

THE MEDIA ROLE ON CHEMISTRY SCIENCE INSTRUCTION IN COLLEGE

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Abstract

Media is a kind of tool to deliver material contents to learners (students). Chemistry contains much abstract concepts elusively, such as the concept of the atom, electronic structure in the atomic structure, ionization energy, ionic activities, reaction and reaction speed and etc. All of the concepts is not enough just described verbally, orally to students but it is needed to explained visually through media, in order to have a comprehensif knowledge. Right now, it is well-known a multimedia such as Macromedia tools that the difficult contents can be more easilly understood. through pictures and animations available made it. It will be conducted a meaningful learning instruction through chemistry lesson in science education college. Macromedia such as flash-media program, Prezi,etc. It is easily able to explain concepts to the learners. Chemistry learning research results shows that some difficult topics make it students more interested in in learning and improved their competenciesn also.

Keywords: media role, content abstract, chemistry education.

INTRODUCTION

Learning as a process is a system that involves various components include components educators (teachers), learners (students), materials, learning resources, instructional media, methods, and so forth. These components interact among fellow components.

Teaching success is determined when the learning is able to change the self-learners. The change in meaning can cultivate potential possessed learners so that learners can get a good result in the development of pribadinya. Tanggung directly responsible for the success of the learning in the hands of an educator. That is, a teacher must do everything possible to organize the learning process such that the components required in the teaching can interact among fellow components.

On learning chemistry / physics, there are many concepts such as atomic theory, the structure of electrons in an atom, electron configurations to explain the properties of an atom, it requires the expertise of a teacher / educator to explain it. Teacher choice by using / utilizing the media (media visual or audio-visual) will be able to clarify / mempermuah the abstract concept,

Gagne and Briggs (1995) states that the learning media to support the creation of a chemical pembelajaran creative implicitly because the opinion is physically learning media can be used to convey the contents of teaching materials. In other words, the media is a component of learning resources or physical vehicle containing instructional materials in the student environment that can stimulate students to learn. But we realize

that the consumption / usage (in terms of educational technology: the use of) the media by the teacher / educator is still not evenly distributed and many are reluctant, unwilling and unable to menggunakan this medium.

This paper will discuss more on natural sciences, specially chemistry subject as well as related aspects.

Everyday conversation among academics have known that language is a tool in thinking. What is meant by the language included in the form of everyday conversation, or a language of symbols in maths and sciences. But language is not the only means (tools) in thinking. In addition to the language, another thinking tool equally important is what is called the "Mental Image" or simply called the Image only (Piaget & Inhelder, 1971). Image in a person is something whose existence in the mind of the person is unconscious as something that is captured by sensory stimulus, when in fact the stimulus is not in the sense of the person's catch. Activity or process where someone has a mental image sebuat called Mental Imagery (or Imagery). According to Sheehan (1990) there are several types of imagery, such as

1. Visual imagery (mentally seeing something)
2. Auditory imagery (mentally hearing a sound or noise)
3. Cutaneous imagery (mentally feeling an object with the skin).
4. Gustatory imagery (mentally tasting something).
5. Olfactory imagery (mentally something something)

According to Piaget and Inhelder: visual image can be Static and Kinetic Visual Image Visual Image (moving objects), EvidensNeurofisiologi (evidence of brain work) about the use of language and imagery in the process of thinking:

Medical research results that the function of the brain (the left hemisphere and the right hemisphere) has a different role in the process of thinking. Where the Left Brain: For the role and process information raises verbal / language; while the right brain raises and process the images. The latest research results show that: Right brain thinking process that is used to suppress the use of logic-reasoning, while Left Brain: emphasizing creativity and holistic-minded. Dst. The development of media-based teaching materials diharapkan happen is balanced between voice / verbal and image / visual (balance between verbal and visual).

THEORIES RELATED TO STRATEGIC ROLE OF VISUAL (VISUAL MEDIA)

The concepts of Science based perceptual be more easily understood visual learners through basis, especially at the beginning of learning, or the introduction of concepts.

Example: a student who is having difficulty in performing operations with fractions may need to re-use Picture or visual image of a cake round to. surgery. So the image / visual image serves to clarify the process of thinking (provided that an appropriate visual / match). Differences on Bank Interest visualized with flowers of a plant.

In the Chemistry also in Physics concept says that an electron in an atom around the nucleus, visualized with electron trajectories in circles. Results of the study Roe

(1951) states that the expert certain fields of science tend to think visually while the anthropology many are thinking verbally, So in Science: Visual has a strategic role and important in learning process.

Visual strategy occupies a very important position and it is related to many aspects (presentation time, storage, and clarity of detail picture-also 3-dimensional). As personal testimony of Einstein that Man has more to think with mental pictures (visual images) than using words.

The universal importance of developing visual thinking in students, because during this time thinking ability verbally that many developing / dominant in learning or book., Poor visual. (this is the opposite in praktikum- need to see / try directly- not just hear or read / verbalis-posts). By developing visual thinking, otamatically we also enlarge the role of the right brain in thinking. It is stimulate the development and creative thinking ability of students

Kemp and Dayton in Susilana (2008) states that the primary function of media in learning is as: (1) "Eye Catching", (2) Focusing Attention and (3) Assist us who are less articulate. Further Susilana (2008) states the contribution instructional media, namely:

- (1) .penyampaian messages can be better / standardized;
- (2). learning more interesting and qualified / quality could be improved;
- (3). more interactive learning;
- (4). pembelajaran shorter implementation time;
- (5). the learning process can take place anytime and anywhere;
- (6). positive attitude of students towards learning materials as well as process

CHEMISTRYL AND MEDIA LEARNING

Principles of chemistry learning (science) not just hear or see, but more emphasis on understanding the concept and at the same time cultivate generic skills of learners / students (Santoso, 2000). In line with the 1994 curriculum that approach to teaching science (chemistry) at SMA directed to a process approach, it means planting done through the concept of process skills. That is, students are equipped with the ability to process skills such as observation, classification, identification variable, prediction, and inference (Nur, 2003). For the students socialized and accustomed to engage, actively participate in the learning process. Ideally lesson plan (called RP) made let involving students in the process of thinking, working / assembling tool and actively involved in discussions and other activities in line with learning objectives to be achieved, but the problems that often occur in the field and found in many schools, the learning process is less favorable, because the teachers dominate. This occurs because of :

- condition of schools (facilities and supporting infrastructure which is lacking or not exist at all, like there is not available lab.)
- the limited number of teachers or teachers who are not competent in their field., such as chemistry lesson are taaught by someone who is not her/his fields of study.
- demands that must be taught the material (solid material and loaded) appropriate curriculum and a relatively large number of students in one class average 40).

So the problem is not bejalan learning process chemistry as expected because the material / subject matter which is solid with the demands of the curriculum that must be met as well as the large number of students (an average of 40 people / class) so that the learning process that involves students is not achieved / fulfilled. Conditions / similar situation also found in almost Senior High School in Riau Province, that one Prezi desktop media research has been conducted.

Many issues / problems were identified, namely the difficulty students understand abstract concepts about the structure of atoms and the circumstances of its composition in the atoms of an element, then the team tried to overcome (intervensi) for some problems is by utilizing (using) media.untuk explain.

The Use of media is one of the competencies that must be owned by the teacher in order to be successful in the learning process (T.Raka Joni, 1983). So in this case the selection of appropriate media to assist the learning process given subject (the abstract, it indicates a change) the selection of appropriate media (such as VCD media = audio-visual media types) must necessarily be done. Media Education comes from the Latin and is the plural of the word medium, which means an intermediary or introduction. Relating to the media, Schramm (1977) suggests that; "Information carrying technologies that can be used for instruction ... the media instruction, consequently are extensions of the teacher." Further Yusuf Hadi (1984) in the development of effective educational media utilization in learning mengemukakan some principles that need to be considered as follows: (1) None of the methods and media were used; (2) certain media tend to be used more appropriately in presenting something of a lesson unit than other media.; (3) No one media that can suit to all kinds of learning activities.; (4) The use of media which it too much at once will be ambiguous and does not clarify the lesson.; (5) It must always be done enough preparation to use learning; (6) The media should be an integrated to or a part of learning; (7) Students should be prepared and treated as active participants.and (8) Student must participate and responsible for what happened during the learning takes place.; (9) In general necessary to arrange the appearance secaa positive than the negative; (10) It should not be a distraction to use instructional media or entertainment, pastimes, except for the purpose of teaching this is so.and (11) Use the opportunity to use media that can be taken to train the development of both oral and written language.

In the process of communication, the media is one of empt components that must exist: (1) resources, (2) information, (3) the recipient information, and (4) media. In the instructional process as a source of information is the teacher, student / participant diidk, reading material and so on. Schramm (1977) further defines the media in particular, namely: "messenger technology (information) that can be used for the purposes dosenan" /. Similar opinion raised by Briggs (1977) which defines the media as a physical means for communication of the content / subject matter. Relating to the media, Molenda (1982) named several advantages of using media in teaching and learning process as follows: (1) learning media can pengkongkritkan ideas atagagaan conceptual, thereby reducing misunderstandings students in The work that the material presented, (2) Learning media can increase interest / motivation of students to learn the subject matter, (3). Instructional media provide a real learning experience; (4) learning media can develop a sustainable way of thinking; (5) provide instructional media

experiences that are not readily available through other materials and makes learning basic and diverse.

Instructional media used / are popularly elected audio-visual media, Video Compact Disc (VCD), where VCD is packaged in an interactive format.

Conveys the concept of chemistry is not only just done through teachers or textbooks but also through observation / demonstration or lab (contained in the VCD program Or the delivery of the materials so that the learning more meaningful. Including easier for students to understand abstract material such as atomic theory, collision theory

Furthermore Susanto (2000) states the nature of learning is the use of chemical or visual demonstration to show a wide range of chemical properties (such as flame reactions / material changes, test the color, the shape of molecules) that curiosity and motivation of students will increase. Ideally sub-subject material changes in addition to the theory given in class, for a better understanding of the concept, performed well in the lab practicum. School chemistry.(Sukanto.(1997) &Irawan (1977). However, not all schools have the completeness of the means as has been mentioned above. Many schools do not have lab. Or if got, sometimes his tools are limited, insufficient to berpraktikum students with the tools of the students. For this kind of problem, with the use of audio-visual media program (VCD), problems learning problems being addressed, or at least narrowed.

This opinion is in line with Pannen (2002), which explains that the process of learning Mathematics and Science (chemistry) and apply MIPA (IPA) is contextual, students should be introduced to a variety of resources-print, non-print, media, tools, photos and internet. "Factors-based design of Learning Mathematics Culture" in which these resources are expected to help them make the analysis, seeking information and supporting explanations on alternative explanations and to know the context of their cultural community.

In order to provide enrichment learning resources and learning "meanigful" then it should be the learning of Mathematics and Science (chemistry) besides the theory and the practical work in the lab, but the lab has not been and can not be done at the school Muhammadiyah because of non-availability of the lab (problem) as well as the number of students who major in one class and many parallel classes (one class there are six classes), then the alternative provision VCD program instead of lab material is intervention / breakthrough for school.

RESULTS SOME RESEARCH FINDINGS

Results to Asmadiet. all research (2005) concluded that the teaching Science (Chemistry lesson) with VCD able to improve student achievement in high school. Further it was found that through the VCD media, students more easily understand the chemistry lesson. Besides, the benefits also affect media pose carefree atmosphere / fun in learning. More results of research can be seen as follows:

1. The effect on the results of the evaluation study by the variation of the learning method / delivery of content Introduction to Chemistry in Class as follows: there were 26 students (61.9%) were the results of the evaluation of learning increases. While that does not increase as much as 16 people (38.1%). The average value of

students with the use of VCD program at 74.23 with Mastery Learning students 71.16 (%). While the average value of 62.20 students without VCD and Mastery Learning students 45, 30 (%). Improved learning outcomes by 22, 9 (%)

2. The results of the evaluation study material changes of matter taken through audio-visual media (V-CD) shows the learning outcomes better than if the material presented in the classical / teachers in the classroom. This indication is something that is positive for the learning process, especially for the chemical in times to come. Another thing that should be known by teachers / educators fields of study, especially chemistry, field observations showed that the utilization of instructional media V-CD, the interest and enthusiasm of students increased, this was reflected in the demand replay (replay). Because the student was not satisfied to watch, capture the content / materials and content of the message.
3. The another or new research has been conducted related to use Prezi Media (Rozalinda, et.all, 2015) shows that:

Tabel 3.Hiphpteses Test

Kelas	N	$\sum X$	$\bar{x}$	S_{gab}	t_{tabel}	t_{hitung}	Keterangan
Eksperimen	34	2012,5	59,19	13,03	1,66	5,84	Hypotheses accepted
Control	35	1430	40,86				

Hypothesis testing using t-test that the hypothesis is accepted if it meets the criteria $t_{count} > t_{tabel}$ obtained $t > t$ table ie $5.84 > 1.66$ with $df = 67$ and the probability criteria 0.95. Thus, the hypothesis "Prezi Desktop Application as a percentage Media Can Improve Student Achievement in the Topic Hydrocarbons in class X SMA Negeri 9 Pekanbaru"

CONCLUSIONS:

Learning through VCD only one mode / preference is often carried out at institutions, schools, or individuals. But until now there is still the assumption that in order to learn, Master who came to the home, school or office. Teachers into a cubicle-room presents the learning material, share experiences or informs something. This assumption is not entirely correct because learning can be through audio-visual media such as: Television, Video Cassette, Video Compact Disc (VCD) or through Computer, CBT (Computer Based Training), CAI (Computer Asssited Instruction) and IMI (Interactive Multimedia Instruction) In addition, information can also be obtained through reading sourced from books, journals, magazines, newspapers, taboloid, bulletins, leaflets. Etc., so to enrich the knowledge or insight are many ways and sources of media that can be accessed. Furthermore Aziz Ahmad (2003) named that trend study (Science and Science and Technology) today through diverse sources where each individual can choose how to learn and adjust to the type (Learning Types) respectively, whether the type of audio,

visual or both. Another media such as the use Prezi desktop shows us that students be motivated and intrested in science learning process. It also mentioning some relevant result research shows the use of learning media is able to improve students ability/competencies.

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