

Development of Magnet Board as Learning Media in Class IV Elementary School: Literature Study

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ABSTRACT

The development of concrete-based media in the form of magnetic boards according to the cognitive development stage of grade IV elementary school students needs to be done using a development model that must be understood by the teacher. This study aims to see how the magnetic board media is developed as a learning media for grade IV elementary school and see how feasibility based on the results of expert validation. The research method carried out in this study is a literature review which is included in the qualitative method, where in this study a review of articles sourced from Google Scholar with the help of the Publish or Perish (PoP) machine is carried out by entering the keywords "Magnetic board media development" on the keyword menu for the range of 2019 to 2024 and with a limit of 100 articles to go through the selection stage. Up to 9 articles were collected in accordance with the research focus and predetermined criteria. The results showed that the magnetic board media was developed with three development models Borg and Gall (45%), ADDIE (Analysis, Design, Development, Implementation, Evaluation) (45%), and DDDD (Define, Design, Develop, Disseminate) (10%). All articles reviewed informed that the developed magnetic board media is feasible to be used to support learning in grade IV elementary school.

Keywords: Media development, media validity, media expert

INTRODUCTION

Education is the right of every Indonesian citizen, education also plays an important role in improving human resources (HR) in ensuring the continuity of national development (Luh et al., 2019). The Indonesian education process is an effort to produce human resources who have good affective, cognitive, and psychomotor competencies. Education plays a role in facilitating students to develop well (Wiyarsi, 2020). According to Jean Peaget, the cognitive development of elementary school students is at the concrete operational stage, students are able to solve problems that are concrete in nature. Therefore, students will more easily understand learning with the help of objects that can be observed directly. This is in line with the opinion (Kusumaningtyas & Mukhlisina, 2023) that the concrete operational stage in elementary school children can classify objects into different forms and can concretize objects where the use of media is the preferred activity of that age during the learning process.

One of the media that is in accordance with the cognitive development stage of elementary school age is magnetic board media because magnetic board media does not require special adjustments to be used anywhere, is flexible because changes can

be made to the magnetic board during the presentation, is easy to prepare, and can be applied to large groups and small groups. In addition, according to (Riskika et al., 2023) the use of magnetic board media in the learning process can provide optimal results if used appropriately, in the sense that it is in accordance with the material being supported.

The use of learning media that is in accordance with the stage of cognitive development can help achieve learning objectives for students. Learning media development has been carried out by teachers as one of the important components in education. Media development is useful to support the delivery of material and increase students' understanding, especially at primary school age or the concrete operational stage (Mahardika et al., 2021). The development of magnetic board media is carried out with the support of validation from experts and educational practitioners to test the feasibility, practicality, and effectiveness in improving various abilities of students. In grade IV elementary school, the development of magnetic board media is carried out to support various competencies of the subjects taught. The development of magnetic board media has been carried out by many previous researchers.

Research on the development of magnetic board learning media to improve learning outcomes in Indonesian language subjects was conducted by (Kusumaningtyas & Mukhlishina, 2023). The results of media validation amounted to 98.46% and material experts amounted to 90.62%. Learning media development using the ADDIE model R&D method. In their research, Kusumaningtyas and Mukhlishina explained that the use of magnetic board learning media received a very good response from students, namely 98.9%. Learners are happy, can remember the material well, motivate to learn, help understand the material of sentence patterns, and are more active in learning.

Another study was conducted by (Daud & Ninawati, 2022) who used the DDDD

addition, magnetic boards can attract students to learn (Kusumaningtyas & Mukhlishina, 2023). model. The results of media expert validation received an average score of 97% with a very feasible category and the results of material expert validation received an average score of 94% with a very feasible category.

Another study was conducted by (Haq, 2020) on the development of magnetic board learning media to improve listening skills. Development using the R&D method of the Borg and Gall model. Based on the lecturer's assessment, the media received a score of 79 out of 80 and based on the English teacher's assessment, the media received a score of 76 out of 80 which means the media received a very good score from both experts. The results of the students' questionnaire showed that 91.3% of the students said that they liked it when listening activities were carried out using a magnetic board.

The three studies focused on the implementation of magnetic board media development and testing the feasibility level of the media that had been developed with different development models but produced media that were feasible to use. This study focuses on literature review activities on the development model used by previous research and the level of feasibility based on the magnetic board media development model for grade IV elementary schools, so that it will be known which development model is a recommendation in the development of magnetic board media. The study of media development needs to be done or known by teachers to be able to carry out further media development that is feasible to use and can be used as a tool to increase the competence of students according to the stage of cognitive development and the subjects studied.

MATERIALS & METHODS

This research applies the literature study method. Literature study is a method used to collect sources or data related to the topic

raised in a study (Mufti et al., 2020; Parinata et al., 2022). Meanwhile, according to (Hartanto & Dani, 2020; Safitri, 2021) literature study is a way of looking for references from various previous studies to be collected and drawn conclusions. The purpose of the literature study is to develop new theoretical concepts from a construct (Fajar & Aviani, 2022). Literature study involves a series of steps starting from collecting references, reviewing theories, and analyzing the object under investigation. The references are sought through articles or research reports in journals. Data sources were obtained from articles or journals relevant to the focus of the research, specifically on interest in learning mathematics influenced by the use of social media, which have been published within the last 10 years. Researchers collected these articles or journals through

searches on Google Scholar using keywords such as cognitive learning outcomes, magnetic boards, and literature studies.

The research phase carried out in this study consisted of three stages including; (1) determining the focus of the research studied in this study focusing on the development of magnetic board media as a learning medium in class IV. (2) Searching and collecting articles that are in accordance with the topic of the problem that has been determined. Article searches were conducted using the Publish or Perish (PoP) search engine by entering the keywords “magnetic board development” on the keyword’s menu then the 2019-2024 year range and a search limit of 100 articles sourced from google scholar. The settings on the Publish or Perish (PoP) search engine can be seen in Figure 1.

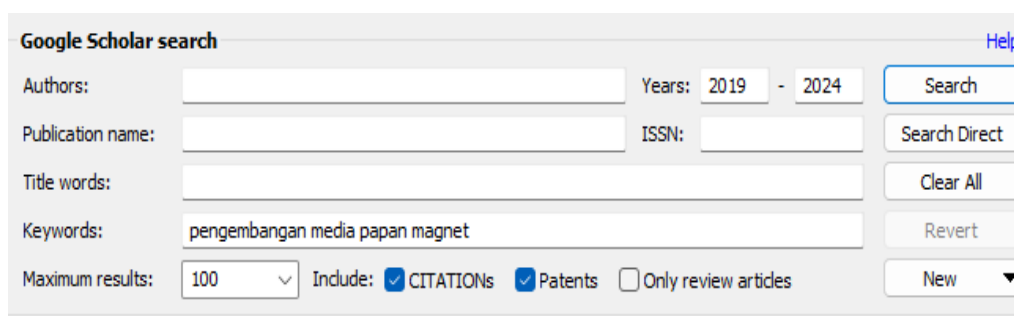


Figure 1. Settings on the Publish or Perish Search Engine

(3) Searching and viewing articles one by one based on clear sources and adjusted to the focus of research, namely the development of magnetic board media in grade IV elementary schools. (4) Selection or extraction of articles from the search results to be more relevant to the focus of this research, namely the development of magnetic boards as learning media in grade IV elementary schools. The search results

contained 100 articles selected according to the focus of research that discussed the Magnet board media so that 26 articles were obtained. Furthermore, selection was carried out related to the focus of developing magnetic board media in grade IV elementary schools and resulted in 9 articles. The distribution of articles by year can be seen in Figure 2.

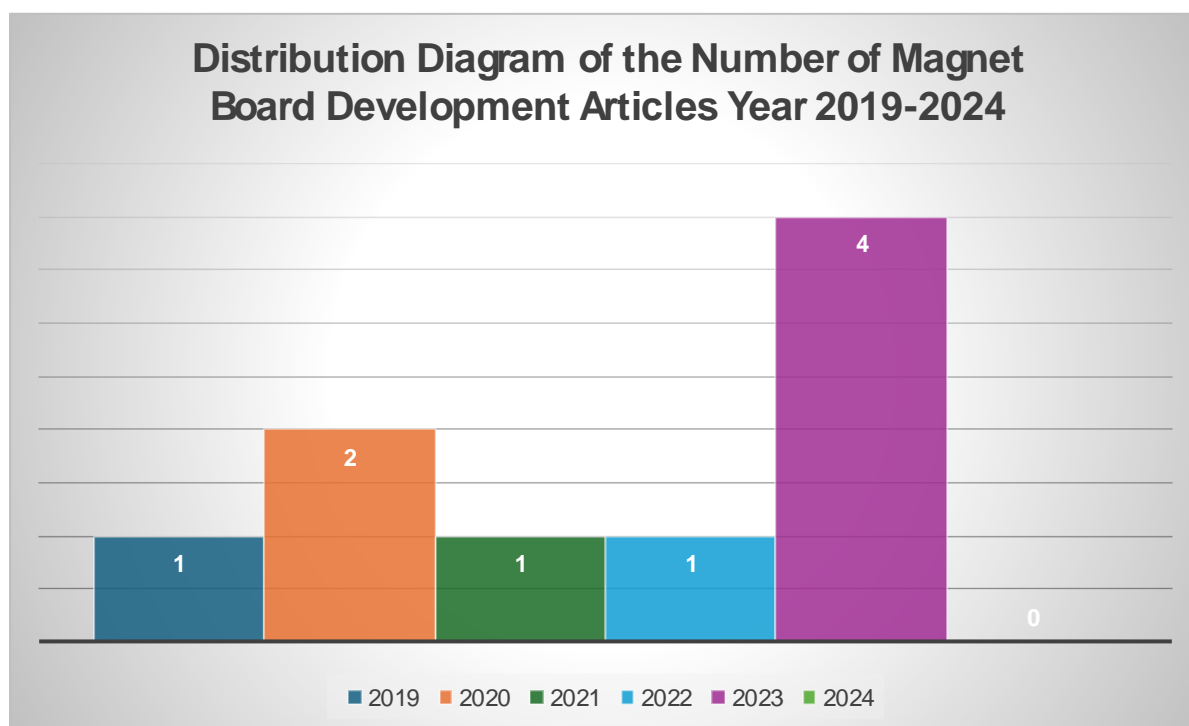


Figure 2. Distribution Diagram of the Number of Magnet Board Development Articles Year 2019-2024

Based on the diagram in Figure 2 above, it can be seen the distribution of articles from the 2019-2024 publication year. In 2019 there was 1 article in accordance with the research focus, in 2020 there were 2 articles, 2021 1 article, in 2022 1 article, and in 2023 there were 4 articles, while in 2024 there were 0 articles. The articles that have been collected are included in the journal article matrix to collect information relevant to the focus of this research.

RESULT

The results obtained from the research focus on the type of development model used and the level of media feasibility based on expert validation. There are similarities and differences in the development models used by researchers. The research steps are carried out in stages starting from determining the focus of research or problems to extracting data so as to produce articles that are in accordance with the focus and predetermined criteria. Starting from

100 articles found, then extracted and produced 26 articles by selecting based on the development of magnetic boards. Furthermore, stage 2 extraction was carried out which resulted in 9 articles by selecting based on the development of magnetic boards in class IV elementary schools. These 9 articles will be used as final data to be reviewed and included in the journal matrix according to the research focus, namely the type of model and the feasibility of developing magnetic board media.

Class IV Magnet Board Media Development Model 2019-2024

Based on the analysis of 9 articles, it was found that the research method used was Research and Development (R&D) with 3 development models, namely Borg and Gall, ADDIE, and DDDD. The development model found through review activities with the help of a matrix of journal articles from 9 articles can be illustrated through the graph in Figure 3.

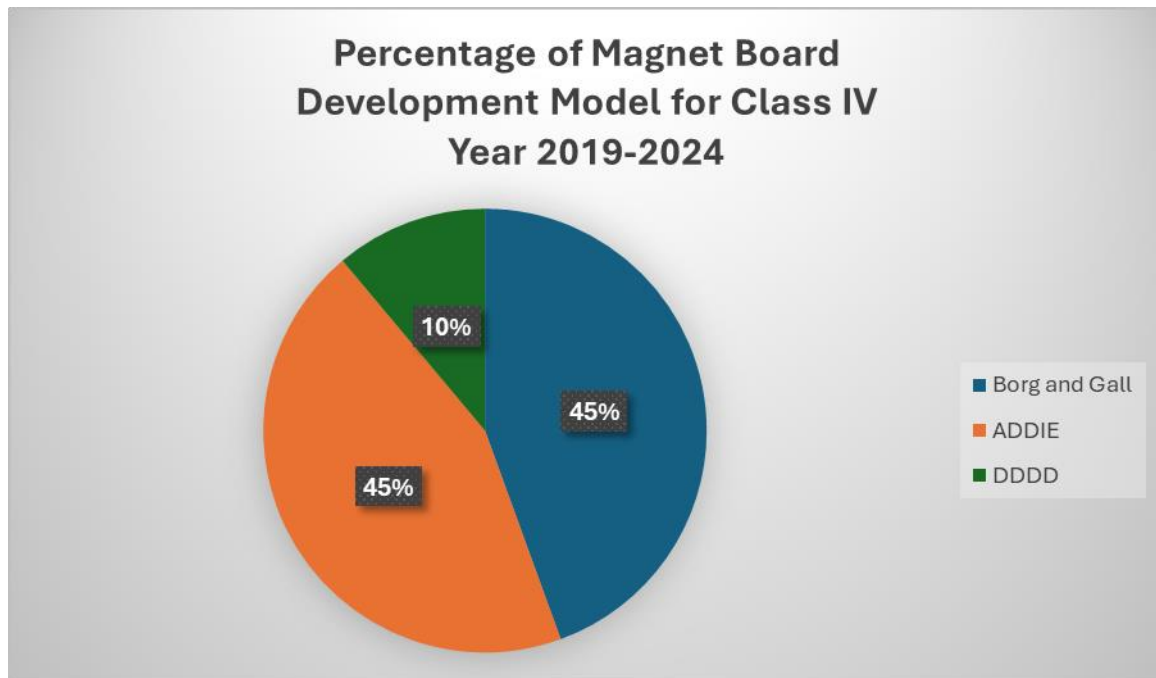


Figure 3: Percentage of Magnet Board Development Model for Class IV Year 2019-2024

Feasibility of Class IV Magnet Board Media 2019-2024

The development of magnetic board media will be able to be used after going through a validation test conducted by experts according to their fields. The media that has been developed will receive an assessment from the expert which is then declared invalid, valid or very valid. If the media is

declared valid or very valid then the media is suitable for use to support learning in class IV. Based on the review conducted on 9 articles that discuss the development of magnetic boards for class IV elementary schools, information related to the feasibility of the developed media can be seen in Figure 4.

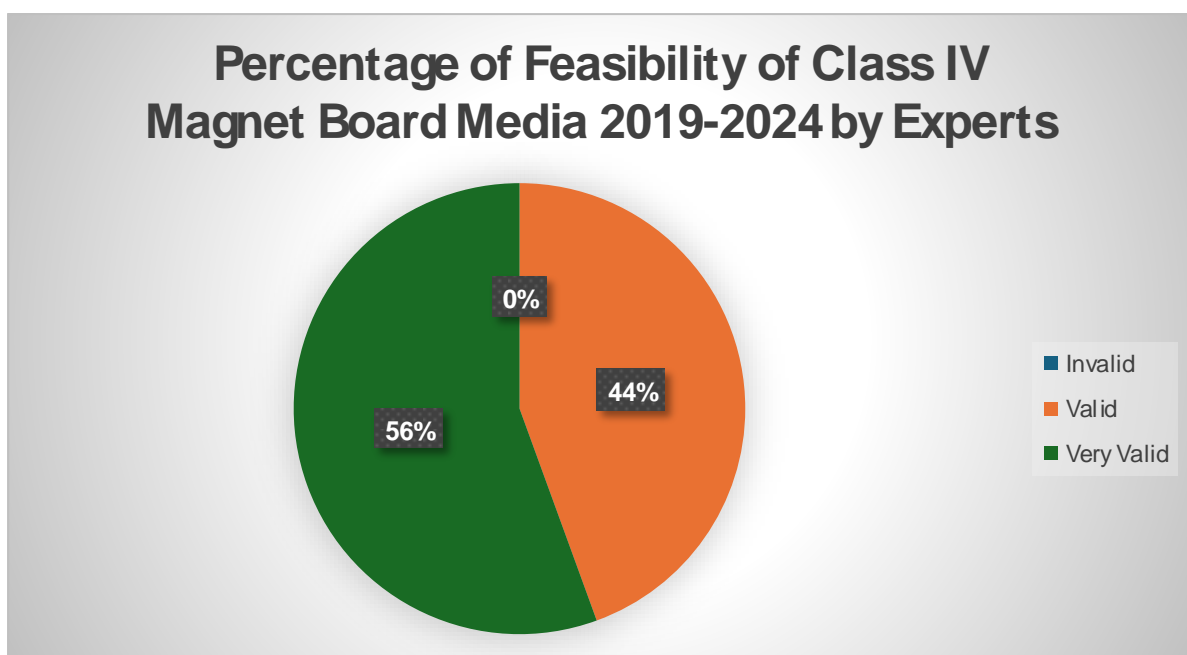


Figure 4. Percentage of Feasibility of Class IV Magnet Board Media 2019-2024 by Experts

DISCUSSION

The majority of research that developed magnetic board media for class IV in 2019-2024 used the Borg and Gall and ADDIE models, each with a percentage of 45% or 4 articles each and DDDD with 10% or 1 article.

Borg and Gall development model

This development model was popularized by Borg and Gall with 10 steps or stages including; 1) Research and information collecting, 2) Planning, 3) Develop preliminary for product, 4) Preliminary fieldtesting, 5) Main product revision, 6) Main field testing, 7) Operational product revision, 8) Operational field testing, 9) Final product revision, 10) Dissemination and implementation (Khasanah & Mintohari, 2020; Kurniawati & Koeswanti, 2021). This research model requires quite a lot of steps to produce a tested product but it is not uncommon for some studies to only do 7 of the 10 steps.

ADDIE development model

This development model was popularized by Dick and Carey which has 5 stages including; 1) analysis (analysis), 2) design (design), 3) development (development), 4) implementation (implementation), 5) evaluation (evaluation) (Alfitra et al., 2023; Lulu Andriani Boru Tarigan, 2021).

Analysis is carried out to get an initial picture of students, teachers, and curriculum. Design is the stage of designing the developed media. Development (development) provides responses or assessments from expert validators and media and material practitioner validators. Implementation is the stage of testing the media that has been developed. Evaluation (evaluation) is the last stage in the ADDIE development model where the results of the assessment of the student learning outcomes test are collected which are then analyzed and then the feasibility level of the product developed will be known (Nafitupulu & Alwashliyah, 2022; Nurhayati, Yuliawati Yunus, 2021; Ranuharja et al., 2021).

DDDD development model

The DDDD development model was developed by Thiagarajan which consists of 4 stages including; 1) Define, 2) Design, Develop, and Dissiminate (Daud & Ninawati, 2022).

Define is the initial stage in the media development process by analyzing students, materials, concepts, and formulating learning objectives. Design is the stage of designing products and assessment instruments. Develop is the validation of the device by expert validators followed by revision, limited trials on students. Dissiminate is the stage of using devices that have been developed on a wider scale (Husna et al., 2022; Nurhalisa & Baharuddin, 2021; Rijal & Jaya, 2020).

The three magnetic board media development models used by researchers based on reviews in this study show that the Borg and Gall and ADDIE models are the most widely used models and have valid or very valid categories in the final product produced. In addition, it was found that the magnetic board media as one of the learning media is feasible to use to support the learning process in grade IV Elementary School. This study has limitations in conducting a review, which only focuses on the use of the development model used to develop magnetic board media and how the level of feasibility through expert validation, therefore it is the hope of researchers for further research to conduct a more in-depth review in order to get new findings in order to improve the quality of education.

The results of this study are in line with previous studies that have been conducted previously. The development of magnetic board media can be developed with the Borg and Gall, ADDIE, and DDDD research models. The development of magnetic board media that has been carried out needs to be validated by experts to see the level of feasibility in supporting the learning process, especially grade IV Elementary School. Through the development model that has been described, it is proven that the results of the magnetic board media developed are valid and

feasible to use in supporting the learning process.

CONCLUSION

Based on the literature study that has been conducted, it can be concluded that the magnetic board media was developed with the Borg and Gall, ADDIE, and DDDD models. The Borg and Gall and ADDIE models are development models that are widely used in magnetic board development research from 2019 to 2024. In the Borg and Gall and ADDIE models, there are 2 media that are classified as valid and 2 media that are classified as very valid at the media validity level so that and are declared valid and feasible to be used in the learning process in class IV Elementary School. Furthermore, through the review activities in this study, it produces recommendations for educators or researchers who are in charge of the world of education if they want to develop learning media can use the Borg and Gall and ADDIE models.

Declaration by Authors

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