Semantic Thinking Guide Uses Learning Design Principles in Developing Course-Sites in Hylearn for Lecturers

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Abstract-*The purpose of this study was to produce Microlearning regarding the development of the Semantic Thinking Guide Using the Principles of Learning Design in Developing Course-Sites in Hylearn For Lecturers. The flow of this research uses the Rapid Prototyping model as a research reference, while Rapid Prototyping is the development stage of the ADDIE model by combining several steps together to streamline the development process. Rapid Prototyping should not be used by beginners, because experience and mastery of knowledge are needed in cutting ADDIE steps. The results of this development research are products in the form of Semantic Thinking Guides Using Gagne's Learning Design Principles The Nine Event of Instruction in Developing Course-Sites in Hylearn For Lecturers applying blended learning. The target of this development research is active lecturers in the Faculty of Education, State University of Jakarta.*

Keywords: blended learning, Nine Event of Instruction, Semantic Thinking, Learning Design Principles.

I. INTRODUCTION

The evolutionary journey of the elearning web in Education Technology Study Program continues. Ten years after the birth of web-bali.net in 2009, many LMS / LCMS platforms were examined in various studies by the online learning development team at Education Technology Study Program, starting with Claroline, an open-source LCMS platform. Based on the reasons for following the pedagogical experience and the needs of these instructors, Claroline was chosen as the first platform used by the Educational Technology Study Program of the Faculty of Education, Jakarta State University. But in its development, the Claroline Platform was no longer developed by its creators.

Desire wants to continue to use the open-source platform, the Educational Technology Study Program then uses the Chamilo Platform as a substitute for Claroline. However, using the Chamilo platform is not so long, in 2017 the Educational Technology Study Program began to study other platforms that could be utilized more optimally in the online learning process, until finally the Totara Platform was established as the last platform to be used. Because the use of the Totara Platform is considered new, and has a slightly different pattern from the other platforms that have been used before, it found difficulties for lecturers in completing this online-based learning. Imbar (2018) in his research developed a guide that can be used by lecturers in developing Online-based learning using the Totara Platform for lecturers in the Microlearning format. Microlearning is learning carried out with a very short duration. However, even though there have been several Microlearning, the lecturers at the FIP UNJ still have difficulties in interpreting / developing the course-site.

Regarding the needs of lecturers in the UNJ FIP environment, it was identified that a "material development guide" was needed to be included in Hylearn because the lecturers were still not used to transforming face-to-face lecture material into the course site. On the basis of this need, it is necessary to develop a semantic thinking guide using learning design principles in developing a course-site in Hylearn for Lecturers of the Faculty of Education, Jakarta State University. Why think semantically? Because lecturers as course creators must be able to sort out the face-to-face learning components commonly used in the Learning Design, which then links them to the features or tools available on the platform before continuing the stage of writing online learning material on the site.

II. LITERATURE

Semantic Thinking, Semantic in KBBI Online is the science of the meaning of words and sentences; knowledge of subtleties and shifts in the meaning of words, or in other words semantics is learning about meaning. Related to online learning Prawiradilaga in his book Mozaik Technology Education: E-Learning, those who develop the content of online learning must at least learn the ability to design learning and at the

same time they must be able to think semantically to find meaning or equality of understanding in the context of online learning. More specifically, Prawiradilaga reveals that semantic thinking is the ability / potential of a learning designer to translate, interpret or interpret the facilities presented through a platform in order to form a virtual learning system. Semantically means finding the closest meaning, looking for similar effects, and using structures with desired conceptual functions, this is in accordance with the following expert opinion:

> *"A perennial problem in* **semantics** *is the delineation of its subject matter. The term meaning can be used in a variety of ways, and only some of these correspond to the usual understanding of the scope of linguistic or computational semantics. We shall take the scope of semantics to be restricted to the* <u>literal</u> *interpretations of* <u>sentences</u> *in a context, ignoring phenomena like* <u>irony</u>, <u>metaphor</u>, *or* <u>conversational implicature</u>*." (Stephen G. Pulman, "Basic Notions of Semantics." SRI International, Cambridge, England). (*Nordquist, Richard. 2019)*

In online learning, it is not a technological aspect that is a major concern for a lecturer in developing a course site, but how to interpret information or knowledge in digital format is the main thing. Knowledge cannot be stored in computers; it can be stored in the human brain (Davenport and Prusak, 2000; Lytras, et al., 2002), knowledge is what power knows; There is no knowledge without someone knowing it. Knowledge is information combined with experience, context, interpretation, reflection, intuition and creativity. Information, which can be stored in computers, becomes knowledge once it is processed in the mind of an individual. This knowledge becomes information again once it is articulated or communicated to others in the form of text, computer output, spoken words, or written words or other means. (Nordquist, Richard. 2019)

Technically, semantic thinking in developing online learning using the LCMS platform can be seen in the following stages:

Figure 1. The Semantic Thinking Process for LCMS

The Existence Dimension is defined as the LCMS technology ecosystem that is used with all the potential contained in it such as features along with the authoring tools that are owned. It is important to look at what platforms are used by online learning designers because currently according to the EduTechWiki page a trusted wiki collaboration page managed by the University of Geneva (http://edutechwiki.unige.ch) says that there are dozens of platforms in the internet. identified even hundreds more that have not been exposed to research either commercially licensed, free / open-source or web-services.

Next is the **Function dimension**, which is the actual function of the use of the features or tools owned by the platform. Knowing the basic functions of each button and navigation in the platform must be well understood, for example a graphical icon in the form of a folder usually functions for file storage directories on the platform, this is like understanding the same functions in learning devices such as classroom cabinets for storing teaching materials and its kind.

Role Dimension, this is where semantic thinking skills in developing online learning are needed. This dimension works just like giving "real world" meaning to "cyberspace", for example when a designer is faced with a feature in a virtual class called "Quiz" then it can be interpreted as a pre-test, post-test or can be used to present summative test at the end of the learning process if needed.

Principles of learning design Robert Gagne is an educational psychologist known for his study of learning design, approaches, and learning methods. One of the learning theories developed by Gagne is the Nine events of Instruction or nine learning activities (see Table 1). Nine learning activities are one of the most commonly used learning models in e-Learning.

The following table outlines Gagne's Nine Events and the corresponding cognitive process it fuels. (Gagne et al., 2005).

Table 1. Outlines Gagne's Nine Events and the corresponding cognitive process it fuels.

INSTRUCTIONAL EVENT	Relation to Learning Process
Gaining attention	*Reception* of patterns of neural impulses
Informing the learner of the objective	Activating a process of *executive control*
Stimulating recall of prerequisite learned capabilities	*Retrieval* of prior learning to working memory
Presenting the stimulus material	Emphasizing features for *selective perception*
Providing learning guidance	Semantic *encoding*; cues for retrieval
Eliciting performance	Activating response *organization*
Providing feedback about performance correctness	Establishing *reinforcement*
Assessing the performance	Activating *retrieval*; making reinforcement possible
Enhancing retention and transfer	Providing cues and strategies for *retrieval*

Gagne has developed nine steps that are tailored to apply to online learning, this theory was developed in a very detailed but simple manner, so that it can be utilized properly when developing a course site. As a learning designer, a lecturer in developing course sites must think in many perspectives, as material experts, learning experts, or as students. As a learning designer, the application of nine events can be seen or interpreted as follows:

EVENT	INSTRUCTIONAL DESIGNER PERSPECTIVE	LEARNER PERSPECTIVE
1	Gain attention of the students	Focus my attention on the learning task
2	Inform students of the objectives	Tell me why I'm here and what I'll learn
3	Stimulate recall of prior learning	Give me context
4	Present the content	Tell me what I need to know or do
5	Provide learning guidance	Show me how to do it
6	Elicit performance	Let me try it myself
7	Provide feedback	Tell me how I'm doing
8	Assess performance	Hold me accountable for learning
9	Enhance retention and transfer to the job	Help me turn my learning into real-world results

Figure 2. The viewpoint of the nine event theory (Nordquist, Richard. 2019)

With this difference in viewpoint, a lecturer must be able to interpret or think semantically in developing his course online.

III. METHOD

Referring to the literature review method, this article adheres to the search for reliable references about the general theory of learning design, Gagne 9 events of instruction and the semantic thinking process for LMS. The two theories are the basis of the author to try to answer the possibility of problems that arise related to the difficulties of many teachers in designing online learning.

IV. DISCUSSION: SUGGESTION HOW USING THE TOOLS

We'll now look at each of the nine activities, and provide an example of how it can apply each step in own situation with Totara platform.

activity 1: *Gaining Attention* (Reception), Start the learning experience by gaining the attention of the audience. This change in stimulus alerts the group that learning will soon take place. *Apply*: Using a poster on the front page that contains the title of the course, who is the lecturer, how much credit is the course and other information. Of course, using images contains dynamic colors and the use of text that has a high level of readability will be clearly seen by students. For gaining attention like this tool pages can be used by simply uploading and pasting previously processed images into the HTML page tool. Another way is by showing videos in the form of examples and non-examples related to the material to be studied. How do you display it? More or less the same as inserting a poster image above, but this time simply copying the URL and pasting it on the HTML page of the existing video streaming site.

activity 2: *Informing Learners of the Objective* (Expectancy), Next, you must ensure that your students knows what they need to learn, and that they understand why they're about to learn this new information. *Apply:* explain learning objectives can be done more casual than before when face to face. Can by recording video the lecturer delivers it, creates a poster image or simply writes it on the page tool page.

activity 3: *Stimulating Recall of Prior Learning* (Retrieval), When the students learn something new, match the new information with related information or topics they've learned in the past. *Apply*: Review any previous learning that you've done with your class, and apply it to what they're learning now. Also, ask your students if they have any previous experiences with the topic, or if they have experienced the problems that the learning is trying to resolve. Then make connections between what they are learning, and their previous learning.

activity 4: *Presenting the Stimulus* (Selective Perception), Present the new information to the class in an effective manner. *Apply:* Organize the information in a logical and easy-to-understand manner. Try to use a variety of different media and styles (such as visual cues, verbal instruction, and active learning) to suit people with different learning styles. Here the selection of media formats is determined by the type of material and the learning objectives to be achieved. For example, if the learning goal is knowledge in the form of a procedure to do something, the suitable media format is the video format.

activity 5: *Providing Learning Guidance* (Semantic Encoding), To help the students learn and retain the information, provide alternative approaches that illustrate the information that trying to convey. Apply: Help your students learn more effectively by including examples, case studies. graphics, storytelling, or analogies.

activity 6: *Eliciting Performance* (Responding), At this stage, lecturers need to ensure that the students can demonstrate their knowledge of what been taught them. The way that they show this depends on what they're learning. *Apply*: If it taught a new process or skill, ask the students to demonstrate how to use it by role playing exercises can be useful for this and do not forget to ask students to recorded and submit the video's as an assignment. If it taught new information, ask questions so that they can show their knowledge, using the quiz tool can do for this.

activity 7: *Providing Feedback* (Reinforcement), After the students demonstrates their knowledge, provide feedback and reinforce any points as necessary. *Apply:* imagine after the video was submitted by students, it was seen that there was a group of students who had not shown optimal results, with the right touches such as suggesting improvements through forum tools and direct feedback on the submit page that could make students return to enthusiasm.

activity 8: *Assessing Performance* (Retrieval), the students should be able to complete a test, or other measurement tool, to show that they've learned the material or skill effectively. The students should complete this test independently, without any help or coaching from lecturer. *Apply:* using quiz tool given Tests, short questionnaires, or even essays can be good ways of testing the students new knowledge. It may also be useful tip's to provide further feedback after you have assessed their performance.

activity 9: *Enhancing Retention and Transfer* (Generalization), In this last stage, the students show that they've retained information by transferring their new knowledge or skill to situations that are different from the ones the lecturer give them on. *Apply:* Repeated practice is the best way to ensure that students retain information and use it effectively. Make sure that the students has enough opportunity to use their learning on a regular basis. Schedule "practice the technic" if you've been learning on a new process, or have a follow-up session to review information or skills using the broadcast email can effectively done it. As people become more proficient, schedule in variants of the practice technic and expose students to different situations, so that they become comfortable generalizing.

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