



Digitalisation of Teaching Materials for Toba Batak Ethnic Decorative Variety with Procreate Media Based on p-Books and e-Books

Adek Cerah Kurnia Azis^{1*}, Siti Khodijah Lubis², Gamal Kartono³,
Muhammad Anggie Januarsyah Daulay⁴

^{1,3}Fine Arts Education Study Program, ⁴Indonesian Literature Study Program,
Faculty of Language and Arts, Universitas Negeri Medan

²Madrasah Ibtidaiyah Teacher Education Study Program, FTIK, Universitas Islam Negeri
Syekh Ali Hasan Ahmad Addary Padangsidempuan

*Corresponding Author. Email: adekcerah@unimed.ac.id

Abstract: This research aims to develop teaching materials in the form of digitalisation of Toba Batak Ethnic Decorative Variety with p-book and e-book-based procreate media that are valid, practical, and effective in the Fine Arts Department. This research method uses research and development with the 4-D development model (Four-D Models), namely define, design, develop, and disseminate. This research instrument uses a questionnaire with a Likert scale, while the data analysis technique consists of analysing the validity, practicality and effectiveness of teaching materials. The results of this study indicate that: a) p-book and e-book-based teaching materials with the title of the book/module/teaching material "Gorga Batak Toba", with the acquisition of a category that is quite valid with an average score of 78%, b) teaching materials are quite practical to be used by students in the North Sumatra Ethnic Decorative Variety Course (RHESU) with a score of 77%, and c) teaching materials fall into an effective category where students from four categories such as reading teaching materials, asking questions, answering questions, and completing assignments given by lecturers, can be observed in the learning process and student learning outcomes are 83.26%. So, from the scores and test results of the research results above, it can be said that the teaching materials are quite valid, quite practical, and effective to be applied in learning the North Sumatra Ethnic Decorative Variety Course (RHESU) at the Department of Fine Arts, Faculty of Language and Arts, Universitas Negeri Medan.

Article History

Received: 08-07-2023
Revised: 16-08-2023
Accepted: 30-08-2023
Published: 16-09-2023

Key Words:

Digitalization of
Teaching Materials;
Decorative Variety;
Toba Batak; Procreate
Media; p-Book; e-
Book.

How to Cite: Azis, A., Lubis, S., Kartono, G., & Daulay, M. (2023). Digitalisation of Teaching Materials for Toba Batak Ethnic Decorative Variety with Procreate Media Based on p-Books and e-Books. *Jurnal Kependidikan: Jurnal Hasil Penelitian dan Kajian Kepustakaan di Bidang Pendidikan, Pengajaran dan Pembelajaran*, 9(3), 782-793. doi:<https://doi.org/10.33394/jk.v9i3.8746>



<https://doi.org/10.33394/jk.v9i3.8746>

This is an open-access article under the [CC-BY-SA License](https://creativecommons.org/licenses/by-sa/4.0/).



Introduction

Along with the progress of the times at this time, many technologies have grown and developed significantly (Zabolotska et al., 2021). The life of students or teenagers in the past is very different from the life of students or teenagers today. Likewise, learning is also different between then and now. Now, digital technology has entered all aspects of life, including the education system at all levels, both in schools and in universities (Gumennykova et al., 2020). Where technology is growing rapidly, it will have a major impact on others in the future, both in the world of education, economics, design, and other fields in the form of positive or negative influences depending on how a person utilises existing technology (Cai & Su, 2022).

Technological developments have produced many diverse new innovations to improve the learning process (Biletska et al., 2021), including many variations of learning media. General demands require the world of education to always keep up with technological



developments in an effort to improve the quality of education, especially the use of adapted technology in the implementation of learning. Digital technology also has a positive impact on changing human behaviour, including educators and learners (Leung & Choi, 2023), in selecting, accumulating, storing, generating, processing and retransferring teaching materials tailored to the needs (Hanemann, 2019). Teaching materials contained in the learning process combined with digital technology can make learning more interesting and increase learning motivation. In addition, combining teaching materials is not limited to text, but can be more creative and interesting, especially when there are elements of images, audio, video, and animation (Laurens & Laamena, 2020) (Azis et al., 2022), so that it can affect changes in student learning behaviour that develop better.

The development of technology and information media has been felt by almost all levels of society, be it students in schools, and students in universities to meet the demands of today's generation (Akour & Alenezi, 2022), both in terms of positive and negative impacts of its use. Seen from a positive point of view in a student's life in a university, in addition to the fields of science and technology, the study of art, especially fine arts, also has its influence. In the learning of fine arts in the field of practice (Lubis, 2022), the development of technology has provided a slight shift in the process and creation of works of art, previously done manually, but as digital media advances, it has changed to digital workmanship (Börnert-Ringleb et al., 2021) (Zain, 2021) (Orishev & Achilov, 2023). The result of this digitalisation is often called digital art, where the process has used sophisticated devices and applications, where the process is more accessible, faster, and simpler (McCready, 2021). Of course, the results obtained from these devices and applications cannot be separated from what is called art itself, namely beauty.

One of the courses in the Department of Fine Arts, Faculty of Language and Arts, Universitas Negeri Medan is the North Sumatra Ethnic Decorative Variety Course (RHESU). This course studies various kinds of ornamental varieties that exist in North Sumatra, which consists of 8 indigenous ethnicities; each ethnicity has a characteristic style of art that is not the same. The original ethnicity is Batak, which is still divided into 6 sub-ethnicities, namely Toba, Simalungun, Karo, Pakpak, Mandailing and Angkola, plus Malay and Nias (Saragi, 2017). The Toba Batak Ethnic Decorative Variety is part of the decorative variety of 8 ethnicities in North Sumatra which certainly has its own characteristics. As revealed (Saragi, 2018) in the Toba Batak language, the ornamental motif is called Gorga, which means carving. The shape of the Toba Batak ornamental motif is carved on the wooden material of the traditional Toba Batak traditional house. The Batak tribe has a variety of traditional carvings with characteristics that are not the same between one tribe and another; the name of the traditional carving is Gorga/Gerga/Pinar (Pasaribu et al., 2018).

In the course of North Sumatra Ethnic Decorative Variety, especially in the Toba Batak Ethnic Decorative Variety, the ability of students is very good in drawing decorative varieties, but the decorative variety drawings have been drawn by students in practice manually. Based on pre-research data during the North Sumatra Ethnic Decorative Variety lecture in January-June 2022, the depiction of student ornamental varieties still uses manual media both through drawing books and other media, has never drawn Toba Batak Ethnic Decorative Variety using digital-based media. Therefore, it is necessary to develop new teaching materials in the form of digitalisation of Toba Batak Ethnic Decorative Variety with Procreate media based on p-books and e-books. This research utilises a device with the iPad Gen 9 2020 type and a supporting application called procreate. The devices and applications used are very influential in creating digital artworks to obtain maximum results.



Procreate is a digital drawing application specifically developed for iPad has a variety of professional features, such as those found in illustration programs on computers, with a program engine called Silica. Procreate has 64-bit colour sampling that makes it superior in combining colours and has tools commonly used in digital illustration applications such as brush libraries for paint, smudge, and erase (Cho, 2022). Procreate is also supported by a variety of features that make it easier and more useful for illustrators and provide greater context for the creation of work (McCready, 2021). The layer feature in Procreate supports up to 16 layers, merge feature to combine layers, layer blend feature, transform feature, show/hide feature, and undo/redo feature can also be used up to 100 times. The work created with Procreate can now be exported to PSD, JPG, and PNG file formats with high resolution and sharpness, resulting in good and attractive digital images.

The teaching materials developed in this study are based on p-books and e-books so that they are easily accessible, easy to use, inexpensive and available on desktops and student android phones (Sinaga et al., 2019) (Farid et al., 2021), nowadays electronic technology is a normative part of everyday life (Reich et al., 2019). This teaching material can be an interesting reference and enrichment for students in the process of making digital-based Toba Batak Ethnic Decorative Variety. In addition, it is able to increase students' interest in understanding lessons, broaden their horizons and help students do their coursework (Zaripova et al., 2021).

Research Method

This research method uses research and development with the 4-D model (Four D Models), which has 4 stages, namely define, design, develop, and disseminate (Thiagarajan, 1974) as cited in (Sugiyono, 2016). The research location was focused on the Fine Arts Department, Faculty of Language and Arts, Universitas Negeri Medan. The research subjects were 5th-semester Fine Arts students who took the North Sumatra Ethnic Decorative Variety Course (RHESU). The research was conducted in the Spring Semester of the 2023/2024 Academic Year. The research population is all Fine Arts students who have taken the North Sumatra Ethnic Decorative Variety Course, where sampling uses random sampling techniques with a sample size of 10% of the population as follows.

Table 1. Population and Sample

No	Class	Population	Sample (10%)
1	A	26 students	2.6 = 3 students
2	B	26 students	2.6 = 3 students
3	C	26 students	2.6 = 3 students
4	D	26 students	2.6 = 3 students
Total		104 students	12 students

This research instrument uses a questionnaire with a Likert scale. The data analysis technique consists of analysing the validity test, practicality and effectiveness of teaching materials. Determining media validation using a Likert scale, analysing the level of practicality refers to a questionnaire distributed to students, then the questionnaire is made in the form of a Likert scale with positive statement categories. Effectiveness is seen based on the analysis of student learning outcomes in the knowledge aspect. Determining the completeness of student learning outcomes is calculated through the following equation.

$$KB = \frac{T}{T_t} \times 100 \%$$

Description:

KB = Learning Completeness
T = Completed

Tt = Total Score

Each student is declared to have completed learning if the ratio of correct answers 65% and a class is declared to have completed learning if in that class there are 85% of students who pass (Depdiknas 1996) in (Setyawan & Purwanto, 2019). Teaching materials are said to be effective if student learning outcomes have met the standards if 85% of students have completed. This research has a flow as listed in Figure 1.

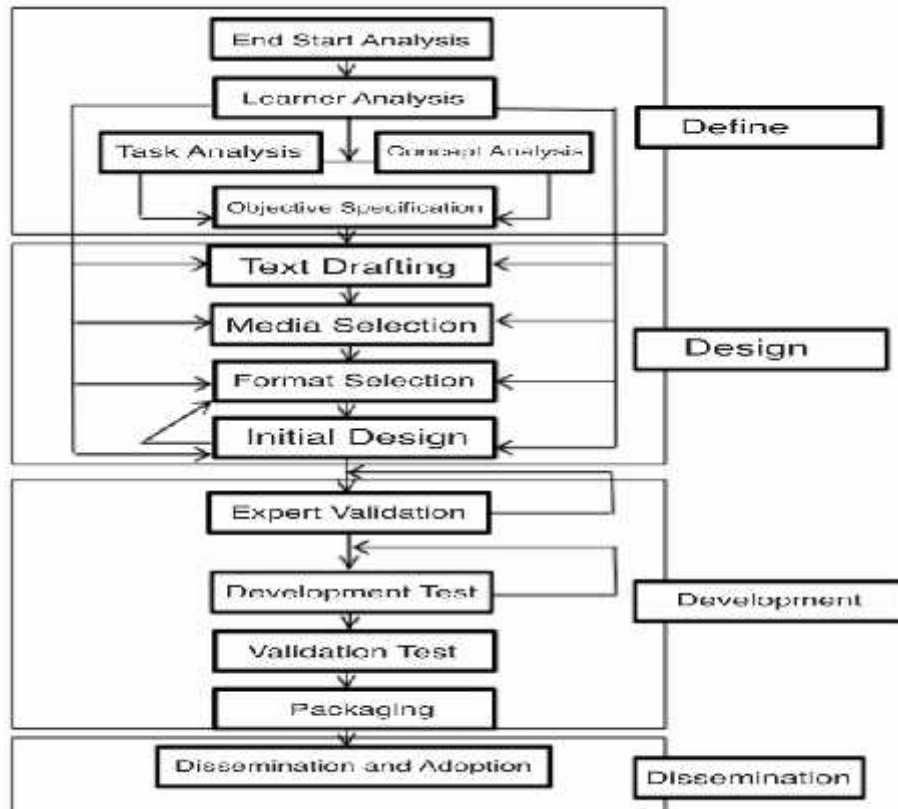


Figure 1. Flow of Toba Batak Gorga Teaching Materials Development

Results and Discussion

1) Define Phase

In the defining stage, there are analyses: curriculum, concepts and students. Curriculum analysis aims to analyse the Competency Standards and Basic Competencies in the North Sumatra Ethnic Decorative Variety Course (RHESU), where the results of the analysis become the formulation of learning indicators. Concept analysis aims at the main concepts that must be understood by students in the learning process. The concept analysis contains the formulation of essential concepts to be made in teaching materials on p-book and e-book based materials. Meanwhile, student analysis aims to obtain information related to student characteristics. The characteristics of students are age, learning motivation, cognitive background, and student academic competence.

2) Design Phase

The cover is designed very attractively to invite student response and interest in learning the content of teaching materials. The colour combination of the cover is adjusted to the colours in Batak Toba ornaments which only consist of three colours, namely red, black, and white (Sihombing & Tambunan, 2021). The use of these colours is inseparable from the meaning and philosophical values contained in these ornaments. Each prominent colour has

its own strength of meaning, such as sirara dominated by red, silintong dominated by black, and sihapas dominated by white (Mesra et al., 2022). Park et al (2023) suggested that the image on the book cover has an appeal in influencing the sense of pleasure and increasing the perceived value of the book. The teaching material cover design can be observed in Figure 2.



Figure 2. Cover View of Teaching Materials

3) Development Phase

The development stage includes expert validation and trials of p-book and e-book-based teaching materials to obtain the validity, practicality, and effectiveness of the teaching materials developed. Teaching materials that have been made, then validated by 2 (two) validators. The first validator has expertise in design, while the second validator has expertise in language. Expert validation has 2 stages, namely: 1) validation of the validation sheet questionnaire, which the validator wants to use to validate teaching materials, 2) validation of teaching materials through a validation sheet that has been corrected and scored for teaching material assessment. Validating the validation sheet questionnaire has the benefit of determining and improving the needs to be assessed in validating teaching materials by validators (Kartono et al., 2021). The validation of the validation sheet questionnaire was revised by 2 experts in accordance with their respective expertise. The name of each validator is listed in table 3.

Table 3. Names of Validators

No	Name	Field
1.	Drs. Mesra, M.Sn.	Design
2.	Frinawaty Lestarina Barus, S.Pd., M.Pd.	Language

Validating the questionnaire validation sheet, there are a number of components that are improved. The results of the improvement of the validation sheet from each expert are generally listed in table 4.

Table 4. Revised Results of Validation Sheet of Each Validator

No	Description
1.	<p>Drs. Mesra, M.Sn.</p> <ul style="list-style-type: none"> a. The teaching materials should be displayed in full colour; b. The characteristic colours of Gorga are further strengthened by bringing out the 3 colours of Gorga: red, white, and black; c. The layout of the images is given more attention; and d. The image size is enlarged again.

2. **Frinawaty Lestarina Barus, S.Pd., M.Pd.**

- a. Note the use of "di" as an affix and "in, on, and at" as a place word;
- b. Use standardised Bahasa Indonesia;
- c. The relationship between paragraphs should be considered, they should be related to each other;
- d. Many of the words are misspelled or erroneous, and
- e. Use good and correct Indonesian spelling.

After being revised, the next scoring was done by the validators. Design expert validators assess the layout and content of teaching materials, while linguist validators assess the entire grammar of teaching materials. After scoring, data analysis was conducted. The results of data analysis from the validator assessment scores are listed in table 5.

Table 5. Validator Assessment Results

No	Variables	Degree of Achievement (%)	Category
1.	Contents	77%	Valid Enough
2.	Construct	77%	Valid Enough
3.	Display of Teaching Materials	85%	Valid
4.	Language	75%	Valid Enough
	Average	78%	Valid Enough

The results of the analysis of the validator's assessment score in table 5, which contains 4 variables, are as follows: 1) content with an achievement rate of 77% has a fairly valid category, 2) construct with an achievement rate of 77% has a fairly valid category, 3) the appearance of teaching materials with an achievement rate of 85% has a valid category and 4) language with an achievement rate of 75% has a fairly valid category. In general, the average validity of teaching materials with a degree of achievement is 78.5% and teaching materials can be categorised as quite valid.

The description of the content / material of teaching materials is made systematically to make it easier for users to understand teaching material about North Sumatra Ethnic Decorative Variety (RHESU). Kasman & Lubis (2022) also suggested that teaching materials developed must meet essential, interesting, meaningful, challenging, relevant, contextual and sustainable criteria. Comparison of the degree of achievement of the results of validation of teaching materials for each variable by validators for more details is listed in Figure 3.

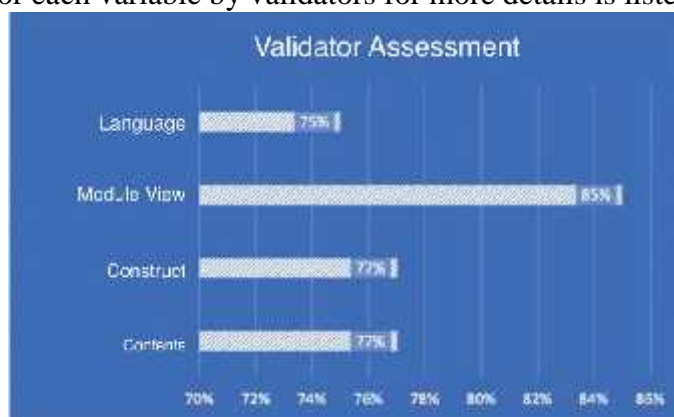


Figure 3. Validator Assessment Results

The practicality of p-book and e-book-based teaching materials was evaluated by students in the Fine Arts Department who were taking the North Sumatra Ethnic Decorative Variety Course as well as the test subjects of this research teaching material. After assessing the practicality of p-book and e-book-based teaching materials by students, the next stage is data analysis. The results of data analysis are listed in Table 6.

Table 6. Results of Practicality Assessment by Students

No	Variables	Score Achievement Level (%)	Category
1.	Learnability	79	Practical Enough
2.	Efficiency	77	Practical Enough
3.	Effectiveness of Time	75	Practical Enough
	Average	77	Practical Enough

The results of data analysis on the assessment of practicality by students of the Fine Arts Department and also as the subject of the trial of p-book and e-book-based teaching materials are from three variables, namely 1) ease for users (Learnability) has a degree of achievement of 79%, categorised as p-book and e-book-based teaching materials are quite practical for users. Because teaching materials have language that is tailored to the characteristics of students, can be used personally and exercises can make it easier for lecturers to guide students to understand concepts (Azis et al., 2021). Teaching materials are designed to make it easier for lecturers to guide students in the learning process in the North Sumatra Ethnic Decorative Variety Course (RHESU), 2) usability (Efficiency) has an achievement rate of 77%, categorised as quite practical to use during the learning process. Because teaching materials can help students in explaining concepts, good teaching materials are expected to support lecturers in guiding students in the learning process (Yang, 2021), 3) effectiveness of time has a degree of achievement of 75%, categorised that p-book and e-book-based teaching materials are very practical enough to be able to streamline time in the learning process. The p-book and e-book-based teaching materials developed are quite practical for lecturers to apply in guiding students during the learning process. Thus, lecturers can use the minimum time with maximum results.

The practicality value of teaching materials by students with a degree of achievement of 77% and teaching materials can be categorised as quite practical. Teaching materials are formulated in learning starting from the presentation of material, instructions for use, and evaluation tools (Lang, 2021). The presentation of the teaching material formulation is adjusted to the level of student competence (Kwangmuang et al., 2021). For more details, a comparison of the degree of achievement of the practicality of teaching materials by students is listed in Figure 4.

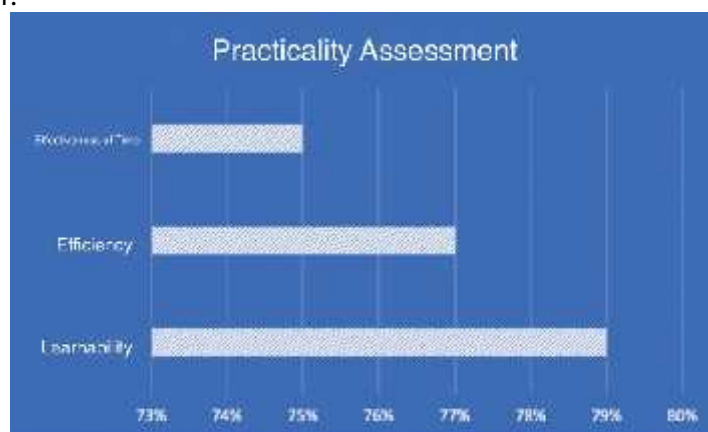


Figure 4. Results of Practicality Assessment by Students

Effectiveness aims to determine the extent to which the teaching materials is effective in the learning process. Getting effectiveness value of p-book and e-book-based teaching materials is through observations of student activities during the learning process (Granberg et al., 2021) and student learning outcomes. Almekhlafi (2021) also suggests that the

effectiveness of e-books depends on factors such as design, interactivity, content richness, and students' perceptions of the benefits they get. The trial of teaching materials for North Sumatra Ethnic Decorative Variety was conducted for four meetings where each meeting was observed by 1 observer. The observer names in this study are listed in table 7 below:

Table 7. Names of Student Activity Observers

No	Name	Description
1.	Drs. Sugito, M.Pd.	Lecturer in Fine Arts Education

The categories of student activity by observers are: 1) reading teaching materials and doing exercises in teaching materials, 2) students asking questions while participating in learning, 3) responding to questions from lecturers or from other students, and 4) completing tasks given by lecturers.

Table 8. Student Activities

No	Student Activities	Active Students	Number of Students	Score Achievement Level (%)	Category
1.	Read teaching materials and do exercises				
	Meeting 1	12 people	12 people	100	Very Active
	Meeting 2	12 people	12 people	100	Very Active
	Meeting 3	12 people	12 people	100	Very Active
	Meeting 4	12 people	12 people	100	Very Active
	Average			100	Very Active
2.	Students ask questions during the lesson				
	Meeting 1	6 people	12 people	50	Active Enough
	Meeting 2	6 people	12 people	50	Active Enough
	Meeting 3	10 people	12 people	83.33	Very Active
	Meeting 4	10 people	12 people	83.33	Very Active
	Average			66.66	Active
3.	Answering questions from the lecturer or from other students				
	Meeting 1	5 people	12 people	41.66	Active Enough
	Meeting 2	6 people	12 people	50	Active Enough
	Meeting 3	10 people	12 people	83.33	Very Active
	Meeting 4	11 people	12 people	91.66	Very Active
	Average			66.41	Active
4.	Complete assignments given by the lecturer				
1.	Meeting 1	12 people	12 people	100	Very Active
2.	Meeting 2	12 people	12 people	100	Very Active
3.	Meeting 3	12 people	12 people	100	Very Active
4.	Meeting 4	12 people	12 people	100	Very Active
	Average			100	Very Active

The first activity is reading teaching materials and doing exercises given by the lecturer. Students' activities in reading teaching materials and doing exercises from the first to the fourth meeting, each had percentages of 100%, 100%, 100%, 100% and with an average of 100% categorised as very active. Students who were absent or had permission were categorised as inactive. During the observer's observation, students were present 100%. Based on the observation results, students can be said to be very active in reading teaching materials and doing exercises given by lecturers.

The second activity is students asking questions when following the learning process. The percentage of student activity from the first meeting to the fourth meeting was 50%, 50%, 83.33%, and 83.33% respectively, with an average student activity of 66.66%

categorised as active students. Based on this data, the number of students who ask questions from the second meeting to the next meeting always increase. Student who ask questions at each meeting are also increasingly varied. It can be stated that if learning uses teaching materials, student learning motivation will increase in the learning process (Puspitarini & Hanif, 2019).

The third activity is answering questions from lecturers and other students. The percentage of four meetings is 41.66%, 50%, 83.33%, 91.66% with an average student activity of 66.41% can be categorised as active students. Based on the data above, it can be stated that students' responses to questions from lecturers and other students always increase at each meeting.

The fourth activity is completing assignments. Student activities during the four meetings had a percentage of 100%, 100%, 100%, and 100% with an average student activity of 100%, including the category of very active students, because completing assignments at the end of each lesson is the responsibility of each student. The average student activity of each category from four meetings in general is listed in Figure 5 below:

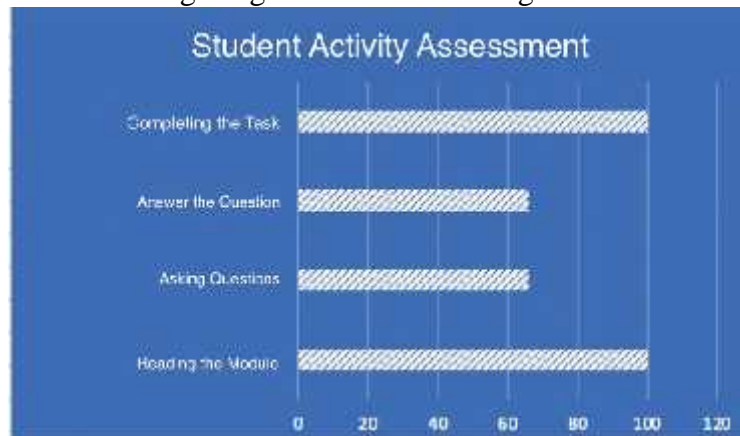


Figure 5. Student Activity Score Results

The practicality of teaching materials proves that of the 12 students who used p-book and e-book-based teaching materials in the learning process in the North Sumatra Ethnic Decorative Variety Course (RHESU) 100% of students were declared complete. Then, sourced from the results of observations by one observer, the majority of students are active in the learning process. This matter states that p-book and e-book-based teaching materials are quite practical and also quite effective in the learning process in the North Sumatra Ethnic Decorative Variety Course (RHESU) which takes place in the Department of Fine Arts, Faculty of Language and Arts, Universitas Negeri Medan.

Sung et al (2022) suggested that the use of e-books in learning is more effective in triggering student learning motivation so as to improve student learning achievement. Teaching materials that are valid, practical, and effective can be used by students as a main of reference during the learning process, making it easier and easier for students to learn independently, anytime and anywhere. Teaching materials based on p-books and e-books are also easy to use, economical and easily accessible because they are available on students' desktops and android phones (Farid et al., 2021). This teaching material can be an interesting reference and enrichment for students in the process of making digital-based Toba Batak Ethnic Decorative Variety. In addition, it can make learning more interesting so that it increases student interest in understanding lessons (Hendrickson, 2021), broadens horizons and helps students do coursework. The teaching materials developed not only make it easier



for students, but also make it easier for lecturers to guide students in the learning process in the North Sumatra Ethnic Decorative Variety Course (RHESU).

Conclusion

The conclusions obtained from the results of this study are: a) p-book and e-book based teaching materials with the title of the book / module / teaching materials "Gorga Batak Toba", with the acquisition of a category that is quite valid with an average score of 78%, b) teaching materials are quite practical to be used by students in the North Sumatra Ethnic Decorative Variety Course (RHESU) with a score of 77%, and c) teaching materials fall into an effective category where students from four categories such as reading teaching materials, asking questions, answering questions, and completing assignments given by lecturers, can be observed in the learning process and student learning outcomes are 83.26%. So, from the scores and test results of the research results above, it can be said that the teaching materials are quite valid, quite practical, and effective to be applied in learning the North Sumatra Ethnic Decorative Variety Course (RHESU) at the Department of Fine Arts, Faculty of Language and Arts, Universitas Negeri Medan.

Recommendation

Based on the results of the study, the following recommendations are made to (1) lecturers, the textbook can be used as a guideline in teaching the North Sumatra Ethnic Decorative Variety Course (RHESU) to students, (2) students, can be used by students as the main handbook during the learning process in the North Sumatra Ethnic Decorative Variety Course (RHESU) takes place, and (3) further research, is expected to make this textbook a reference to study more deeply and more broadly the development of decorative varieties in North Sumatra.

References

- Akour, M., & Alenezi, M. (2022). Higher education future in the era of digital transformation. *Education Sciences*, 12(11), 784.
- Almekhlafi, A. G. (2021). The effect of E-books on Preservice student teachers' achievement and perceptions in the United Arab Emirates. *Education and Information Technologies*, 26, 1001–1021.
- Azis, A. C. K., Mesra, M., & Sugito, S. (2021). Pengembangan Bahan Ajar Micro Teaching Bagi Mahasiswa Seni Rupa Universitas Negeri Medan. *Gorga: Jurnal Seni Rupa*, 10(1), 223–229.
- Azis, A. C. K., Winara, W., & Muslim, M. (2022). BAHAN AJAR DALAM BENTUK E-BOOK MATERI SENI RUPA UNTUK MENINGKATKAN MINAT DAN HASIL BELAJAR MAHASISWA PGSD UNIVERSITAS NEGERI MEDAN. *ELEMENTARY SCHOOL JOURNAL PGSD FIP UNIMED*, 12(3), 207–216.
- Biletska, I. O., Paladieva, A. F., Avchinnikova, H. D., & Kazak, Y. Y. (2021). The use of modern technologies by foreign language teachers: developing digital skills. *Linguistics and Culture Review*, 5(S2), 16–27.
- Börnert-Ringleb, M., Casale, G., & Hillenbrand, C. (2021). What predicts teachers' use of digital learning in Germany? Examining the obstacles and conditions of digital learning in special education. *European Journal of Special Needs Education*, 36(1), 80–97.
- Cai, J., & Su, J. (2022). Application Characteristics and Innovation of Digital Technology in Visual Communication Design. *Advances in Multimedia*.



- Cho, Y. (2022). *iPad & Procreate. Tutorials of Visual Graphic Communication Programs for Interior Design 2*.
- Farid, G., Iqbal, S., & Iftikhar, S. (2021). *Accessibility, Usage, and Behavioral Intention of Print Books and eBooks by Medical Students*. *Library Philosophy and Practice*.
- Granberg, C., Palm, T., & Palmberg, B. (2021). A case study of a formative assessment practice and the effects on students' self-regulated learning. *Studies in Educational Evaluation*, 68, 100955.
- Gumennykova, T., Pankovets, V., Liapa, M., Miziuk, V., Gramatyk, N., & Drahiieva, L. (2020). Applying Instructional Design Methods to Improve the Effectiveness of Blended-Learning. *International Journal of Management*, 11(5), 31–42.
- Hanemann, U. (2019). Examining the application of the lifelong learning principle to the literacy target in the fourth Sustainable Development Goal (SDG 4. *Int. Rev. Educ*, 65, 251–275.
- Hendrickson, P. (2021). Effect of active learning techniques on student excitement, interest, and self-efficacy. *Journal of Political Science Education*, 17(2), 311-325.
- Kartono, G., Sugito, S., & Azis, A. C. K. (2021). PENGEMBANGAN BAHAN AJAR BERMUTUAN LOKAL BATAK UNTUK SEKOLAH MENENGAH DI KOTA MEDAN. *Gorga: Jurnal Seni Rupa*, 10(1), 215–222.
- Kasman, K., & Lubis, S. K. (2022). Teachers' Performance Evaluation Instrument Designs in the Implementation of the New Learning Paradigm of the Merdeka Curriculum. *Jurnal Kependidikan: Jurnal Hasil Penelitian Dan Kajian Kepustakaan Di Bidang Pendidikan, Pengajaran Dan Pembelajaran*, 8(3), 760–775.
- Kwangmuang, P., Jarutkamolpong, S., Sangboonraung, W., & Daungtod, S. (2021). The development of learning innovation to enhance higher order thinking skills for students in Thailand junior high schools. *Heliyon*, 7(6).
- Lang, J. M. (2021). *Small teaching: Everyday lessons from the science of learning*. John Wiley & Sons.
- Laurens, T., & Laamena, C. M. (2020). Development of mathematical learning devices based on multimedia on circle materials of grade eighth of junior high school. *Journal of Physics: Conference Series*, 1470(1), 12088.
- Leung, S. K., & Choi, K. W. (2023). Teachers' perceptions of technical affordances in early visual arts education. *European Early Childhood Education Research Journal*, 1–20.
- Lubis, S. K. (2022). EVALUASI KINERJA GURU SENI BUDAYA DITINJAU DARI KESESUAIAN LATAR BELAKANG PENDIDIKAN GURU DENGAN ASPEK SENI YANG DIAJARKAN. *Gorga: Jurnal Seni Rupa*, 11(2), 394–401.
- McCready, M. (2021). On Born Digital Artwork, New Drawing Applications, and New Opportunities. *Visual Resources Association Bulletin*, 48(2).
- Mesra, M., Kartono, G., & Ibrahim, A. (2022). Penerapan Ornamen Tradisional Sumatera Utara Pada Toples Makanan Sebagai Sarana Revitalisasi. *Gorga: Jurnal Seni Rupa*, 11(1), 81–88.
- Orishev, J., & Achilov, S. (2023). DIGITAL TECHNOLOGIES AS AN EDUCATIONAL PROCESS IN PREPARING FUTURE TEACHERS FOR PROJECT ACTIVITIES. *Science and innovation*, 2(B3), 425–429.
- Park, J. Y., Kim, C., Park, S., & Dio, K. (2023). Do you judge a book by its cover? Online book purchases between Japan and France. *Asia Pacific Journal of Marketing and Logistics*.



- Pasaribu, B. A., Suastika, M., & Yuliani, S. (2018). Design Strategy of Batak Socio-Cultural Park As a Tourist Destination with Local Wisdom Approach in Lake Toba Region. *ARSITEKTURA*, 16(2), 275–282.
- Puspitarini, Y. D., & Hanif, M. (2019). Using Learning Media to Increase Learning Motivation in Elementary School. *Anatolian Journal of Education*, 4(2), 53–60.
- Reich, S. M., Yau, J. C., Xu, Y., Muskat, T., Uvalle, J., & Cannata, D. (2019). Digital or print? a comparison of preschoolers' comprehension, vocabulary, and engagement from a print book and an e-book. *AERA Open*, 5(3), 2332858419878389.
- Saragi, D. (2017). *Jenis Motif dan Nilai Filosofis Ornamen Tradisional Sumatra Utara*. Thafa Media.
- Saragi, D. (2018). Pengembangan Tekstil Berbasis Motif dan Nilai Filosofis Ornamen Tradisional Sumatra Utara. *Panggung*, 28(2), 161–174.
- Setyawan, R. I., & Purwanto, A. (2019). Model Pembelajaran Berbasis Proyek (Project Based Learning) Untuk Meningkatkan Hasil Belajar. *Jurnal Dikdas Bantara*, 2(2).
- Sihombing, S., & Tambunan, H. (2021). Etnomatematika: Eksplorasi Konsep Geometri Pada Ornamen Rumah Bolon Batak Toba. *Jurnal Pendidikan Matematika Indonesia*, 6(2), 100–104.
- Sinaga, P., Amsor, N. A., & Cahyanti, F. D. (2019). Efektivitas aplikasi e-book generasi baru untuk ponsel dalam meningkatkan penguasaan konsep kinematika. *Jurnal Internasional Pembelajaran Seluler dan Organisasi*, 13(2), 217–232.
- Sugiyono, S. (2016). *Metode Penelitian Kuantitatif*. Bandung: Alfabeta.
- Sung, H. Y., Hwang, G. J., Chen, C. Y., & Liu, W. X. (2022). A Contextual Learning Model for Developing Interactive E-Books to Improve Students' Performances of Learning The Analects of Confucius. *Interactive Learning Environments*, 30(3), 470–483.
- Yang, C. (2021). Online teaching self-efficacy, social–emotional learning (SEL) competencies, and compassion fatigue among educators during the COVID-19 pandemic. *School Psychology Review*, 50(4), 505–518.
- Zabolotska, O., Zhyliak, N., Hevchuk, N., Petrenko, N., & Alieko, O. (2021). *Digital competencies of teachers in the transformation of the educational environment*.
- Zain, S. (2021). Digital transformation trends in education. In *Future directions in digital information*. Chandos Publishing.
- Zaripova, D. A., Zakhirova, N. N., & Makhmudov, A. A. (2021). Digitization of education and the role of teachers and students in this process. *International Journal of Philosophical Studies and Social Sciences*, 1(2), 196–202.