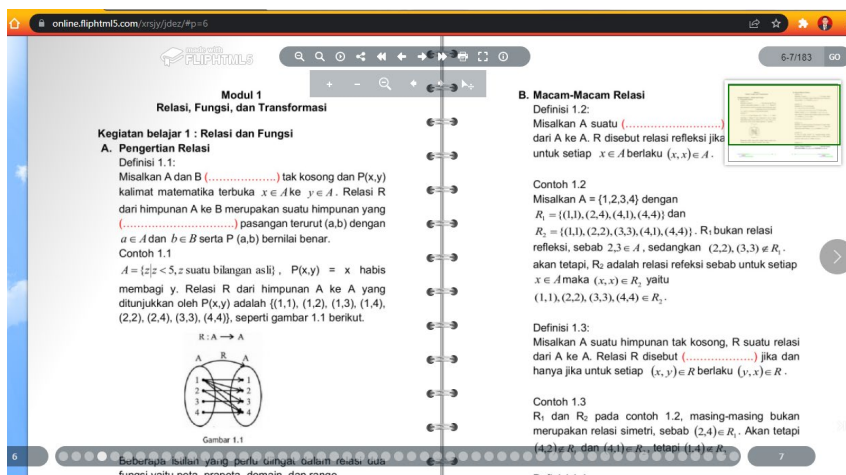


Figure 4. The contents of the book.

Figure 4 shows that the material contained in the book is designed using a guided note-taking model, which prompts students to construct complete sentences by filling in the missing words. Students can use a trial-and-error approach to arrange sentences into their complete forms.

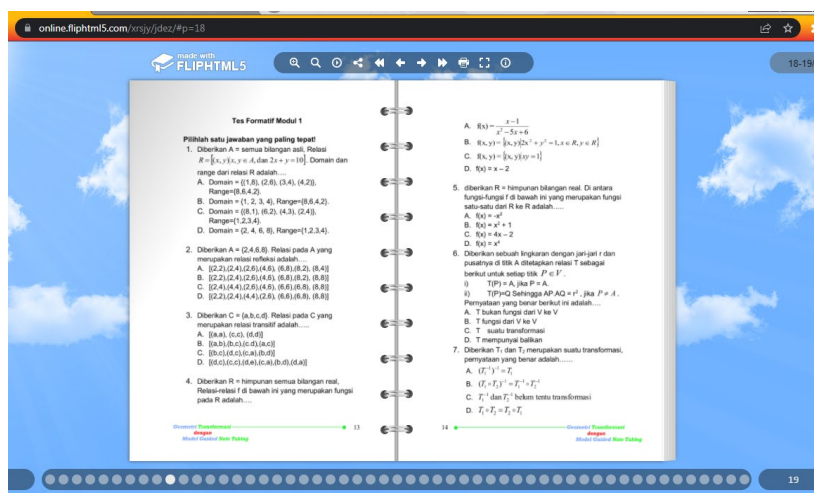


Figure 5. The display of the digital online media exercise online book

Figure 5 shows the practice questions that are contained in all chapters of the book, which help measure the students' level of understanding of the material presented.

It can be concluded that the digital online book is very useful for students because it can foster motivation for learning during the pandemic; in fact this is evident in that student learning outcomes have improved. The guided note-taking model can activate concepts in thinking because students have to fill in the blanks as they go through the material. The book also contains exercises that can be used to measure student ability and understanding.

5. Conclusion

Based on the findings of this research, several conclusions were obtained. It was clear from the results of analysis and exploration that one of the advantages of a digital online book using the guided note-taking method is that it can develop students' thinking because they are required to fill in the blanks. Another advantage is that students can learn transformation geometry from anywhere using the provided digital online book. However, there are also disadvantages discovered in this research. Among the disadvantages are that students' work cannot be directly monitored because lectures take place as tutorial online, and

that students may need guidance in filling in the empty spaces. A digital online book using the guided note-taking model was published for the use in the transformation geometry course at Universitas Terbuka. The book consisted of nine chapters in online and offline form. Good feedback and impressions obtained from 22 students, indicates that the digital online book can be used as an alternative learning resource in the classroom. In terms of tracking learning outcomes using SPSS, there appears to be a difference in learning outcomes between the tuton and media classes (with a score difference of 7.03), and values derived from the two-tailed t-test which proved that the digital online book using a guided note-taking model in the transformation geometry course has been successfully utilised as a selected web-based learning asset for students at Universitas Terbuka during the pandemic.

Funding: This study was funded by LPPM Universitas Terbuka

Acknowledgements: The author would like to acknowledge the contributions of the journal advisors, chairpersons, editorial board members and the respective international offices for their continuous support. Limited to grant providers and/or selected individuals whose work made a significant contribution to the article presented.

References

- Akpokodje, V. N., & Ukwuoma, S. C. (2016). Evaluating the impact of eBook on reading motivation of students of higher learning in Nigerian Universities. *IFLA World Library and Information Congress*, 1-15. https://www.researchgate.net/publication/310452037_Evaluating_the_impact_of_eBook_on_reading_motivation_of_students_of_higher_learning_in_Nigerian_Universities
- Albab, I. U., Hartono, Y., & Darmawijoyo. (2014). Kemajuan belajar siswa pada geometri transformasi menggunakan aktivitas refleksi geometri. *Cakrawala Pendidikan*, 1(3), 338–348. <https://doi.org/10.21831/cp.v3i3.2378>
- Ananda, H. E. (2018). Penggunaan model pembelajaran e-learning dalam meningkatkan kualitas pembelajaran. *Jurnal Warta Edisi*, 56, 1–11. <https://jurnal.dharmawangsa.ac.id/index.php/juwarta/article/download/4/3>
- Borg, W. R., & Gall, M. D. (1989). *Educational research: An introduction*. (5th ed.). Longman
- Darmawan, D. (2012). *Inovasi pendidikan*. PT Remaja Rosdakarya Offset.
- Ebied, M. M. A., & Rahman S. A. A. (2015). The effect of interactive e-book on students' achievement at Najran University in computer in education course. *Journal of Education and Practice*, 6(19), 71–82. <https://eric.ed.gov/?id=EJ1079544>
- Hardiyanti, U. D. (2015). *Pengembangan bahan ajar matematika berbasis website pada pokok bahasan transformasi geometri kelas xi SMK Negeri 26 Jakarta*. Universitas Negeri Jakarta. http://repository.ut.ac.id/9333/1/35-TING-XII-2020_Lusi%20RM-Pukky%20Tetralian%20Bantining%20N.pdf
- Holmes, B., & Gardner J. (2006). *E-Learning: Concepts and practice*. SAGE Publications. <http://bpkpenabur.or.id/jurnal/04/085-097.pdf>
- Leontyeva, I. A. (2018). Modern Distance learning technologies in higher education: Introduction problems. *Eurasia Journal of Mathematics, Science and Technology Education*, 14(10), 1–8. <https://doi.org/10.29333/ejmste/92284>
- Martha, Z. D., Adi, E. P., & Soepriyanto, Y. (2018). E-book berbasis mobile learning. *Jurnal Kajian Teknologi Pendidikan*, 1(2), 109–114. <http://journal2.um.ac.id/index.php/jktp/article/view/17232>
- Midgett, C. W., & Eddins, S. K. (2001). NCTM's Principles and standards for school mathematics: Implications for administrators. *NASSP Bulletin*, 85(623), 35–42. <https://doi.org/10.1177/019263650108562305>
- Munadi, Y. (2008). *Media pembelajaran sebuah pendekatan baru*. Gaung Persada (GP) Press.
- Paradesa, R. (2016). Pengembangan bahan ajar geometri transformasi berbasis visual. *Jurnal Pendidikan Matematika*, 2(1), 56–84. <http://jurnal.radenfatah.ac.id/index.php/jpmrafa/article/view/1241>
- Prastowo, A. (2015). *Panduan Kreatif Membuat Bahan Ajar Inovatif*. Yogyakarta: Diva Pres.

- Putri D. R., & Eli R. (2020). Implementasi Strategi pembelajaran guided note taking terhadap aktivitas belajar dan pemahaman konsep kimia. *Jurnal Pendidikan Matematika dan Sains*, 8(1), 54–60. <http://dx.doi.org/10.21831/jpms.v8i1.31398>
- Roslina, W., Fahmy S., Fariha Z., Haslinda N., Yacob A., Sukinah N., & Suhana N. (2013). The effect of e-book on students' learning styles a study in Terengganu, Malaysia. *International Conference on Advanced Information and Communication Technology for Education*. <https://doi.org/10.2991/icaicte.2013.45>
- Sarjiman, P. (2006). Peningkatan pemahaman rumus geometri melalui pendekatan realistik di sekolah dasar. *Cakrawala Pendidikan*, 1(1), 73–92. <https://doi.org/10.21831/cp.v0i1.393>
- Setyoningsih. (2015). E-learning: Pembelajaran interaktif berbasis teknologi informasi. *Jurnal Elementary*, 3(1), 40-58. <http://dx.doi.org/10.21043/elementary.v3i1.1443>
- Silberman, M. L. (2007). *Active learning strategi pembelajaran aktif*. Pustaka Insan Madani.
- Smedley, J. K. (2010). Modelling the impact of knowledge management using technology. *OR Insight*, 23(4), 233–250. <https://www.tandfonline.com/doi/abs/10.1057/ori.2010.11>
- Sugiyono. (2013). *Metode penelitian pendidikan pendekatan kuantitatif, kualitatif dan R&D*. Alfabeta.
- Suprijono, A. (2012). *Cooperatif learning teori dan aplikasi PAIKEM edisi revisi*. Pustaka Pelajar.
- Tafiardi. (2005). Meningkatkan mutu pendidikan melalui e-learning. *Jurnal Pendidikan Penabur*, 4(4), pp. 85-97.
- Wagner, N., Hassanein K., & Head M. (2008). Who is responsible for e-learning in higher education? A stakeholders' analysis. *Educational Technology & Society*, 11(3), 26-36. <https://www.learntechlib.org/p/75266/>
- Zainal, M. 2009. *Kelebihan dan kelemahan guided note taking*. Pustaka.