Integration of Multiple Intelligences in Thematic Instructional Kit in Elementary School

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A B S T R A K

Pembelajaran yang dilaksanakan di sekolah selama ini cenderung berfokus pada kecerdasan linguistik dan kecerdasan logika-matematika saja. Padahal, setiap siswa memiliki berbagai macam kecerdasan yang disebut kecerdasam majemuk (multiple intelligences). Penelitian ini bertujuan untuk mengembangkan perangkat pembelajaran tematik berorientasi pada kecerdasan majemuk. Penelitian ini merupakan penelitian pengembangan (R&D) yang mengadaptasi model pengembangan ADDIE (Analyze, Design, Development, Implementation, and Evaluation). Produk perangkat pembelajaran yang dikembangkan dalam penelitian ini berupa Rencana Pelaksanaan Pembelajaran (RPP) dan Lembar Kerja Peserta Didik (LKPD). Pada penelitian ini, uji validitas produk pengembangan hanya dibatasi hingga tahap uji validasi ahli. Data dikumpulkan dengan menggunakan lembar validasi ahli. Hasil penelitian dan pengembangan menunjukkan bahwa berdasarkan hasil uji validitas ahli yang telah dilakukan, diperoleh skor rata-rata penilaian ahli sebesar 4,88 untuk produk RPP dengan kategori sangat baik, dan sebesar 4,80 untuk produk LKPD dengan kategori sangat baik. Berdasarkan hasil tersebut dapat disimpulkan bahwa produk perangkat pembelajaran yang dikembangkan memiliki validitas dan kualitas yang baik untuk dapat diterapkan di sekolah dasar.

A B S T R A C T

The learning carried out in schools has been dominated by the development of logic-mathematics intelligence. In fact, every student has various kinds of intelligence called multiple intelligences. This study aims to develop thematic instructional kit oriented to multiple intelligences. This research is a development research (R&D) which adapts the ADDIE model (Analyze, Design, Development, Implementation, and Evaluation). The instructional kit products developed in this study are in the form of a Lesson Plan (RPP) and Student Worksheets (LKPD). In this study, the product development validity test was only limited to the expert validation test stage. Data were collected using expert validation sheets. The results of research and development show that based on the results of the expert validity test that has been carried out, the average score of expert judgment is 4.88 for RPP products with very good categories, and 4.80 for LKPD products with very good categories. Based on these results, it can be concluded that the instructional kit products developed have good validity and quality to be applied in elementary schools.

1. Introduction

Teachers are one of the learning components that have a strategic role in realizing learning success in schools (Chodijah et al., 2012; Sudarma et al., 2020; Weizheng, 2019) As the spearhead of learning, teachers are required to be creative in preparing the learning process, one of which is preparing instructional kit (Hess & Greer, 2016; Septiani et al., 2013; Sunendar, 2017) In preparing the instructional kit, teachers must pay attention to all aspects that affect learning. One aspect that affects learning is the potential diversity of intelligence possessed by students (Setiawan, 2019; Sholeh, 2016).

Intelligence is defined as a person's ability to solve problems or create valuable products in one or more cultural and social environments (Kartikasari &Widjajanti, 2015; Sholeh, 2016). Various bits of intelligence owned by the students are then termed with multiple intelligences. Until now, nine multiple intelligences are known: linguistic intelligence, mathematical-logical, spatial/spatial intelligence, kinesthetic-body intelligence, musical intelligence, interpersonal, naturalist/environmental, and extension (Fathani, 2016; Melissa, 2016; Sunendar, 2017). Today, the theory of compound intelligence is one of the most important and promising developments in education. The theory of blended intelligence explains

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that no human being is stupid, and every human being has his intelligence. As an important component of learning, teachers should accommodate every intelligence that learners have. One way that can be done is through instructional kit that accommodate every learner's intelligence (Abidin, 2017; Chaerunnisa et al., 2017; Laksmiwati &Sunendar, 2019).

Instructional kit should be prepared according to learners' characteristics to provide opportunities for learners to develop their potential (Chatib, 2015; Surna &Pandeirot, 2014; Wicaksono et al., 2014). This can be done by putting together instructional kit that use varied learning strategies to accommodate all students' potential (Suarca et al., 2016; Surna &Pandeirot, 2014). In line with this, the learning process using strategies that facilitate learners' ability (one of which is compound intelligence) will help educators create a series of learning activities that refer to learning indicators to achieve the expected competencies (Sudarma et al., 2019).

But the conditions on the ground were not what was expected. Based on observations from several related studies, namely: Chaerunnisa et al. (2017); Kartikasari &Widjajanti (2015); Sudarma et al. (2020); Sunendar (2017), there are still many teachers who have not developed and empowered multiple intelligences in classroom learning. Learning generally still focuses on academic intelligence (linguistics and logic-mathematics). This is seen from the instructional kit made by teachers still do not emphasize on compound intelligence. The instructional kit made by teachers still focus on empowering logic-mathematical and linguistic intelligence (Laksmiwati &Retnowati, 2019).

The existence of the above problems causes the need for a solution to overcome the problem. One solution that can be provided is to develop multiple intelligences-based instructional kit to accommodate every intelligence possessed by learners in learning. The development of learning devices is an effort that is implemented to improve the instructional kit in the field and accommodate every intelligence that students have so that with these efforts, students are motivated and happy in following the learning (Amir, 2013; Laksmiwati &Sunendar, 2019; Machali, 2014).

Multiple Intelligences is a term or theory of intelligence science that means "Double Intelligence" or "Compound Intelligence" (Amir, 2013). Gardner (2011) defines intelligence as the ability to solve problems and produce products in various settings and real situations. In line with this, the theory of compound intelligence emphasizes individual differences so that in education, it relies heavily on the introduction, recognition, and appreciation of each or more ways learners learn, in addition to the opening, recognition, and appreciation of each learner's interests and talents (H. Gardner &Hatch, 1989). Multiple intelligences consist of: linguistic intelligence, mathematical logic, spatial-visual, kinesthetic/physical/Carnatic, musical, interpersonal, intrapersonal, and environmental (Gardner, 2011).

Several studies have developed *multiple intelligences* in learning devices. First, Chaerunnisa et al. (2017) conducted biological learning devices based on compound intelligence on cell concept material in grade XI high school. Furthermore, Wicaksono et al. (2014) also developed English math instructional kit based on blended intelligence theory for grade VIII junior high school. In addition, Laksmiwati &Retnowati (2019) has developed a geometry learning tool based on compound intelligence for learning in grade VIII junior high school. From some of these studies, there is still no research that conducts multiple intelligences in primary school thematic learning. The development of compound intelligence is important at the basic education level to improve the instructional kit in the field and accommodate every intelligence that students have. With these efforts, students are motivated and happy in following the learning (Susanto, 2005; Wicaksono et al., 2014).

This study aims to develop thematic instructional kit oriented to multiple intelligences and analyze thematic learning device products' feasibility to multiple intelligences*.* The development of instructional kit is carried out at the grade I elementary school level, namely in theme 6 and sub-theme 1.

2. Method

This research used the ADDIE development model (Analysis, design, development, implementation, and evaluation). The selection of this model is based on considering that the ADDIE model is systematically realized and based on the theoretical foundation of learning design (Tegeh &Kirna, 2013). Addie model provides an opportunity to evaluate at every stage, thus minimizing the lack of products developed (Tegeh et al., 2015). The implementation phase was not implemented due to time and cost constraints and the Situation of the Covid-19 pandemic.

The data collected was data resulting from the validity of instructional kit and advice by experts. Their nature groups all data obtained into two, namely qualitative data and quantitative data. Qualitative data in the form of various inputs, suggestions, and comments from all experts, and quantitative data in the form of scores obtained through instruments in the form of assessment sheets. The assessment

dimension in developing compound intelligence-oriented learning devices is presented in Table 1 and Table 2.

Table 1. Assessment Indicator of Lesson Plan

Aspect	Indicator
Completeness and demand of Lesson Plan following Permendikbud No. 22 the year 2016	The entirety of Lesson Plan components, according to Permendikbud No. 22, the year 2016 Lesson Plan component demand according to Permendikbud No. 22 the year 2016
Subject Matter	The subject matter under KD
Time Allocation	Allocation of time following the requirements for the achievement of basic competencies
Learning objectives	Learning objectives are formulated based on competency achievement indicators Formulation of learning objectives meets aspects of ABCD (*Audience, Behavior, Condition, Degree*)
Basic competencies and competency achievement indicators	Basic competencies following those in the syllabus Indicators formulated following basic competencies Indicator formulation using operational verbs
Learning materials	Learning materials contain facts, concepts, principles, and procedures relevant to the formulation of indicators
Learning methods	Learning methods adapted to the characteristics of learners Learning methods adapted to the basic competencies to be achieved
Learning media	Conformity between selected learning media and learning methods Conformity of selected media with indicators of achievement of competencies and basic competencies
Learning resources	Adequacy of learning resources
Learning steps	Steps of multiple *intelligences* The cuteness of the learning steps Suitability of time allocation for each learning stage
Assessment of learning outcomes	Accuracy of the selection of techniques and forms of assessment
Grammar	Use of EYD/EBI compliant grammar

Table 2. LKPD Product Assessment Indicators

Aspect	Indicator
LKPD Identity	Completeness of LKPD identity
Working instructions	Clarity of working instructions
Learning objectives	Lesson Plan's learning objectives
Learning materials	Conformity of materials with learning objectives in LKPD
Activities and steps	Activities in LKPD oriented compound intelligence (*multiple intelligences*) Ease of activity steps
Time allocation	Time allocation compatibility
grammar	The use of appropriate grammar
LKPD design	LKPD illustration depicting teaching materials Layout harmony

The analysis techniques used in this study are qualitative and quantitative analysis. A qualitative analysis technique was used to process data of expert test results. This data analysis technique was used by grouping information from qualitative data in the form of inputs, responses, criticisms, and suggestions for improvements contained in the instrument. The results of this analysis were then used to revise the developed products. The quantitative analysis technique was used to process data in the form of numbers obtained through the assessment sheet. The analysis used is a calculated average (mean) formula. Based

on the average results of the calculation obtained, Benchmark Reference Assessment (PAP) Scale Five was used to interpret the results of data analysis (Koyan, 2011). The guidelines can be found in Table 3.

Table 3. Benchmark Assessment On a Scale of Five

Mean	Category
4,01 < X ≤ 5,01	Very Good
3,34 < X ≤ 4,01	Good
2,66 < X ≤ 3,34	Enough
1,99 < X ≤ 2,66	Bad
0,99 < X ≤ 1,99	Very Bad

3.   Result and Discussion

Results
Needs Analysis Results
Based on the results of analyzing and reviewing several relevant related kinds of research, namely: Chaerunnisa et al. (2017); Kartikasari &Widjajanti (2015); Sudarma et al. (2020); Sunendar (2017), there are still many teachers who have not developed and empowered multiple intelligences in classroom learning. Learning generally still focuses on academic intelligence (linguistics and logic-mathematics). This was seen from the instructional kit made by teachers that still do not emphasize compound intelligence. The instructional kit created by teachers still focus on empowering logic-mathematical and linguistic intelligence.
   Expert Feedback
The instructional kit developed were assessed by experts to obtain input for later improvement. Experts evaluate the device in terms of instructional, design, media, and application. The information given by experts during the development phase were presented in Table 4 and Table 5.

Table 4. Expert Input for Lesson Plan Products

No.	Assessors	Comments/Feedback/Improvement Suggestions
1	Content Experts	a. Creating tables to describe and categorize KI 1-4. b. The developed lesson plan involves independent learning c. The material contained is following the expected achievements d. Assessment is following the desired basic competencies. e. The learning steps already reflect the expected achievement of basic competencies.
2	Media Experts	a. Not all destinations have been used ABCD b. The media used need to be attached c. Wider material needs to be attached d. Need a cognitive assessment instrument sheet, do not equate with LKPD / LKS or exercises
3	Learning Design Experts	a. Time allocation adjusts to the allocation of time in the syllabus b. The media must be clear c. Learning strategies that develop musical intelligence should be more operational; for example, the chairman of the singing group then plays music while the teacher gives singing directly to the students.

Table 5. Expert Input for LKPD Products

No.	Assessors	Comments/Feedback/Improvement Suggestions
1	Content Experts	If you do not use the 9 compound intelligence, you can fill (what intelligence is contained in the LKPD that you provide) And the next LKPD.
2	Media Experts	a. Create an attractive and informal LKPD covers b. In LKPD need to determine the type of intelligence that will be developed by giving the words" Let's develop your language intelligence", Let's develop your mathematical intelligence" etc c. Typefaces are too formal, use typefaces that are more familiar with

No.	Assessors	Comments/Feedback/Improvement Suggestions
3	Learning Design Experts	children such as arial, comic sans ms, and the like.
		a. Giving an example of creating a response sentence
		b. Need a clue of what is judged from role playing
		c. Questions need to be given examples of the workmanship

The inputs received are then followed up by making revisions to Lesson Plan and LKPD products in accordance with the direction and expert input.

Product Assessment Analysis Results by Experts

Based on the presentation of device assessment data from three experts and data analysis by knowing the average score of each item of device components, then performed conversion to the average of each product developed using a five-scale PAP conversion table. Conversion data for each product is presented in Table 6 and Table 7.

Table 6. Lesson Plan Product Qualification Data

Lesson Plan	Mean	Qualification
I	4,9	Very Good
II	4,8	Very Good
III	4,9	Very Good
IV	4,9	Very Good
V	4,9	Very Good
VI	4,9	Very Good
Mean	**4,88**	**Very Good**

Table 7. LKPD Product Qualification Data

LKPD	Mean	Qualification
I	4,7	Very Good
II	4,9	Very Good
III	4,8	Very Good
IV	4,9	Very Good
V	4,8	Very Good
VI	4,7	Very Good
Mean	**4,80**	**Very Good**

Judging from the data analysis of the Lesson Plan in Table 6, it was known that each Lesson Plan product obtained an average value greater than 4.01. Overall, the Lesson Plan device was 4.88 to get excellent qualification (SB). This showed that Lesson Plan products have excellent validity and quality to be implemented in the learning process.

Judging from the data analysis of the Student Worksheet (LKPD) in Table 7, it was known that each LKPD product obtained an average value greater than 4.01. Overall, the average component of the student worksheet device (LKPD) is 4.80 to get excellent qualification (SB). This shows that LKPD products have excellent validity and quality to be implemented in the learning process.

Discussion

The instructional kit produced in this development research are in Lesson Plan and worksheets of students (LKPD) oriented multiple intelligences. This learning tool is designed for elementary school grade I students, namely in theme 6, sub-theme 1. This developed learning tool accommodates multiple intelligences owned by students so that learning can better accommodate every ability possessed by students. The development of this device was done by adapting the ADDIE development model, but due to time constraints and the Covid-19 pandemic situation, research was limited to the development stage only. The selection of the ADDIE development model was because this model was a systematic development model and suitable for developing instructional kit. This was in line with the opinion of Tegeh &Kirna (2013), which mentions that the ADDIE model is systematic and has a matches with the theory of learning design.

Several aspects affect the validity of LESSON PLAN and LKPD product-oriented multiple intelligences, namely the content/content of learning, learning design, and conformity of media used. Based on the aspects of learning content, the excellent validity was influenced by the suitability of the material presented with the formulation of basic competencies, indicators, learning objectives, and aspects of compound intelligence developed at each meeting. This was evidenced by an expert assessment of the content of learning on instrument items about the suitability of materials with competency formulas, indicators, and learning objectives that show excellent criteria. Thus, it can be concluded that the product of *multiple intelligences-oriented* learning devices has been under the demands of basic competencies, indicators, learning objectives, as well as aspects of compound intelligence that were required to be achieved by students at each meeting. This was in line with the opinions of Chodijah et al., (2012) and Kartikasari &Widjajanti (2015) who suggested that a good learning tool is a suitable learning tool and accommodates all the demands of the standards (KI/KD/Indicators/Objectives) that have been established before designing the device.

Based on the aspects of learning design, the quality and validity were very well influenced by learning strategies and models that stimulate students' interest and participation in the learning process. In addition, learning steps were made by facilitating various intelligence possessed by learners (not only logical-mathematical intelligence). This was evidenced by an expert assessment of the content of learning on the instrument items on the suitability of strategies/models used and aspects of compound intelligence raised in each meeting that showed excellent criteria. Therefore, these multiple *intelligences*-oriented instructional kit stimulate students' interest and participation in the learning process. This was in line with the research results conducted by Amir (2013) and Sunendar (2017) , which showed that innovative learning could increase students' participation and interest in the following learning.

From the aspect of conformity of the media used, the designed media must comply with Lesson Plan devices. In this development, LKPD media was designed to clarify learning materials and facilitate teachers in accommodating the compound intelligence owned by students and making it easier for students to learn the material and conduct exercises related to the materials taught. This was evidenced by an expert assessment of the content of learning on the instrument items about the suitability of the media used that showed excellent criteria. Thus, it can be concluded that the product of multiple intelligences-oriented learning devices had used media that suits the needs and standards set and deserves to be applied in learning. This was in line with the opinion expressed by Barlenti et al. (2017) which states that one of the aspects used to assess the feasibility of learning devices before they can be applied is the conformity between the learning process and the media used. The media used must support the learning activities carried out, and make it easier for students to achieve the learning objectives that have been set.

4. Conclusion

Based on the results of research and discussion, the average value of Multiple Intelligences oriented learning devices that include Lesson Plan and LKPD, after being converted into a five-scale PAP table Lesson Plan, LKPD has excellent qualifications. Thus, in general, the instructional kit on the resulting flat build topic are very well qualified. These results show that Lesson Plan and LKPD products have excellent validity and quality in the learning process.

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