

THE ROLE OF PLEKSIBILITY IN EDUCATIONAL INNOVATION

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Abstract

Innovation is an idea, an item, an event, a method that is perceived or observed as a new thing for a person or group of people (society), whether it is the results of invention and discoveri. Innovations are held to achieve a specific goal or to solve a particular problem. Versatility (Flexibility) is the ability to adapt and work effectively in different situations, and with different individuals or groups. Flexibility requires the ability to understand and appreciate different and conflicting views on an issue, adjusting its approach due to a change of situation, and can easily receive changes in its organization.

Keywords: Pleksibility, Innovation, Education

I. INTRODUCTION

The challenges of education in the future are realized to be heavier. This is a consequence of progress in various aspects of life. Population growth and improved living by itself affects the world of education, which is demonstrated by increasing aspirations towards increased education, both in the sense of the expansion of learning opportunities and demands More quality education.

Globalization is synonymous with open market and competition spirit has led to increasingly open technological competition. Educational technology designed to help solve education/learning problems, it is an alternative that will provide many benefits in the effort to improve the quality of learning. Various forms of learning experience that can be achieved in the classroom or outside the classroom and messages of learning, need to be packed with attention to the rules and principles of education technology in various methods and media learning, ranging from conventional to computer-based multimedia such as e-mail, e-laboratory, e-book, and so forth. With the use of educational technology in hopes of learning messages can be packed more systemic-systematic in both physical and virtual packaging.

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To answer the above demands, education in school/Madrasah would not want to be able to make efforts to develop and systemic schematic and innovation. The development and innovation are considered very important considering that until now, the number of children who dropped out of school and who have not studied is still quite high. The cause in realizing is quite complex, with each other being interconnected such as family economic factors, parental attitudes, teacher treatment, and school factors including geographic conditions that are difficult to reach.

This phenomenon is increasingly concerned and more exacerbated since the country is hit by a multidimensional crisis. Therefore. The horizontal and vertical development must be in accordance with the principles of education for All (education for all) and the principle of educational inopation.

The direction of educational technology development no longer should no longer be limited by the dimension of space or time, so it can be accepted by students well, easily and extensively and create fun, flexible learning in dimensions Time, space and develop the potential of learners individually and in communal.

The demands on this dimension of equity and fairness at the same time demanded an increasingly intensive education process and more quality and relevant results, including the maximum in the empowerment of existing resources. This vertical development means that the implementation of school education/Madrasah In addition to the manifestation of fair and equitable education, should also consider how students are both from the aspect of ability, lifestyle and socio-cultural environment where they live.

Thus, in the implementation of educational technology designed to help solve educational problems, able to provide benefits in the effort to improve the quality of learning. Various forms of learning experience, whether in the classroom or outside of class and messages of learning, can be packaged with attention to the rules and principles of educational technology.

Therefore, efforts of educational innovation in the field of learning technology is a necessity to be done at any time and continuously, especially we know as long as there are parties who feel dissatisfied with the practice of education, so long as it is also innovation Learning technology should always be sought.

Innovation efforts are also crucial to face the future uncertainty and rapid development of science and technology. Innovation of school education/MADRASAH is essential as an educational institution to bridge the present and future, besides innovation can be said as answer to internal and external issues in education that tends to pursue efficiency and effectiveness.

II. THEORETICAL STUDIES

Education

Education, one of which can be interpreted as a collection of all kinds of processes develops one's ability, attitudes and other forms of behavior that is positive value in the community in which he lives. Pranoto, et al. (2009:26). While according to Law No. 20 of 2003, about national education system, it is stated that education is a conscious effort to prepare students through guidance, teaching and/or training activities for the role in the future.

From that definition it appears that education is a very broad concept, covering a variety of dimensions and viewpoints. In terms of the process, education can be defined as a change in understanding the outside world, itself, and its relationship with others and the objects in its environment. These changes help one to interpret the experience and allow the enhancement of effective ways to behave in order to control the environmental elements associated with it.

Innovation Education

Innovation is an idea, an item, an event, a method that is perceived or observed as a new thing for a person or group of people (society), whether it is the results of invention and discovery. Innovations are held to achieve a specific goal or to solve a particular problem. In epistemology, innovation comes from the Latin word, innovation which means renewal and change. The verb is *innovo* which means updating and modifying. Innovation is a new change towards improvement; the other or different from the previous one, which was done deliberately and planned. According to Suprayekti in Ibrahim innovation is everything created by humans and perceived as a new thing by someone or society, so it can be beneficial for his life. Ibrahim, (1988:123).

When we hear the word innovation that comes to mind we are probably something new, unique and interesting. The novelty, uniqueness and interesting it ultimately brings benefits. The opinion is apparently not

wrong, in the sense of man as a dynamic and dissatisfied social creature with what is already there will always try, dig and create something new or other than usual. Similarly, an innovation problem is closely related to the learning process in education. Where the learning process involves humans (students and teachers) who have distinctive characteristics that are the desire to develop themselves, progress and achievement.

Hamijoyo, (1988:123) suggests educational innovation is a new and qualitative change of the different things that existed before and deliberately cultivated to improve the ability to achieve certain objectives in education.

Ibrahim defines educational innovations is innovation (renewal) in the field of education or innovation that is done to solve educational problems. Educational innovation is an idea, an item, a method that is perceived or observed as new for a person or group of people either in the form of an inversion or discovery that is used to achieve educational purposes or To solve educational problems.

Of the two expert opinions above about educational innovation, it can be concluded that educational innovation, is an idea, item, a method that is perceived or observed as new to a person or group of people used To achieve certain objectives in education or to solve educational problems.

Why innovation is needed in education

Since the end of the Second World War, all over the world both in the old and new independent countries, both the rich nation and the poor nation have undergone a very rapid expansion of education, along with it also happens Various issues and keisis in education, among others pleased with the shortage of funds, teachers, teaching materials and others except students. According to Philip H. Coombs in his book "The World Educational Crisis" (1968) there is four things that cause an educational crisis that is:

- a. Increased public aspirations towards education.
- b. Scarcity or shortage of resources supporting the implementation of education.
- c. Inertia or weaknesses contained in the education system.
- d. Inertia or weaknesses found in the society itself.

The four problems above are felt in the education system of Indonesia which, according to the effort of renewal or innovation to overcome.

Santoso S. Hamidjoyo stated that educational innovation is a reaction of expert education and development planning to pressure problems – social problems, economics and education issues itself that over time is felt increasingly heavier and urgent, which ranges in the following matters:

- a. Population pressure.
- b. Increased aspirations of the wider community towards education.
- c. Lack of resources – sources and components of education.
- d. The number of the education system.
- e. Not yet growing effective organizational tools.

Further affirmed that the challenges that demanded a variety of innovative efforts in education according to Yusup Hadi Miarso among others:

- a. Growing population and increasing people's desire to get education.
- b. The development of science that requires the fundamentals of solid education and the mastery of continuous ability.
- c. The rapid development of technology that makes it easier for people to dominate and utilize nature and environment.

From the above explanation can be presented, that which encourages the need to be implemented educational innovation is the problem or weakness that adadalam the education system itself and the problem factors that exist from outside the education system or existing In the community.

Yusuf Hadi Miarso grouped these issues into problems as follows:

- a. Input problem: Limited number of children who have opportunity to attend school, school level imbalance, number and quality of irrelevant teachers and curriculum that is not in accordance with the demands of development and development.
- b. Output problems: Quality and quantity of graduates that do not fit the needs and the number of very large drop out numbers.
- c. Structural problems; An inefficient system of administration and planning.
- d. To tackle and face the challenges and problems above should be done efforts and innovation strategy in the education system.
- e. The juridical reason for educational innovation.

Due to the increasing quality of education, it is hoped that there is an innovative idea in improving the quality of education in all types and levels of education. In connection with the expansion of opportunities, innovation is indispensable to enable the secondary education system to reach all school-age youths to gain learning opportunities.

Of these problems are increasingly difficult with regard to the rapid exploitation of science and technology has widened the gap between the developed countries and the state that is still building.

The efforts to resolve educational problems conventionally and traditionally have not been able to overcome the problems of education completely. While the development of modern technology, especially communication and information technology in the globalization era today has transformed the face of the world into a without a clear boundary. One of the most strategic efforts is innovation in educational technology, both in the sense of hardware (hardware) and in the sense of software (software).

Peran Fleksibilitas Inovasi dalam Pendidikan

Versatility (Flexibility) is the ability to adapt and work effectively in different situations, and with different individuals or groups. Flexibility requires the ability to understand and appreciate different and conflicting views on an issue, adjusting its approach due to a change of situation, and can easily receive changes in its organization.

Pranoto, (2009:135) has flexible meaning, easy and quick to adapt, while flexibility has the meaning of flexibility, ability to conform. The indicator of flexibility is:

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| 1. Unproductive on your own opinion or approach although there is a very clear problem, it maintains the same opinion; not consider someone else's opinion valid. |
| 2. Always follow the procedure |
| 3. Accepting the need to be flexible
a. Willing to change ideas or views based on new information or new conflicting evidence.
b. Memahami pandangan orang lain.
c. Melihat validitas dari pendapat orang lain. |
| 4. Apply rules with flexibility
a. Adjust normal rules or procedures for specific situations to complete a job and/or achieve organizational objectives. |

b. Do the tasks of colleagues who need to be assist in a situation that crisis.
5. Customise actions a. Perform adjustments to actions or behaviors based on situation to achieve organizational objectives. b. Take different responsibilities or assignments with job descriptions. c. Adapting tactics to existing situations.
6. Customize your own strategy a. Change the overall plan, goal, or project to match the situation. b. Make temporary changes to the company itself or the customer to meet the needs of a particular situation. c. Create a special position in the organization to accommodate corporate strategy.

If we want to develop the innovative capabilities of children and adolescents, then a special, new direction of education is needed: educational innovation. This chapter explains the fundamentals of educational innovation, which refers to the various educational interventions aimed at the identity of the education itself, namely developing, and transforming the child's talent into a mature innovation. It is a social act aimed at preparing children and adolescents to become adults. Such as education. Educational innovations refer to various educational interventions aimed at developing and transforming children's talents into adult innovations.

This means social actions aimed at helping children to become adult innovators. These educational interventions should include, but are not limited to, the following eleven elements:

1. Programs for talented and talented children who are in the field of talented education, which seem to be effective, and may be useful to many other categories of learners (e.g., Renzulli enrichment Program, the future Solving problem, Creative Problem Solving, the talented Youth Program Center, the Belin-vacant International Center for Gifted Education and talent development Program, and other programs, just to mention a few: Brody, 2009; Cramond, 2009; Cramond et al, this book.; Jones et al, this book.; Lyons & Reis, ini volume; & Reis, 2009; VanTassel-Baska & MacFarlane, 2009; Wallace, this volume).

2. The best Program of educational science and technology.
3. A new Program aimed at developing a closely related entrepreneurial talent for innovation.
4. Program for the development of children's metacognitive ability. Meaning special emphasis should be made on fostering their ability to carry out things: so-called tive ability executions. It is important for innovators, because innovation is about implementation of ideas into practice.
5. New Program, which should be based on the latest advances in scientific talent studies Nobel Prize winners.
6. Programs that will incorporate importance from research on polymaths.
7. New programs for the development of wisdom applied and moral responsibility.
8. Programs aimed at developing managerial talent.
9. Time management basics.
10. Foundations of Science Innovation: Common "know-what" and "science how" about innovation, including the fundamental psychological innovation, gap innovation, individual differences in principle of innovation, management innovation, just to mention some.
11. Courage-related issues. For innovators to succeed, courage is mandatory. It is sad that there is one teaching kids these days and teenagers to be brave in the pursuit between their unique EST and apply their new ideas into practice in the form of new products, processes, or services. Larisa, (2016).

Innovation in Learning to Improve Education Flexibility

Dictionary great Bahasa Indonesia gives boundaries, innovations as an entry or introduction of new things, new discoveries that differ from existing or well-known either in the form of ideas, methods or tools. From this sense it appears that innovation is identical to something new, whether in the form of tools, ideas or methods.

From the above description, versatility (Flexibility) is the ability to adapt and work effectively in different situations, and with different individuals or groups. Flexibility requires the ability to understand and appreciate different and conflicting views on an issue, adjusting its approach due to a change of situation, and can easily receive changes in its organization.

Our educational problems are indeed complex. Geographical factors (natural condition, people who mostly live in rural, even remote, so difficult to reach transportation) is an example of the quality gap between urban and rural/isolated areas. Other problems are the ability to access communication and information in the area, the lack of public awareness to send children (because of life welfare issues), inadequate teachers, and school facilities and infrastructure is very minimal.

These problems can be helped solved through the use of technology, especially ICT. It's time we have to start using ICT to accelerate the equitable access and quality improvement of education. In this case the political will demanded from the government, so it can create a conducive atmosphere. Through ICT, we can implement education with materials/materials that in addition to meeting the quality standards of the government is also available evenly and easily accessible throughout Indonesia.

On the other hand, students must be provided with facilities for easy access to teaching materials, without being limited by space and time constraints, as well as socio-economic constraints. In remote areas that cannot receive radio and television broadcasts, for example, the government can provide free-of-charge satellite antenna for access to education through satellites, so they can learn through radio broadcasts, educational TV, the Internet, and from audio/video modules and cassette tapes (e-Learning). E-Learning needs to be encouraged to remember from several surveys on the internet showing that e-Learning proved to be able to improve education quality over conventional ways.

1. ICT as innovation in learning

As outlined above, the innovation of learning is a new effort in learning to improve the quality of education. Examples of innovations in learning, such as learning approaches, learning media, learning aids, learning methods, curriculum, classroom management, and technology-based learning Known as ICT. In addition, learning innovation is also aimed at the professional teacher coaching model, lesson study, PTK (class action Research), micro teaching as a learning innovation.

The reason ICT is said to be one form of learning innovation because of the advancement in the field of information technology and communication that further revamp the concept of learning from conventional (tradisional) to technology-based learning , information and communication. The application of this information technology is as a

means to optimize student learning by constructing the knowledge, information and values that students can benefit in real life according to the development of the Times.

The defendant of education by AECT 1977

A very famous definition of education technology is the definition issued by AECT 1977, which mentions: Educational Technology is a complex, integrated process involving people, procedures, ideas, devices, and organization, for Analyzing problems and devising, implementing, evaluating, and managing solutions to those problems, involved, in all aspects of human learning. AECT, (1977:1)

Meaning: education technology is defined as a complex and integrated process, which concerns people, procedures, ideas, tools, and organizations to analyse issues relating to all aspects of human learning, designing, To implement, evaluate and manage such solutions.

While the latest definition of technology education is the definition of 2008 as a result of development from the previous region. The definition of 2008 has been more specific because it emphasizes on study and practice. The definition of education technology from AECT year 2008 is: "Educational Technology is the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological process and resources". Meaning education technology is the study and ethics of practice in order to facilitate learning and performance enhancement through the creation, use, and management of processes and resources adequately. Molenda, (2008:1)

Various Learning Technologies

To improve and improve the quality of education, Salisbury mentions the existence of five technologies that play a role in education change, namely system thinking, system design, quality science, change management and instructional technology. The five technologies are implemented in parallel so that the efforts to improve and improve the quality of education can be carried out well and the benefits can be felt. Molenda, (2008:3)

1. System thinking or thinking our system can see that change or improvement will have a big and thorough influence. Without thinking our system often makes mistakes. To improve the quality of education we must see the problem of education as a system. Through thinking the system we can see how problems are

interconnected and sometimes become the cause for others. Think systems are technology to look at the entire system and consider all factors related to the outcome. To view the entire system, we can see the internal and external factors. Internal factors, including learning, assessment, school climate, and curriculum. External factors include economics, markets, regulatory influences, and bureaucracy. To be able to improve and improve the quality of education should be considered such internal and external factors so that thus the entire system can be seen.

2. System design or designing a system is a set of methods and special activities to produce a new solution to a large problem. System design also includes the use of models as a way of describing new systems. All goods and services at this time that can make us comfortable and productive can be said to have been successful because it was created by people, companies or entrepreneurs who understand the needs and desires of customers and use the system design process to meet these needs.
3. Quality Science is a technology to monitor the processes in the system to ensure that the processes produce the desired results. Quality Science wants students, teachers and other employees to identify what is working and what is not. Quality Science also includes processes for planning remedial action. To fix some errors in the process so that the process can continue on time. Quality Science is an application of system thinking to manage and to produce goods and services that can fulfill customer satisfaction.
4. Change management is a technology that requires leaders to succeed in sponsoring, giving initiative and implementing changes in the organization. For changes to occur, everyone in the Organization must be able to understand the significance and actions in the rules as sponsors, lawyers, agents or targets.
5. Instructional Technology or Instructional technology is part of the information and communication revolution that delivers on the changes in almost every sector of our society today. Instructional technology is the design, development and utilization of effective technology for students. Multimedia equipment today is more effective and humane about the aspects of education than the use of long methods. Instructional technology is necessary to produce innovation and improvement in quality, productivity and customer satisfaction.

One of the problems of education that is a priority to seek immediate resolution is a matter of quality of education, especially the quality of learning. From the various conditions and potential, the efforts that can be done in regards to improving the quality of education is to develop learning technology that is oriented to the students' interest and facilitates the need for Cognitive development, effective and psychomotor.

Along with the development of education technology, the supporting infrastructure, efforts to improve the quality of education in the above among others can be done through the use of such educational technology in a system known as Multimedia learning lined with both CBI and online learning. CBI and online learning is a system that can facilitate educators and participants to learn more broadly, more and also varied. Through the facilities provided by the system, students can study independently, anytime and anywhere without limitation by space and time. The material they can learn is also more varied, not only in the form of word feed, but can be richer With text, visuals, audio and animation variations.

Various Media and teaching technologies

Prawiradilaga, (2008:67) Learning Media is an instrusional component that allows messages, people, and equipment to be used. According to Syaifulbahri Djamarah and Aswan Zain, the media is an attraction of information distributor of learning or information message. In the development of learning media follow technology development. Based on the development of the technology, learning media is grouped into four groups:

1. Media hasil teknologi cetak

Print technology is a way to produce or convey materials, such as books and static visual materials, especially through the process of printing mechanical or photographic. Media groups of print technologies are: text, graphics, photographs or photographic representations.

2. Media results Audio-visual technology

The Audi-visual technology conveys material by means of mechanical and electronic machinery to present audio-visual messages in a clear audio-visual teaching presentation characterized by the use of hardware during the such as, film projector machine, tape rekorder, wide visual projector

3. Media Based on computer technology

Computer-based technology is a way to produce or convey material using sources based on micro-processors. A wide range of computer-based technology applications are known as Computer assisted instruction. The application when viewed from the way of the preparation and objectives that want to be reached covering the tutorial, material presentation gradually, drills end practice exercises to help students master the material that has been learned before, games and Simulation (Practice to apply new knowledge and skills learned from, and databases (sources that can help students add information and ignorance according to their respective wishes).

Karakteristik media hasil teknologi yang berdasarkan komputer:

- a. Can be used randomly, non-sequential or linearly.
- b. Can be used as students or designers want.
- c. Ideas presented in abstract style with symbols and graphs.
- d. Principles of Cognitive Sciences to develop this media.
- e. Engage with students and involve high student interactivity

4. Media of the combined technology of print and computer technology

Combined technology is a way of generating and delivering material that combines the use of multiple computer-controlled media. Computers that have great capabilities such as a large number of random memory access, large hard drives, and high-resolution monitors coupled with parallel (additional tools), such as: Disk player video, hardware to join in Network and audio Systems.

- a. Can be used randomly, sequentially, linear.
- b. Can be used according to students ' wishes, not only planned and desirable by the designer.
- c. Ideas are presented realistically according to the student's experience, according to what the student has to do and under the control of students.
- d. The principles of cognitive and constructivism are defined in the development and use of lessons.
- e. Learning is laid out and centered on cognitive sphere so knowledge is mastered if knowledge is used.
- f. Lesson materials involve interactive students.
- g. Lesson materials combine words and visuals from various sources in addition to the division there is another division of media learning by type, power, and material.

III. CONCLUSION

Innovation is an idea, an item, an event, a method that is perceived or observed as a new thing for a person or group of people (society), whether it is the results of invention and discovery. Innovations are held to achieve a specific goal or to solve a particular problem. Versatility (Flexibility) is the ability to adapt and work effectively in different situations, and with different individuals or groups. Flexibility requires the ability to understand and appreciate different and conflicting views on an issue, adjusting its approach due to a change of situation, and can easily receive changes in its organization.

Our educational problems are indeed complex. Geographical factors (natural conditions, people who mostly live in rural, even remote, so difficult to reach transportation) are an example of the quality gap between urban and rural/isolated areas. These problems can be helped solved through the use of technology, especially ICT. It's time we have to start using ICT to accelerate the equitable access and quality improvement of education. In this case the political will demanded from the government, so it can create a conducive atmosphere.

Advice

In writing this paper is certainly the author is far from perfect, hence the criticism and advice that supports from readers very authors need to improve in the subsequent writings.

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