

The Improvement of Students' Cognitive Achievement Through Flowchart Visual Media

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Abstract: *Inheritance science material is assumed difficult by the students this may be because the material coverage is quite extensive and learning process is less supported by adequate media. Media that can be used in learning warits is visual media flowchart. Learning materials the science of inheritance-based visual flowchart media is allegedly able to improve student cognitive achievement in science materials Inheritance this. The study was conducted in two schools using experimental method using control group. MA Al-Muhajirin School as a class that is treated by teaching science-based inheritance-based visual flowchart, and MAN Purwakarta as a control class. From the research results obtained data that learning science materials inheritance visual-based media flowchart was proven significant increased cognitive achievement of students in materials the science of inheritance. This is based on the hypothesis test that the effect of the use of visual media Flowchart on cognitive achievement of students in the science of inheritance is 48.3%, while the rest of 51.7% is influenced by variables or other factors. These findings indicate that other factors outside the learning strategy using visual media Flowchart still more dominant influence on cognitive achievement of students in materials the science of inheritance.*

Keywords: inheritance, flowchart, visual media

1. Introduction

The science of inheritance is the first science lost from the hearts of Muslim society as described in the hadith narrated by Ibn Majah, Imam Ahmad, At-Tirmidzi, Al-Hakim Ad-Daraquthni, Al-Hakim, and Al-Baihaqi. Therefore, the science of inheritance is very special to learn because not everyone can have the opportunity to enjoy the beauty of this science. Prophet Muhammad SAW ordered his people to study the the science of inheritance, even the Caliph Umar bin Al-Khattab radhiyallahuanhu also specifically ordered Muslims to study heirs:

عَنْ عُمَرَ بْنِ الْخَطَّابِ أَنَّهُ كَانَ يَقُولُ: تَعَلَّمُوا الْفَرَائِضَ وَالسُّنَّةَ كَمَا تَتَعَلَّمُونَ الْقُرْآنَ (رواه ابن عبد البر)

From Umar bin Al-Khattab ra. he said, " Study the science of *faraidh* and *the Sunnah* of the Prophet as you study the Quran ". (H.R Ibn Abdi Al-Barr)

This command contains a message that learning the science of inheritance is very important for Muslims. Because studying this science is aligned with learning Al-Quran. For that reason, the efforts of the ministry of religion still include the learning materials of inheritance science in the curriculum of Islamic senior high school, Madrasah Aliyah (MA) although it can only be submitted at a glance because the material is quite extensive while the time of material delivery is limited.

Submission of science materials inheritance in many years submitted by teachers with less innovative methods, especially media support for materials that can make easily to understand. Even if using methods that are quite fun for students, the media used only conventional media, such as books, hand out or search the internet. This is allegedly the author is one of the causes of less interested Science of Inheritance among middle-class students.

There are various steps to improve the quality of the learning process of this field of study, for example through improving the academic quality of teachers, the use of varied strategies and learning methods, the use of relevant learning media and easier teaching materials

One of the learning media the science of inheritance that can be used is visual media flowchart. Visual media flowchart in science learning this inheritance including new media in learning this science. The writer get this media when he studied at Islamic boarding school Sukahideng, Tasikmalaya. The writer try to use of this media in schools, namely Madrasah Aliyah Al-Muhajirin, and Madrasah Aliyah Negeri Purwakarta.

The authors did this experiments in the two schools, the authors assumed that the use of visual media flowchart in the science of inheritance materials could contribute to improve student cognitive achievement in that Islamic school, especially in religious majors as the object of this study. The visible phenomenon of learning material the science of inheritance based on visual flowchart media is an increase in the score of students in the science of inheritance materials especially sub material *furudl al-muqaddarah* (heirs who get a certain proportion) which understanding this material is the key to understand to calculate the distribution of inheritance. Based on the background, the writer assumed the research on the title "Improving Student's Cognitive Achievement in The science of inheritance Through Visual Flowchart Media" as a very important issue to be studied.

2. Theoretical Review

2.1. Learning Media

According to Arsyad (2007:3) the word media comes from the Latin medius which literally means 'middle', 'intermediary', or 'introduction'. In Arabic, the media is an

intermediary (وسائل) or messenger of the sender to the recipient of the message.

The word media applies to a variety of activities or endeavours, such as media in messaging, magnetic delivery media or heat in engineering. The term media is also used in the field of teaching or education so that the term becomes a medium of education or learning media (Sanjaya:2007). In learning activities, media can be defined as something that can bring information and knowledge in the interaction between educators and learners (Fathurohman:2010).

In the teaching and learning activities often use of the word learning media or (الوسائل التعليمية) (replaced with terms such as hearing instrument, educational technology, visual aids, and explanatory media (Arsyad:2017). Instructional media in this case include tools that are physically used to deliver content learning materials consisting of books, tape recorders, cassettes, video cameras, video recorders, films, slides, photos, graphics, television and computers (Arsyad:2017).

Use of media in learning is very important, because using the media in learning has several benefits, namely; 1) Submission of learning materials can be uniformed; 2) The intensive process is more interesting; 3) The learning process is more interactive; 4) The amount of teaching and learning time can be reduced; 5) Improved learning quality; 6) Learning process can occur anytime and anywhere; 7) Improving students' positive attitude toward learning processes and materials; and 8) The role of the teacher can be turned positive and productive (Ginting:2010).

Meanwhile Ridwan as quoted by Hadi (1984:107-108) explained about the urgency of learning media is as follows:

- 1) Raise the student's interest towards the teacher. The presentation of samples, models, short films or a series of study-related images may be a factor in stimulating pupils' attention to and follow-up.
- 2) Teaching aids explain the lesson and help explain the steps and processes involved in the lesson
- 3) Students learn some skills
- a. (d) educational means help to remember and speed learning: explaining that the use of certain means to the appropriate extent and the appropriate type, in a timely manner, and in the safest way, often leads to the speed of learning information, and persistence in mind
- 4) The teacher can overcome the limits of time, space and material possibilities
- 5) Works on the quality of teaching and works on the desired diversification
- 6) Save a lot of time, effort and money, as well as the success of the teacher
- 7) It works on the consistency of ideas, and their coherence
- 8) It works to increase the linguistic wealth expressed by students

Broadly teaching and learning media can be divided into four groups, namely: 1) Visual, 2) Audio, 3) Audio Visual, and 4) Multi media (Hadi:1984). In the Leshin taxonomy, as quoted by Azhar Arsyad, there are human-based learning media (teachers, structures, tutors, role-playing, group activities), printed media (guidebooks, work / exercise books, and loose

sheets), visual- books, charts, graphics, maps, images, transparencies, frame films or slides), audio-visual based media (video, film, tape slide, television), and computer-based media (computer-assisted teaching and interactive video) (Arsyad:2007). One that the media that can be used in learning science of inheritance is flowchart.

Visual media is learning media in the form of something that can be seen by the human eyes (Ginting:2010). The visual media include; First, two-dimensional media called graphic media such as pictures, photos, graphs, charts or diagrams; Second, the three-dimensional media is in the form of models such as solid model, cross-section model, stacking model, work model, mock up and diorama; Third, Media projections such as slides, film strips, films, use of OHP and others; and the fourth use of the environment as a media of teaching process (Sudjana, & Rivai (2013). This type of visual media often used by teachers to help convey the content or subject matter (Hamdani:2011).

Levie & Lentz as quoted by Azhar Arsyad revealed four functions of visual media,(Arsyad:2017): 1) Function of Attention. The function of the attention of the visual media is the core that is attracting and directing the students' attention to concentrate on the content of the lesson related to the displayed or accompanied visual media of the text subject content. at the beginning of the lesson, the student did not pay attention because they were not interested in the subject matter or the subject chapter. Media, especially media projected through overhead projectors can make the students calm and direct to the lessons that they will receive; 2) Affective Function. The affective function of visual media can be seen from the student's enjoyment level when learning (or reading) the pictorial text. Visual images or symbols can arouse students' emotions and attitudes, such as information on social or racial issues; 3) Cognitive Function. The cognitive function of the visual media is evident from research findings which reveal that visual symbols or images facilitate the attainment of a goal for understanding and remembering the information or messages contained in the image; 4) Compensatory Functions. Compensatory The learning media is seen from the results of research, visual media provides context to understand. The text helps weak students in reading to organize and to recall information in text. In other words, learning media serves to accommodate weak students accepts and understands the content of the lessons presented with text or verbal

2.2. Visual Media Flowchart in The science of inheritance

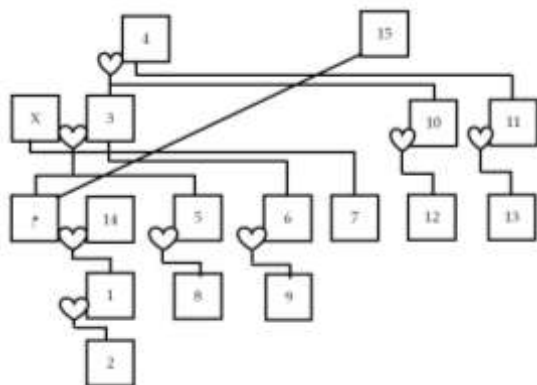
Learning materials or instructional materials are the knowledge, attitudes and skills. students must learn to achieve a standard of competence. Materials competences are facts, concepts, principles and procedures or steps of action to be taken (Hakim:2009).

The indicator of student achievement after studied this heritage, student expected to understand, 1) explaining the definition, 2) explaining the aim and position of inheritance 3). Explaining the cause of inheritance, 4). Explaining the obstacle of inheritance 5) explaining the types of heirs and its parts, 6) explaining about how to divide the wealth with *aul*

and radd 7) explaining about *gharrawain*, discussion and *akhdariyah* 8) explaining past of toddler in womb and lost people, 9) explaining wealth together 10) explaining the lesson from inheritance(Zainudin:2002). And the researcher will focus on of the subject number 5 (the types of heirs and it parts)

In studying the science of inheritance nowadays we cannot leak of media. Whether printed media or books, computer-based media, visual media created by teachers or other media that support science learning inheritance more easily. Media used in learning inheritance especially in MA Al-Muhajirin is visual media Flowchart created by subject teachers.

For example, male inheritance experts specified there are 15 people. The fifteen warfare experts are: 1) Boys, 2) Grandchildren from boys and so on down, 3) Father, 4) Grandfather who is saheeh, ie father father and so on upward, 5) Siblings, 6) Gentleman, 7) Brother of a thousand, 8) Son of a sibling, 9) Son of a half-brother, 10) Uncle Siblings, the brother who siblings with fathers, 11) Uncle Mahayah, 12) Sons of the uncle siblings, 13) Sons of the same uncle, 14) husband and 15) The liberating master. This group of male warfare experts can be formed in the Flowchart visual image as shown in Figure 2.2.1 below



Gambar 2.2.1: Flowchart Ahli Inheritance Laki-laki

Women who become inheritance globally there are 7 and if specified there are 10, namely: 1) Daughter, 2) granddaughters of boys 3) Mother, 4) maternal grandmother, 5) paternal grandmother, 6) Siblings, 7) Older sisters, 8) Seibu sisters, 9) Wives, and 10) Women who liberate. The visual media are as follows:

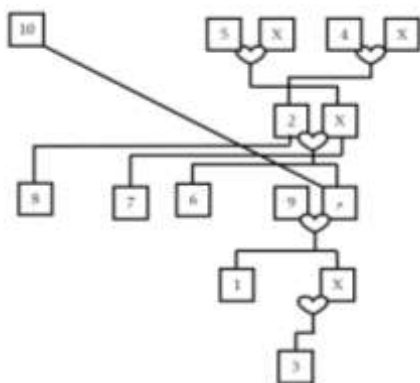


Figure 2.2.2: Flowchart girl heirs

Picture information:

- = Inheritance, man stayed in right side, woman stayed in left side
- = who dead, heir
- = marriage relationship
- = siblings relationship, as girl
- = siblings relationship, as boy
- = there is not heir or dead

2.3. Student's Cognitive Achievement in Fiqih Main inheritance

Material Learning achievement is what has been achieved by students after learning activities (Tohirin:2011). Learning achievement is also called learning outcomes. The success of learning, contains the meaning of mastery in learning and mastery in the learning process. Cognitive achievement Means completing learning achievement of competencies that include , skills, attitudes, or values of thinking and acting (Depdiknas:2008). Cognitive achievement means students' learning mastery which includes observation, memory, understanding, application, analysis (careful examination and sorting) and synthesis (making new and whole alloys) (Syah:1995).

The success or achievement of learning that can be known from the indicators. These indicators include (Nata:2011): 1) Absorption of teaching materials taught achieve high achievement, either individually or in groups; 2) the behavior outlined in the teaching objectives has been achieved by the students.

In Islam the success of learning gets important attention. One of them is the sign of the Qur'an that regulates the success of learning cognitive level is a verse that explains the achievement of the Prophet Adam for his learning success. It is listed in the following verse:

And when your Lord said to the angels, I am going to place in the earth a khalif, they said: What! wilt Thou place in it such as shall make mischief in it and shed blood, and we celebrate Thy praise and extol Thy holiness? He said: Surely I know what you do not know (30). And He taught Adam all the names, then presented them to the angels; then He said: Tell me the names of those if you are right (31). They said: Glory be to Thee! we have no knowledge but that which Thou hast taught us; surely Thou art the Knowing, the Wise (32). (.Q.S. Al-Baqarah : 30-32)

3. Research Method

The method used in this research is experimental method by using control group. On this research uses two classes, namely experimental class and control class (Sanjaya:2013). The experimental class is the class that is applied the treatment of science learning of inheritance based on visual media Flowchart while in the control class is applied

conventional learning strategy without visual media Flowchart.

4. Discussion of Research Results

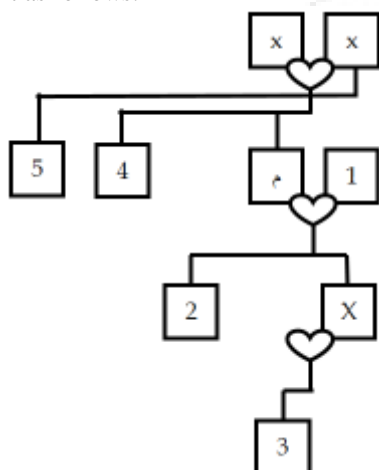
4.1. Learning Process Inheritance science with visual media Flowchart

The experiment of applying visual media flowchart in the learning for the material of *al-furudl al-muqaddarah*, *ashabah*, and *hijab mahjub*. Here's a flowchart for each of them:

a) Inheritance experts who get $\frac{1}{2}$ treasure relic there are five people, namely:

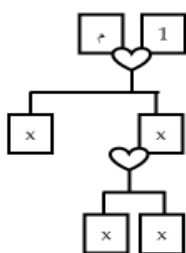
- 1) Husband
- 2) Daughters
- 3) The granddaughters of the boys
- 4) Siblings
- 5) Sister-in-law

Flowchart as follows:

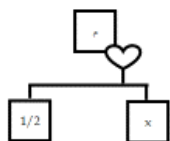


to get $\frac{1}{2}$ proportion for the five heirs must be qualified:

1) Husband; Got a half of the inheritance with the condition that the dead did not leave the descendants. See the following flowchart:



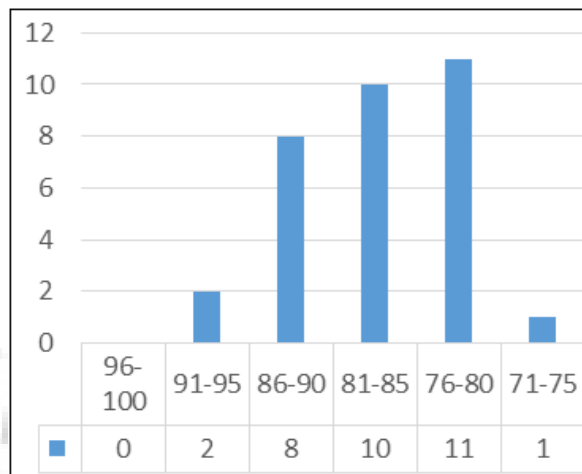
2) Daughter, gets half of the inheritance on condition that he is alone, and without his brother



And so on, the teacher (in this case the researcher) presents all the material *al-furudl al-muqaddarah*, *ashabah*, and *hijab mahjub* using the flowchart

4.2. Description of Research Results Learning Inheritance science with visual media Flowchart

After completion of teaching materials on "parts obtained by any wariths or *Al-Furudl al-muqaddarah*" for four meetings and then held a student ability test. And from the test results obtained value results as in the following graph:



In the graph of student learning outcomes can be seen that the class of students who received learning treatments by using visual flowchart media that amounted to 32 people get the value between 91-95 as much as two people or 6%, which has 86-90 learning results 8 people or 25% , which received 81-85 score 10 people or 31%, which obtained the results of learning 76-80 as many as 11 people or 34%, and the remaining one or 3% did not achieve a minimum value of completeness of 76.

From the results of data analysis performed partially indicate that there is a strong enough influence of the visual media-based learning Flowchart on student cognitive achievement in science materials inheritance in the experimental class, the class MA Al-Muhajirin. This is indicated by the correlation value between the two variables that reach 0.613. Thus, it can be concluded that the visual media based learning Flowchart provides a strong enough and significant impact on learning achievement. That is, the better the media used, then the cognitive achievement of students in Inheritance Science will increase.

Based on the hypothesis test obtained the result that the influence of the use of visual media Flowchart on cognitive achievement of students in the science of inheritance is 48.3%, while the rest of 51.7% influenced by variables or other factors. These findings indicate that other factors outside the learning strategy using the Flowchart visual medium are still more dominantly affecting the students' cognitive achievement in Inheritance Science

The results of this study are in line with the theory that "visual symbols or images facilitate the achievement of goals for understanding and remembering the information or messages contained in the picture". In this case, the use of visual media Flowchart proved significant and positively affect the students' cognitive achievement in Inheritance

Science. The results showed that the ability of teachers when delivering the material by using visual media Flowchart quite qualified because it has a positive and significant influence on student cognitive achievement in Inheritance Science

5. Conclusions

Based on the results of research and discussion, it can be concluded that: "The amount of contribution given by science-based learning Inheritance visuals Flowchart on student cognitive achievement in Inheritance Science of 48.3% and the rest influenced by other factors. This reinforces the theory that "visual symbols or images facilitate the attainment of a goal for understanding and remembering information or messages contained in images.

The results of research that shows that learning Inheritance Science used visual media Flowcharts provide a strong contribution to student cognitive achievement, it would be good that teachers in madrasah, Islamic senior high school continue to improve the quality of teaching supported by various media, especially visual media can better describe the learning materials.

With the existing theory, the results of this study can be developed by other researchers to improve or refine this study and examine other variables associated with the improvement of student cognitive achievement and other factors.

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