

The Development of Flipbook Marker-Based High-Scope Learning Models to Improve Children's Creative Thinking Skills

Rabitah Hanum Hasibuan ^{1*}, Anita yus ², Yusnadi ³,
Bornok Sinaga ⁴, Aman Simaremare ⁵, Syarfina ⁶, Veryawan ⁷

¹ Sekolah Tinggi Agama Islam Syekh H. Abdul Halim Hasan Al-Islahiyah,
Binjai, Sumatra Utara, Indonesia
<https://orcid.org/0009-0007-2722-2569>,
rabitahhanum091284@ishlahiyah.ac.id

² Medan State University, Indonesia
<https://orcid.org/0000-0002-7664-3630>
anitayus.dikdas@gmail.com,

³ Medan State University, Indonesia
<https://orcid.org/0000-0002-2445-9532>
Yusnadi@unimed.ac.id,

⁴ Medan State University, Indonesia
<https://orcid.org/0000-0002-8284-587X>
bornoksinaga48@gmail.com,

⁵ Medan State University, Indonesia
<https://orcid.org/0000-0002-8624-5169>,
AmanSimaremare@unimed.ac.id

⁶ Institut Agama Islam Negeri (IAIN) Langsa, Indonesia
<https://orcid.org/0000-0001-6900-9853>
syarfina@iainlangsa.ac.id

⁷ Institut Agama Islam Negeri (IAIN) Langsa, Indonesia,
<https://orcid.org/0000-0002-2049-9449>
veryawan@iainlangsa.ac.id

Abstract

Creative thinking is part of problem-solving skills that are very important for early childhood. However, improving children's creative thinking skills requires a fun model so that the learning model's quality dramatically affects the success of their learning achievements. This study aims to develop a flipbook marker-based high-scope learning model to improve children's creative thinking skills. This research was conducted in seven stages using Borg and Goll development model. The seven stages include 1) potential and

problems, 2) collecting data, 3) product design, 4) design validation, 5) design revision, 6) product trial, and 7) product revision. The results of this study indicate that (1) material expert validity test 92 with an outstanding category, and model expert validity test 92.14 with an excellent category. (2) average child response 93.01%, (3) average teacher response 92.78% with a convenient category. (4) the value of the Paired Samples T Test test obtained a significance value of $0.000 < 0.05$, so the hypothesis is accepted. Therefore, the flipbook marker-based high-scope learning model effectively improves children's creative thinking skills.

Keywords: high-scope model, flip-book marker, creative thinking, early childhood education, learning media.

Introduction

It is crucial to encourage and foster critical thinking (CT) in children from an early age (Lai, 2011). These abilities enable children to train logical, analytical, systematic, creative and work together (Marmara., 2022). Creative thinking is creating ideas that can be used somehow, thus the essence of creativity (Pramono et al., 2019; Wahyuni, 2022). Creative people are often respected for their ability to think and behave in ways that the typical person does not (Khamying et al., 2022).

Much research on preschool education and children's skills has been motivated by concerns about children's cognitive abilities and other development measures (Clive et al., 2006). Early childhood educators had many different understandings of CT; however, all agreed on the importance of CT for children's development and identified their role as essential in supporting and stimulating CT among children (Pollarolo et al., 2022). Children who hold negative beliefs about their competence often underachieve in school (Thomaes et al., 2020). Therefore, the preschool teacher's understanding of children's school readiness is fundamental (Syarfina et al., 2018).

The phenomenon in the field shows that learning activities carried out in early childhood are still teacher-centered. Moreover, learning is dominated by the lecturing method, where the teacher needs to provide opportunities for children to express their opinions, so the class tends to be passive. As a result, children's creative abilities need to be developed, which results in an unfulfilled graduate profile (Inuk et al., 2021).

Enabling children's creativity via education still needs a broader exploration (Rauth et al., 2010). Teacher scaffolding support optimally will increase problem-solving abilities in early childhood (Sangngam, 2021). Learning activities using worksheets, question exercises, and writing in books, causes children to be limited in exploring ideas, and this proves difficult for teachers to implement during learning. (Gülçiçek et al., 2019).

The child should be developing cognitively, especially in learning, thinking, and reasoning, and how social/emotional development sets the framework for the child's learning with family, teachers, and peers (Goswami & Bryant, 2007).

Early childhood education requires learning models that can be applied in teaching and learning activities to make children more creative (Asika Putri, 2021). The rise of various teaching models that help build knowledge in early childhood (Yalçin, 2022). Therefore, developing learning models is needed so children can think creatively during learning, where the developed model adapts to the thematic learning 2013 curriculum in early childhood education units.

Innovative instructional media could improve creative thinking in early childhood (Syarfina et al., 2022). In high-scope learning, children actively learn through various educational play tools (Amalia, 2019). The high-scope model views children as active learners. The best way to learn is through activities: plan, do, and review. The purpose of the high-scope learning model is to facilitate children's development comprehensively concerning their physical, social, emotional, cognitive, and intellectual aspects (Nurlaela & Ulfah, 2022), so that learning can be carried out under the ECE curriculum.

A flipbook marker-based high-scope model can be one of the media that help children understand ideas naturally present in children. Developing a flipbook marker-based high-scope model is packaged using an inquiry approach as a teacher's effort in facing 21st-century education where teachers must innovate in creating learning media by utilizing technology. A flipbook marker-based high-scope learning model is a systematically arranged model displayed in electronic format, including images, video, and audio. The high-scope models have the ability for problem-solving, critical thinking, and creative thinking to face the industrial revolution 4.0 (Alam et al., 2020).

Research has been carried out on developing flipbook marker media to improve critical thinking skills. However, the results of the research are in the form of e-modules with problem-based learning (PBL) models for high school students (Rohmatin et al., 2022), contextual-based (Aprilia, 2021), and flipbook maker with numbered heads together (NHT) learning models based on Vygotsky theory (Pornamasari, 2016). There is also research on developing STEM-Based Flipbook but focuses on the Bloodstream System Materials for high school students (Munandar et al., 2022). In addition, a flipbook media is designed as an application that aims to improve learning outcomes on State and Regional Revenue and Expenditure Budgets material for high school students (Ulfannura, 2022). However, this study aims to develop a flipbook marker-based high-scope learning model and to improve children's creative thinking skills.

Method

This research is a kind of research and development (R&D). This research design uses the Borg and Gall model. This research consists of 7 stages: the potential and problem, data collection, product design, design validation, design revision, product trial, and product revision. The subject of the limited trial was children aged 5-6, consisting of 17 students in kindergarten. The data collection used included teaching material validation sheets, student response questionnaires, teacher response questionnaires, and observation sheets assessing children's creative thinking skills.

This research method uses one group pretest-posttest design (Arikunto, 2017). Data analysis techniques in comments, suggestions, revisions, and observation results were analyzed descriptively and qualitatively. The data was used as input to revise the product design developed. The feasibility of the model is seen from two aspects; the material and media validity of the developed model. The validity of the material follows the provisions of the validity of the material under the provisions of the National Education Unit Agency in 2006; content, language, and presentation. At the same time, the media feasibility consists of the size of teaching materials, cover design, book content, and book illustrations. Model feasibility validation data were obtained from the assessment results of material experts and media.

The effectiveness of the developed model is reviewed from the aspect of children's creative thinking skills. Based on the pretest and post-test results, the model is likely effective if there is an increase in children's creative thinking skills. A normality test was conducted as a prerequisite for data analysis. The normality test is seen from the pretest and post-test data. The normality test for pretest and post-test data results used is Shapiro-Wilk using SPSS 20.0 for Windows. The T-test was conducted to determine whether the pretest and post-test data differed significantly. The N gain test was conducted to determine the effectiveness of the flipbook marker-based high-scope learning model.

Result and Discussion

This research produces a flipbook maker-based high-scope learning model. The first stage is the potential and problem stage. The potential of this study is to develop a flipbook marker-based high-scope model to improve children's creative thinking skills. This research was conducted in a kindergarten which is a preschool that is qualified in terms of facilities and infrastructure, but the existing facilities and infrastructure are not maximally utilized.

Needs analysis is recognized from interviews with class teachers and classroom observations. From the results of interviews and observations that have been made, the fundamental problems that occur in children are obtained, namely: the learning model still uses a conventional model, and the teaching materials used are still classified as available teaching materials such as printed magazines containing student worksheets so

that children do not play an active role to the fullest. The existing problems give researchers the idea to develop teaching materials that do not only present student worksheets but contain material formulated through the development of models, learning concepts, and activity plans. Teachers and preschools create curricular development in critical thinking and arts teaching (Fernández-Santín & Feliu-Torruella, 2020).

After the process of potential and problems is completed, and sufficient information is obtained, the next stage is to collect reference sources such as journals according to themes related to the development of flipbook maker-based high-scope learning models, early childhood learning syllabuses, plant theme books, and other sources relevant to the research. The product design for the development of a high-scope learning model based on a flipbook maker consists of front and back covers, pages, preface, table of contents, learning outcomes, learning materials, developing book-based concept maps and learning activities that utilize media so that they can be used as a reference for teachers in preparing play activities. Then there is a bibliography and exciting pictures so children are not bored during the learning process.

The flipbook marker-based high-scope model in more detail is designed in the form of front and back pages with the theme "Plants" preface, table of contents, learning outcomes, sub-theme 1 "Fruits," sub-theme 2, "Vegetables," sub-theme 3, "tree ways." Developing a learning concept map using an inquiry approach so that it can be used as a teacher reference in preparing play activities. Then the last page contains a bibliography. The design of teaching materials according to the content is presented interesting so that children are not bored with the material presented when learning takes place. This product development design results are in the form of an exe and pdf, which can be printed at any time. The exe teaching material format makes it easier for teachers to use it on a laptop, so teachers do not need to add a flipbook marker application.

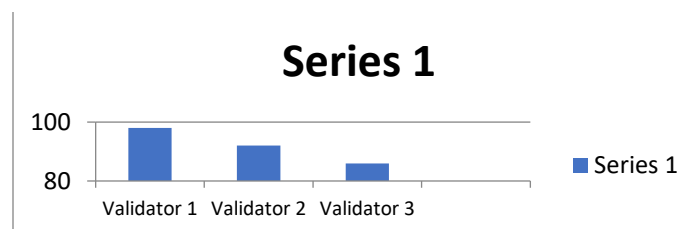
The developed teaching materials consist of core material, several images, and videos according to the content, questions and answers, and science. The teaching materials developed are flipbook marker-based and use an inquiry approach. There is a concept map of storybook-based learning activities so that children get direct experience when learning in class. The following are the results of the teaching material design in flipbook maker.

Figure 1 Inquiry-Based Teaching Materials Using Applications Flipbook Marker



Product development is based on themes that include core and essential competencies in the curriculum, as determined by the lesson plan. The theme material "Plants" consists of sub-themes "Fruits," "Vegetables," and "trees." With the development of the filmmaker-based high-scope model, children can know the origin of creation, recognize the function of plants, and know how to protect plants properly and correctly and apply them in everyday life. The validity test of the flipbook marker-based high-scope model was carried out to determine the validity of the model before it was tested in the field. The validity test is seen from the validity of the material and the validity of the flipbook marker media model. The validity of the material in the model was given to 3 material validation experts, with the final average validity of the material expert validator of 92 with a correct category. It shows that the model developed is suitable for teaching and learning activities. The results of the material expert validation can be seen in the following graph:

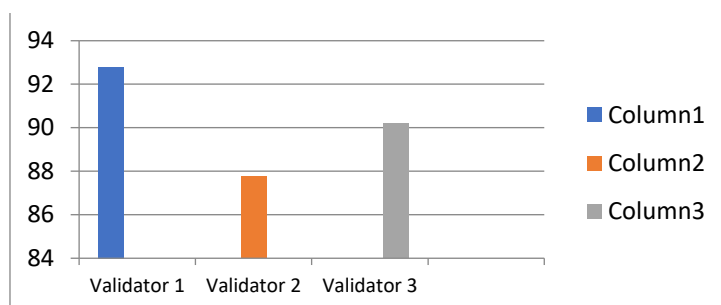
Diagram 1. Chart of material expert validation results



Furthermore, the validity of the media was given to 3 media validation experts to obtain the final average validity of media expert validators of

93.41 with an excellent category. The average validation results show that the teaching materials developed are suitable for teaching and learning activities. The results of media expert validation can be seen in the following graph:

Diagram 2. Chart of media expert validation results



After experts validate the model design, revisions are made so that the developed product becomes better than before. Limited-scale trials were given to children and teachers by questionnaires to determine the practicality of the model developed by researchers. The results of the children's responses were 93.01% in efficient criteria, and the teacher's response was 92.78% in the "very good" category, so it was feasible for teaching and learning activities. Based on the observation results, the teaching materials are suitable for improving the creative thinking ability of class B children. The following are the results of children's creative thinking skills in class A, where the pretest average is 53.17 with a maximum value of 71.15 and a minimum value of 38.46, while the posttest average is 83.48 with a maximum value of 94.23 and a minimum value of 75. From the pretest and posttest results, there was a significant increase of 26.35. posttest is 83.48 with a maximum value of 94.23 and a minimum of 75.

The results of the pretest and post-test mean difference test using the Paired Samples T Test formula can be seen in Table 1:

Tabel 1 Paired Samples Test

Paired Differences		t		Df		Sig. (2-tailed)		
Mean		Std. Deviation		Std. Error Mean		95% Confidence Interval of the Difference		
Lower				Upper				
Pair 1	Pretest - Posttest	-21.946	4.951	1.201	-24.491	-19.400	-18.276	16 .000

The calculation using the SPSS 25 application can be seen from the Kolmogorov-Sminov value, where the significance value is $0.000 < 0.05$.

Based on the provisions of hypothesis testing, H_0 is rejected. So, the researchers concluded that the flipbook marker-based high-scope learning model used in teaching and learning activities effectively improves children's creative thinking skills. Based on the results of the N-gain test calculation, it is known that there is an increase in the average pretest score and posttest score of 0.62, which is classified as moderate. The difference between the average pretest and posttest is 26.35. The average increase shows that flipbook marker-based teaching materials are practical to use. The results of this study are supported by Mulyadi (2016) which states that the development of flash flipbook media can improve children's creative thinking skills because the learning material becomes very easy for children to understand.

Meanwhile, Yulaika (2020) states that using a flipbook marker-based high-scope model can improve learning outcomes because children quickly understand the material. After all, it is supported by illustrations of images and videos of both material and practice questions. Sekar et al. (2015) stated that to develop children's creative thinking skills; teachers must facilitate an attitude of curiosity in children, provide challenges, foster a sense of dissatisfaction with what exists, foster the belief that problems can be solved, and teach the ability to solve problems. The teaching materials developed can help teachers and children in the learning process and facilitate children in learning each competency they must master. Teachers can use this teaching material to provide exciting learning activities through play activities with an inquiry approach so that children can have direct experience carrying out activities. Learning activities that teach children to solve problems. In addition, through exciting play activities, children are more enthusiastic about learning and do not get bored easily.

Conclusion

The flipbook marker-based high-scope learning model developed in this study makes it easier for teachers to improve children's creative thinking skills. The developed product consists of plant sub-themes, fruits, vegetables, and how to maintain tree plants. This high-scope model directs children to know the origin of creation, recognize the function of plants, and know how to maintain and care for plants properly and correctly and apply them in everyday life. The research results that researchers have conducted hope to be used as a reference for ECE teachers in developing a flipbook marker-based learning model because this model developed has advantages, namely practical use, flexibility, ease to carry everywhere, effectiveness, efficiency, and light in terms of cost. The weakness of this model is that it needs to use a laptop when using it.

Bibliography

1. Alam, S., Totok Sumaryanto, F., Jazuli, M., & Syakir. (2020). Visual culture-based art learning uses internet to improve higher-order thinking skills in early childhood. *International Journal of Scientific and Technology Research*, 9(2), 3847–3851.
2. Amalia, L. (2019). 1342-145-3364-1-10-20190129. *Esensi Model Pembelajaran High Scope Dalam Pembelajaran Anak Usia Dini, Indonesian*, 117–124.
3. Aprilia, T. (2021). Efektivitas Penggunaan Media Sains Flipbook Berbasis Kontekstual untuk Meningkatkan Kemampuan Berfikir Kritis Siswa. *Jurnal Penelitian Ilmu Pendidikan*, 14(1), 10–21. <https://doi.org/10.21831/jpipip.v14i1.32059>
4. Arikunto, S. (2017). Metode Penelitian Metode Penelitian. In *Metode Penelitian Kualitatif* (Issue 17). Rineka Cipta.
5. Asika Putri, Y. (2021). The Influence of Question and Answer Methods on The Development of Critical Thinking in Early Children. *Early Childhood Research Journal (ECRJ)*, 3(2), 76–96. <https://doi.org/10.23917/ecrj.v3i2.11809>
6. Clive, R., Barnett, W. S., & Belfield, Clive RSteven, W. (2006). *Munich Personal RePEc Archive Early childhood development and social mobility Early Childhood Development and Social Mobility*. 858.
7. Fernández-Santín, M., & Feliu-Torruella, M. (2020). Developing critical thinking in early childhood through the philosophy of Reggio Emilia. *Thinking Skills and Creativity*, 37. <https://doi.org/10.1016/j.tsc.2020.100686>
8. Goswami, U., & Bryant, P. (2007). Research Survey 2 / 1a. In *Review Literature And Arts Of The Americas*.
9. Gülçiçek, T., Tonga, F. E., & Tantekin Erden, F. (2019). Examining Turkish Early Childhood Education Curriculum in Terms of Mainstream Curriculum Models. *OMÜ Eğitim Fakültesi Dergisi/OMU Journal of Education Faculty*, 38(2), 77–106. <https://doi.org/10.7822/omuefd.604939>
10. Inuk, M., Erdawati, E., Sumadi, T., & Jarudin, J. (2021). The Effectiveness of Instructional Media to Improve Early Childhood Creative Thinking Skills. *Universal Journal of Educational Research*, 9(6), 1291–1297. <https://doi.org/10.13189/ujer.2021.090618>
11. Khamyng, P., Chano, J., Boonla, W., & Nithideechaiwarachok, B. (2022). Thai Language Curriculum to Enhance Creativity Thinking Skills for Primary School Students. *Journal of Education and Learning*, 11(5), 142. <https://doi.org/10.5539/jel.v11n5p142>
12. Lai, E. (2011). Critical thinking: A literature review. *Pearson's Res Rep*, 6, 40–41.
13. Marmara., D. (2022). *Yakın Doğu Üniversitesi İlahiyat Fakültesi Dergisi The Journal of Near East University Faculty of Theology Din Kültürü ve Ahlak Bilgisi Derslerinde Eleştirel Düşünme Becerisinin Religious Culture and Ethics Course Din Kültürü ve Ahlak Bilgisi Derslerinde*.
14. Mulyadi, D., Wahyuni, S., & Handayani, R. (2016). Pengembangan Media Flash Flipbook Untuk Meningkatkan Keterampilan Berfikir Kreatif Siswa Dalam Pembelajaran IPA Di SMP. *Jurnal Pembelajaran Fisika*, 4(4), 296–301.
15. Munandar, R. R., Suhardi, E., & Husna, M. N. (2022). Development of STEM-Based Flipbook Learning Media on the Bloodstream System Materials for Junior High School. *Jurnal Kependidikan: Jurnal Hasil Penelitian Dan Kajian Kepustakaan Di Bidang Pendidikan, Pengajaran Dan Pembelajaran*, 8(2), 367–374.

16. Nurlaela, M., & Ulfah, M. (2022). *Penerapan Model High Scope Dalam Pembelajaran Matematika Permulaan Anak Usia Dini*. 8(1), 73–85.
17. Pollarolo, E., Størksen, I., Skarstein, T. H., & Kucirkova, N. (2022). Children's critical thinking skills: perceptions of Norwegian early childhood educators. *European Early Childhood Education Research Journal*, 31(2), 259–271. <https://doi.org/10.1080/1350293X.2022.2081349>
18. Pornamasari, E. I. (2016). Flipbook Maker Dengan Model Pembelajaran Numbered Heads Together (NHT) Berbasis Teori Vygotsky. *AKSIOMA : Jurnal Matematika Dan Pendidikan Matematika*, 7(1), 74–83. <https://doi.org/https://doi.org/10.26877/aks.v7i1.1412>
19. Pramono, Nurhasanb, Kusnanik, N. W., & Winarno, M. E. (2019). Playing motion activity model development to improve early childhood creative thinking. *International Journal of Innovation, Creativity and Change*, 5(4), 219–236.
20. Rauth, I., Köppen, E., Jobst, B., & Meinel, C. (2010). Design thinking: An educational model towards creative confidence. *DS 66-2: Proceedings of the 1st International Conference on Design Creativity, ICDC 2010, December, 1–8*.
21. Rohmatin, I. A., Racmayani, A., & Jumadi, J. (2022). Development of E-Module based on Flipbook Learning Model Problem Based Learning (PBL) to Improve Critical Thinking Ability. *Berkala Ilmiah Pendidikan Fisika*, 10(3), 342. <https://doi.org/10.20527/bipf.v10i3.13655>
22. Sangngam, S. (2021). The development of early childhood students' creative thinking problem solving abilities through STEM Education learning activities. *Journal of Physics: Conference Series*, 1835(1). <https://doi.org/10.1088/1742-6596/1835/1/012008>
23. Syarfina, Basri, Hasibuan, R. H., Abidin, Z., Ulya, K., Tursina, A., Amri, K., Veryawan, & Fadli, M. (2022). Developing Mathematics Learning Media to Introduce the Concept of Numbers to Early Childhood. *AIP Conference Proceedings*, 2524(October). <https://doi.org/10.1063/5.0112389>
24. Syarfina, S., Yetti, E., & Fridani, L. (2018). Pemahaman Guru Pra-Sekolah Raudhatul Athfal (Ra) Tentang Kesiapan Sekolah Anak. *JPUD - Jurnal Pendidikan Usia Dini*, 12(1), 153–163. <https://doi.org/10.21009/jpud.121.13>
25. Thomaes, S., Tjaarda, I. C., Brummelman, E., & Sedikides, C. (2020). Effort Self-Talk Benefits the Mathematics Performance of Children With Negative Competence Beliefs. *Child Development*, 91(6), 2211–2220. <https://doi.org/10.1111/cdev.13347>
26. Ulfannura, H. (2022). Development of flipbook maker app-based learning resources for high school students. *Jurnal Inspirasi Pendidikan*, 12(2), 86–95. <https://doi.org/10.21067/jip.v12i2.7223>
27. Wahyuni, W. (2022). Pengembangan Bahan Ajar Tematik Berbasis Flipbook Marker untuk Meningkatkan Kemampuan Berfikir Kreatif Anak TK Darul Iman. *PAUDIA : Jurnal Penelitian Dalam Bidang Pendidikan Anak Usia Dini*, 11(1), 491–500. <https://doi.org/10.26877/paudia.v11i1.11752>
28. Yalçın, V. (2022). International Journal of Psychology and Educational Studies Design Thinking Model in Early Childhood Education. *International Journal of Psychology and Educational Studies*, 2022(1), 196–210.