

Original Paper

Effectiveness of Learning Devices with Inquiry Learning

Models to Increase Skills Creative Thinking Students

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Abstract

This study aims to obtain learning tools with a valid, effective, and practical Inquiry learning model to improve students' creative thinking skills. This research is research and development. Implemented using the 4 D model of the Thiagarajan, Semmel, and Semmel models through four stages: the defining stage, the design phase, the development stage, and the disseminate stage. The subjects of this study were 35 students majoring in family welfare education even in the academic year 2019/2020. The results of this study are: 1) A learning device with a valid, effective, and practical Inquiry model has been obtained and has been responded positively by the kitchen subjects to improve students' thinking skills. IL, modules/textbooks with the Inquiry Learning model (IL) and the Inquiry learning guide model books on Kitchen Tools that are valid, effective, and practical. Juda has produced IPR for model guidance.

Keywords

development, tools, models, learning, inquiry

1. Introduction

Creative thinking skills are important because often we face problems and difficulties in making decisions, therefore these skills are important because they can be a provision in leadership and decision making. Creative thinking skills are even more urgent in the midst of an increasingly competitive world, full of challenges and uncertainties. Rhenald Kasali (2012) said: The Industrial Revolution Era 4.0, requires everyone to adjust to the changing environment, because if not, slowly or quickly will experience failure, even facing what is called disruption, death and uprooting from its roots. Those who can exist and survive are those who can adapt, especially those who have creative thinking skills.

Creative thinking skills are an important part and must be owned by someone because this is where success starts. People who have creative thinking skills, it is not easy to experience despair, let alone stress, there is always a way out of the problems they face and make the best decisions. How many people and leaders who fail in life and resign from office just because they do not have creative thinking skills.

Sumantri (2010) said: Surely every human being from birth is equipped with the potential to think as one part of the potential for creativity, taste, and intention that gave birth to culture. It's just that the potential must be developed through intensive training and systematic education in educational institutions, especially in formal schools. The more quality the training and education process is, the better the quality of one's creative thinking abilities. Therefore, to produce students who have creative thinking skills need systematic and planned efforts, and one of the efforts in that direction is to create quality learning tools.

Learning tools are an important element in achieving learning objectives. This is reasonable because in the learning kit there is a Learning Implementation Plan (RPP), Module, and Model Inquiry learning (IL) Manual. The lesson plan itself is important because that is where there are forms of learning procedures and management to achieve the basic competencies set out in the curriculum content standards. The lesson plan becomes a general guideline for teachers to be systematic, without worrying about getting out of the goals, scope of the material, and learning models. In addition to the lesson plan, there is also a module, which contains teaching material or learning resources and details about learning to start from the objectives, planning, learning materials, to evaluation.

The learning device with an inquiry learning model is one of the models that are widely used to improve students' creative thinking abilities. This is reasonable because inquiry learning is related to the thought process that begins with the question and then answers the question itself. If this is the case, then the inquiry begins with one form of communication, namely communication with oneself (impersonal communication) carried out by one person, he becomes a communicator as well as a communicant. The inquiry can thus be an entry point for the birth of thoughts, ideas, and ideas which, if managed properly, will produce science and technology that are beneficial to human life. This inquiry, not only is it useful for the development of students' creative thinking abilities, more than that is the birth of talent and the potential to become an intellectual.

An intellectual never stops asking questions, and the question is always answered to give birth to the best solutions for human life. In this connection, Prayogi S, Yuanita L & Wasis (2018) suggested that the use of inquiry models is important because students will get a better understanding of science, and are more interested in science if they are actively involved in "conducting" scientific studies. The investigation conducted by students is the foundation of the inquiry model. This investigation is focused on understanding science concepts and improving students' scientific thinking process skills. And, it is believed that understanding concepts is the result of scientific thought processes

The inquiry model was originally developed by Richard Suchman in 1962, quoted by Arends, R, (2012), seeing that the nature of learning is nothing but the exercise of thinking through questions. He further argues that the core of the inquiry model is in the following three models: a). Students will ask (inquire) if faced with a problem that can be confusing, unclear, and or strange events (discrepant events). b). Learners can analyze their thinking strategies. c). Thinking strategies can be taught and added to students, and inquiry learning models can be more meaningful and effective when done in groups.

Furthermore, M. J. Sunarto (2015) suggested that inquiry is a variety of activities which include observation, making questions and examining books or other sources of information to see something that is already known, plan investigations, re-examine something that is already known according to experimental evidence.

Mulyasa (2015) said: Learning with an inquiry model is a student-centered strategy where groups of students are faced with a problem or seek answers to questions in a procedure and group structure outlined clearly.

From some of the terms of inquiry learning, it can be concluded that inquiry is a process of obtaining information through observation or experimentation to solve a problem using critical and logical thinking skills. The reason for using the inquiry method is to find out for yourself about the concepts learned, students will better understand science, and that knowledge will last a long time.

Yankee (1993) explains that increasing students' creative thinking is a maximum result of a learning process, and it is very important for students to develop various kinds of innovations so that they will never run out of mind in facing various problems and skilled finding solutions and making decisions. The above description implies that actually, creative thinking is not just a matter of mindset, but creativity is also related to decision-making skills, so creativity can be interpreted as innovation, out of habit and seeking effort different intelligent (out of the box), original, and bring the right results and get maximum benefits.

Creative thinking is the process of finding and finding solutions to various problems, and through this process, creativity is born in the form of ideas, original and adaptive ideas, or perhaps in the form of objects that can be used to solve various problems. Furthermore, Judkins (2015) said that "Creativity is an ability to solve problems that allow individuals to create original ideas/adaptive functions in full use for development".

2. Methods

This research is a research and development carried out through several approaches following the needs of the application of certain phases. Both quantitative and qualitative research approaches. The use of these two approaches is expected to further strengthen the scope, depth, and strength of research. The subjects of this study were students majoring in family welfare education even semester 2019/2020 academic year, research trial subjects as many as 35 students.

Research and development procedures are carried out using the 4 D model of the Thiagarajan, Semmel, and Semmel (1974) models through four stages: the defining stage, the design phase, the development stage, and the disseminate stage.

The Define Phase is carried out by defining and defining the terms of learning that begin with objective analysis including (a) front end analysis; (b) student analysis; (c) concept analysis; (d) task analysis, and (e) formulation of learning objectives.

The Design Phase is carried out by preparing a prototype of learning devices consisting of 3 steps, namely: 1) Preparation of the concept of the RPP, Modules, and Model Guide Book (BPM) Inquiry Learning. This activity is the first step that connects the define stage and the design stage. Both the outline of learning material and the steps for implementing learning are based on the results of the formulation of specific learning objectives. 2) Selection of references and media that are appropriate for the purpose, to convey the subject matter. 3) Format selection, this is done by reviewing the formats of devices that already exist and that have been developed at the University.

Thiagarajan divides the development stage into two activities which include: (1) expert appraisal, namely validating whether the product is feasible or not feasible. This step is carried out by experts in each field. Furthermore, the recommendations submitted later are used to improve the material and learning design that has been prepared. (2) Developmental testing, this is a product design trial run on the actual target subject. At the time of this trial the response data, reaction, or comments from the model user target were sought. The results of this trial are used to improve the product. Furthermore, the product that has been repaired is retested to obtain effective results.

In the context of developing learning models in this research, the development activities (develop) are carried out with the following steps: the development of tools and models, model validation by experts/experts and trials. The development of learning tools includes the preparation of the Model IL, RPP IL, Module IL (MIL) manuals. The steps taken in this development are the preparation of the draft device, validation, and revision. The learning device validation includes a step review by experts/experts, testing the device using one class. The data from the review of the learning tools are analyzed descriptively to see the validity of the devices. The validity criteria of the device if the average score of each aspect/indicator measured is of good minimum category. Analysis of the results of the review is also directed to examine aspects that require attention to repair or revise the device. The validity of the device is consulted with the standard index of the device validity test according to the Gregory Index. This development phase aims to produce learning tools that have been revised and validated based on expert input (Kothari, 2004).

Research Instruments and Data Collection Techniques. The instruments of this study are intended to measure the validity, effectiveness, and practicality of the learning kit, the instrument used to measure the validity of the learning kit is the validation sheet; To measure practicality the learning management observation sheet and the RPP implementation observation sheet were used, and to measure the effectiveness of the device used questionnaire responses from students and lecturers of kitchen

equipment. Data collection is carried out by filling out the review sheet/validation of the implementation of the RPP and questionnaire responses of students and lecturers to the learning tools. This research data will be processed and analyzed descriptively.

The validity criteria of the device refer to the Gregory index standard in Arikunto (2006) with a 50% effectiveness of the device from a minimum of 70% observed aspects, and the effectiveness of the device refers to the reliability coefficient $x \geq 0.75$.

3. Results and Discussion

3.1 Research Result

This research has entered the development stage (Realization and Development). As explained earlier, this research produced a product in the form of an Inquiry Learning Model (IL), RPP, Module/Textbooks for Kitchen Tools. This product is assessed based on several criteria including valid, effective, and practical. The following will be described in the product tables referred to above along with the criteria after going through the revision stage based on input from the validator (3 people). as follows :

Table 1. The Validity of Learning Devices with Inquiry Learning Model

No	Product	Average Rating	Information
1	The Inquiry Learning Model Book (MDIL)	3,37	Valid
2	The Design of the Implementation of Inquiry Learning (RPPIL)	3,35	Valid
3	The Inquiry Learning Kitchen Tool Module (MPDIL)	3,38	Valid

Source: Research Results.

The validity test results of the model book and the equipment obtained by each of the three experts are (BMIL = 3.37; RPPIL = 3.5; MPDIL = 3.38) a total of an average of 3.36 with the coefficient index of the judgment of expert equal to one valid category (Arikunto, 2006). Nevertheless, some revisions were made based on the advice of experts to produce a model book and the device in the form of a final prototype that was ready to be used in the field.

Table 2. The Practicality of Inquiry Learning Model and Learning Tools

No	Product	Response Results	
		Positive (%)	Negative (%)
1	Model Inquiry Learning (MDIL)	92,6	7,4
2	Model Book	93,3	8,0
3	Learning Implementation Plan (RPP)	96	4
4	Module	88,0	12,0

Source: Research Results.

The table above shows that IL-based learning devices were responded positively by students who numbered 35 people and as many as 2 lecturers. The results of the response of 35 undergraduate PKK study program students to the model, the average positive response was 92.6% and the IL model set was 93.3%. Both aspects or components were responded very well by students with an average of 92.95%. Every aspect of the questionnaire was responded positively by more than 70% of students so that IL models and devices were considered practical to apply to learn courses in kitchen tools.

Table 3. Effectiveness of the Inquiry Learning Model

No	Effect of applying Inquiry Learning (IL) model	Average Learning Outcomes	
		Before	After
1	Improved student learning outcomes	75,6 %	82,5 %
2	Students creative thinking ability	84,3 %	89,2%
3	Experiments taught by Inquiry Learning have higher completeness compared to control class	40,6% 5,7%	59,4% 94,3%

Source: Research Results.

4. Discussion

The model book, Learning Implementation Plan (RPP), and modules/textbooks which were declared by three experts as validators indicated that the Inquiry Learning (IL) model could be a reference for teachers to be used as models in the learning process. All three are learning tools which, if implemented properly, will be one of the guarantees of achieving the quality of learning using the IL Model. According to Sanjaya (2010), this model is a model that emphasizes the process of thinking critically and analyzing to find and find the answers to a problem in itself. Furthermore, Mulyasa (2015) emphasizes that IL is a learning model that prepares students in situations to conduct their experiments broadly to see what is

happening, want to do something, ask questions, and find their answers, and connect the findings of one with the findings others, compare what they find with what other students find.

Based on the two opinions above, it can be concluded that the IL model is still the development of student-based learning models that emphasize the involvement of students beyond the role of a teacher. So the inquiry model provides many opportunities for students and if this is done it will give birth to students who are creative and innovative, and even become the basis for the birth of independent students (Gormally et al., 2009).

As explained earlier, this research has produced IL, RPP, and module/textbook manuals. The results of the research that gave birth to the model book certainly make it easier for those involved in the learning process because in the model book contains, among others, the syntax of Inquiry Learning, the underlying learning theory, and the steps of applying the Inquiry Learning model. And this IL model book can be utilized because based on the assessment of 3 validators obtained an average value of 3.37 and with this value can be called valid, then this model book can already be used because it has been responded positively by students as much as 92.0 compared to as many negative responses 8.0. That means this IL model handbook is practically used in the learning process for kitchen appliance courses.

In addition to the model book, this research also produces modules/teaching materials that can be a guide for teachers in learning, even students can use them instead of teachers so that modules or teaching materials make students independent. The IL module in this study can already be used because it is valid as a result of the 3 validator ratings with an average value of 3.38, and this module is practically used because it has received a positive response value of 88.0 compared to the negative response rate of 12.0. Modules/textbooks can be a guide for teachers in learning because there are already teaching materials or learning resources in the module. Therefore the module must contain detailed matters regarding teaching materials carried out starting from basic competencies, learning objectives, learning materials to evaluation. General Guidelines The selection and use of teaching materials emphasize that a module is a book written with the aim that students can study independently without direction or teacher guidance. This shows that the module can be used for learning even though there are no instructors, which in turn can foster the soul of the independence of students (Suroso, 2004).

In addition to modules, the Learning Implementation Plan (RPP) also becomes important, related to efforts to improve the quality of learning. RPP is important because its contents are a form of learning procedures and management to achieve the basic competencies set out in the content standards (curriculum standards). As it is known that the main function of the lesson plan is to create the effectiveness of the learning process so that it is truly following the originally planned objectives.

The urgency of the Learning Implementation Plan can also be seen in its existence which is a general guideline for teachers or teachers in carrying out learning to their students, because it contains detailed instructions, meeting after meeting, regarding objectives, the scope of material to be taught, teaching and learning activities, models, methods, media and evaluations that must be used.

Therefore, based on this Learning Implementation Plan the instructor will be able to teach systematically, without worrying out of the goal, the scope of the material. Furthermore, the Learning Implementation Plan will assist teachers in organizing standard material, as well as anticipating students and the problems that may arise in learning.

Learning Implementation Plans that serve as guidelines for teachers in learning, as well as for students will be very helpful in determining the direction of the objectives to be achieved and how to achieve them. Thus the teacher can maintain the situation so that students can focus attention on the learning that has been programmed. Thus without a Learning Implementation Plans a teacher will experience difficulties because it is like going somewhere where they walk without guidance and will surely get lost. As it is known that in the Learning Implementation Plan contains various components and each component has their respective roles so that it is like a system that complements each other, even one component that is not functioning properly then the other components will be affected. The components in question include basic competencies (KD), standard materials, models, learning methods, learning media, learning resources, and study time. Thus, the Learning Implementation Plan is essentially a system that consists of components that are interconnected and interact with one another and contain steps for its implementation to achieve learning objectives.

Table 3, as previously described shows that the application of the Inquiry Learning (IL) model affects improving student learning outcomes in the Kitchen Tools course. This indication can be seen from the ANACOV test what is the average student learning outcomes. in the kitchen equipment test post in the experimental class (82.5) higher than the control class (75.6). Likewise, the application of the Inquiry Learning (IL) model affects increasing students' creative thinking abilities.

The improvement of students' creative thinking is a maximum result of a learning process, and it is very important that students have to develop various kinds of innovations so that they will never run out of mind in facing various problems and are skilled at finding solutions and making decisions. That means creative thinking is one of the provisions for someone to someday become a leader because the key to leadership is decision making (Wirawan, 2013).

Creative thinking has become an urgent matter because success in dealing with problems begins with creative thinking. Therefore creative thinking needs to be trained from an early age through habituation consistently. This was confirmed by Judkins (2015); Sunarto (2015). Improvement of Creative Thinking Students will grow in children when they are trained, accustomed from childhood to explore, inquiry, discovery, and problem-solving. Furthermore, Syamsidah (2018) states that "the model of problem-based learning and inquiry learning models can improve the ability to think creatively meaning to increase the score of students' ability to understand problems, fluency, flexibility, and novelty of problem-solving".

The description above implies that creative thinking is not only related to mindset but also creativity is related to decision-making skills. Every human being has the potential to think creatively, only that potential can develop if trained early and developed through educational institutions, especially in

learning that is specifically designed for it. The IL learning model as previously described is one of the models that can affect student learning outcomes improvement while at the same time affect students' creative thinking abilities.

5. Conclusion

1) A learning tool with a valid, effective, and practical Inquiry model has been obtained that can improve students' creative thinking skills. This can be seen in the application of the Inquiry Learning (IL) model that affects improving student learning outcomes in the Kitchen Tools course. This indication can be seen from the ANCOVA test where the average student learning outcomes. in the kitchen test subject post in the experimental class (82.5) higher than the control class (75.6).

2) Has produced learning tools in the form of Inquiry Learning Implementation Plan Learning Model (RPP IL), modules/textbooks with Inquiry Learning model (IL), Inquiry Learning model guide book (BPMIL) invalid, effective and practical Kitchen Tool courses. This can be seen in the application of the Inquiry Learning (IL) model to influence the improvement of students' creative thinking abilities. This indication is shown from the ANCOVA test where the average student learning outcomes at the kitchen equipment test post. In the experimental class (89.2) higher than the control class (84.3)

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