DESIGN OF LEARNING MEDIA
WITH VISUAL COMMUNICATION DESIGN METHODOLOGY

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Abstract : This paper is the result of research entitled 'Designing Learning Media Based on Information Technology' which aims to design / create prototype multimedia instructional media software, where the product is finally recorded in DVD disc with certain protection system. The methodology applied in the research is a 'design research methodology' covering three stages: analysis, synthesis, and evaluation. In the analysis process, identification and analysis of the story board of each section of teaching materials to adjust the learning objectives, as well as identification of key factors related to the media production techniques. In the synthesis process, organizing and compiling the database (interactive programming), as well as improvements according to recommendation/input from evaluation result, to produce software system with security system. Evaluation is done by trial and product verification based on problem identification and learning objectives. The benefit of this research is to make it easier for teachers in universities in the learning process of the subjects that are managed, and can also be used by the parties who need it. Furthermore, the systems, methods, and patterns that have been generated can be expanded-apply to other courses.

Keywords: design, visual communication design, instructional media, teaching materials.

PRELIMINARY

Current technological advances and developments have led to new 'functions' in Information Technology, which are not limited to writing, drawing, computing, or processing simple data, but furthermore producing multimedia 'products'. Therefore, basically IT tools such computer can be utilized as one of the 'tools' in the learning process (see Jogiyanto, 2003), that is as a learning media in order to complete the teaching materials that have been prepared. Thus, the face-to-face method applied by the teacher in delivering/explaining the teaching materials can be equipped with the aids tool in the form of software learning media system, so that the implementation of the learning process can be implemented efficiently and effectively, and also able to create an active learning atmosphere in the classroom (see Sudjana, 2008).

Therefore, the design of instructional media, in principle can be done by processing and incorporating all teaching materials in a database system in a computer device, which then processed in a database organization, so that later can be displayed on the projection screen. Where all teaching materials can be made in such a way with a visual display that is customized based on reference content and objectives of teaching materials, to be relatively more easily understood by learners/students who are the target audience in terms of Visual Communication Design. In other words, the design of instructional media can be done by Visual Communication Design methodology which has its own specific and special way, where the procedure follows the general design methodology. However, special attention should be paid to the design that has been made, should be carefully considered and tested and verified properly to fit and be able to achieve the learning objectives that have been set. So before the design results (product prototype) implemented in the learning process, it is necessary to do some testing and verified by experts and lecturers concerned.

The resulting learning/instructional media is not intended to replace the role of teachers in the learning process, but only as a 'tool' complement to facilitate teachers in conveying information in the form of teaching materials to learners/students. With the learning media is expected teachers can provide a relatively more 'rich and detailed' for each section of teaching materials in the classroom teaching. In addition, the teacher no longer needs to write and or describe it on the white-board that will take time. Teachers may not even be able to provide illustrations of images accurately and appropriately in a short time, so 'vulnerable' misunderstanding by learners/ students to the teaching materials presented in the learning process.

DESIGN METHODOLOGY

Design is a collection of process activities carried out in stages with a special methodology, which in the process involves various factors that must be considered related to the theme of the problem or emergent that aims to find solutions/answers in a comprehensive manner. Therefore, in the activities of designing instructional media, factors related to learning become very important, especially the purpose of teaching materials presented in a subject/lesson, where in designing this learning media involving various science and skills, or can said to require a variety of disciplinary experts and not just handled by experts in the field of fine arts only.

Many people think that designing is just a drawing (static) activity on a flat surface (two dimentional) or making moving images (animation) using technological equipment, or in other words just to create visuals. Whereas drawing or visualizing in the field of design is just one part of the whole set of designing processes, in which the resulting 'drawing-design' is one of the 'effects' of the 'designing process', not the main purpose of designing. Although it must be admitted that in the realm of art (the design is understood as part of art), the final result of the design process is design drawing, but the resulting drawing must be a comprehensive solution capable of providing solutions from topics discussion. Thus a careful and intelligent solution can only be produced by performing a gradual and

systematic design process with the correct design methodology. Basically designing is a process that involves a tool for processing (*information*) and a processed subject (*problem*), as well as a processor (*designer*). To process sufficient information, such as technical, market, user nature, location, etc.; the subjects processed must also be properly identified and understood. In addition, the processor, in this case the designer, needs to have sufficient quality to be able to process the information input. In the process of designing, the element of 'invent' is very important, even the finding element is the core of design (Widagdo, 1995: 33-34; see also: Ely, 1978; Baker, 1979 Briggs, 1979).

Design is concerned with functional problem solving, while the functional problem can be quantified, then the design can be approached based on the method and philosophy called 'design research methodology'. Until now talk of methodology in design is still a matter of debate. While the argument argues that what is important in the methodology is to recognize the problem that causes a design to be demanded, because with the introduction of a thorough problem one can articulate alternative models of the solution, while the decision issue lies in how the criteria are. There are others who doubt the validity of the methodology, since the design seeks 'novel form' rather than 'right form', so the role of intuition is dominant, even that 'tacit' intuition can mask a rational evaluation. The design method as a design research procedure is explained by describing the system in the design, by the procedure: Analysis → Synthesis → Evaluation. In the process of analysis the task of the designer recognizes and analyzes all problems relating to technical, commercial, production, distribution and ergonomics functions; in the synthesis process, designers seek and develop models; then the results achieved in-evaluation based on predetermined goals (Zainuddin, 1995). Further explained by C. Jones in the book 'Design Method', that Criteria For Design Project Control: (1) Identification and Review of Critical Decisions; (2) Relating the Costs of Research and Design to the Penalties for Taking Wrong Decisions; (3) Matching Design Activities to the Person who are Expected to Carry Them Out; (4) Identifying Usable Sources of Information; and (5)

Exploring the Interdependency of Product and Environment (Jones 1978: 57-58).

While Nigel Cross (1984) explains that the mind moves from problem analysis to solution-seeking whenever it feels the need, the recording develops in three distinct stages: (1) *Analysis*: List of all design requirements and the reduction of these to complete set of logically related performance specifications; (2) *Synthesis*: Finding possible solutions for each individual performance specification and building up the complete compromise; and (3) *Evaluation*: Evaluating the accuracy with which alternative design fulfill performance requirements for operation, manufacture and sales before the final design is selected (Cross, 1984: 11).

Based on the above description then the stages in the design can be described as follows (see figure 1):

- *Input* is the initial stage in collecting data related to the problem.
- *Process analysis*. The stage in which all the data collected is carefully analyzed and establishes the objectives to be achieved, by identifying and analyzing the problem. Furthermore, identifying and analyzing determinant factors related to production techniques
- *The synthesis process* is the stage of finding and defining a design concept that contains the solution of the problem based on data analysis has been done. In *the creative process*, exploring creative ideas and organizing its elements in a harmonious and aesthetic composition.
- Evaluation is done by presenting the resulting product to further verify based on the identification of the problem and the objectives to be achieved.
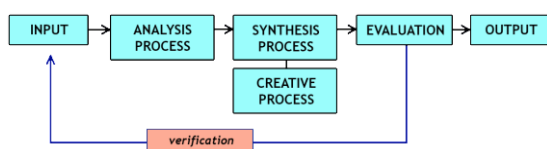- *Output* is the final product after verification.

Figure 1. Schematic of the design process

VISUAL COMMUNICATION DESIGN APPROACH

In essence, communication is a process of delivering information (messages, ideas) from one party to the other. In everyday life, in general communication is done orally or verbally that can be understood by both parties. But if there is no spoken or verbal language that can be understood by both, communication can still be done by using body movements (body language), showing certain attitudes, such as smiling, shaking his head, shrugging, and so forth. This way is called nonverbal communication. This nonverbal communication can be done with any posts, images, or symbols that are understood by both parties. To better recognize and understand the meaning of communication, it should also be known components of communication or things that must exist for communication can take place properly. According to Harold Laswell (in Littlejohn, 2001: Theoties of Human Communication), the communication components consist of: (1) *The sender or communicator* is the party sending the message to the other party; (2) *Message (information)* is content or intention to be submitted by one party to other party; (3) *Channels* are media where messages are delivered to the communicant. In the interpersonal communication (face-to-face) channel can be air that drains vibration tone/sound; (4) *The recipient (the communicant)* is the party receiving the message from the other party; (5) *Feedback* is the response of the receipt of messages over the contents of the message delivered; and (6) *Protocol* is a rule agreed by the communicators about how the communication will be executed.

The development of instructional design is influenced by the instructional design procedures, but the principles generally derive from the communication aspects in addition to the learning process. Its development is in addition influenced by communication theory also by theories of auditory and visual processes, the process of visual thinking, and aesthetics (see Briggs, 1979; Harjanto, 2008; and Hofstetter, Fred T., 2001). Thought theory is very useful in the development of learning materials especially in finding ideas for visual treatment. Visual thinking is an internal reaction. This visual thinking includes more mental image manipulations and censorship and emotional associations than any other stage of thinking, where visual

thinking is a figurative and subconscious mind activity. Visual thinking requires the ability to organize shadows around the visual elements used to create visual statements that have a major impact on the learning process of people of all ages. The application of visual learning theory focuses on visual design which is an important part of the various types of learning that use the media, by applying the aesthetic principles in visual design (setting, balance, and unity). Meanwhile, the principle of visual communication also provides a fundamental direction in the development of learning materials. These principles are used as guides in designing and editing graphs, both static and dynamic or animated (see Seels, 1993).

Therefore, in designing instructional media can be done with Visual Communication Design approach, where the field of Visual Communication Design science, is a field of science that aims to find solutions (problem solving) in the realm of visual communication, with its own methodology done through systematic process, namely by processing/ arrangement of visual elements in a typical alloy into "visual language" that attracts interest/ attention, aesthetic and capable/easily understood; where the "visual language" is an implementation of the content/message/information to be communicated to the target audience that the target of communication. Furthermore, the content/messages/information in the form of "visual language" is communicated by using certain *channels* or *media* that are adapted to the socio-cultural existence that surrounds the target audience so that the purpose of delivering the message/information can be efficient and effective.

As we know, that in the learning process there are messages that must be communicated to learners. The message is the content of a topic of learning (ie a teaching material). Learning process will occur when there is communication between the recipient of the message with the source message through a particular media. The position of media in learning is as a component or an integral part of learning, whose presentation can be tailored to the defined learning objectives. The presence of media in the learning process is very helpful for learners in understanding the things they learn (Shikabuden, 2005). In the context of designing instructional media with

Visual Communication Design approach, in brief the process of communication can be described as follows:

1) *Communicator (sender)* represents the teacher as a messenger, which aims to communicate by sending a message/information (in the form of teaching materials) to the learners as the target audience (receiver). Consequently, the teacher should prepare the entire teaching materials and set the learning objectives first

2) *Information/message* is a teaching material that will be delivered to learners as the target audience. This information can be in the form of text, images or symbols understood by both parties. If the teaching material is processed visually (text, image, or symbols) then the style of appearance should be tailored to the characteristics of the learners as the target audience.

3) Information/messages are conveyed through a *channel* indirectly, namely through a certain media as a 'tool' that conveys messages from communicators (teachers) to the communicant (learners).

4) *Communicant* receiving information/ message (teaching material) is the learners as *the target audience*, which will translate the contents of the message it receives into the language understood by the communicant itself. By adjusting the characteristics of the target audience based on geographic, demographic, psychographical, and behavior analysis (see Kotler, 2009), the visualization style of the teaching materials can be tailored to the target audience, so that the learners can understand the learning process effectively and efficiently. the learning objectives that have been set can be achieved well.

5) *Feedback* occurs when the learner (the communicant) responds to the message it receives, whether he understands the message (teaching material) intended by the sender (teacher), in accordance with predetermined learning objectives.

6) *Protocol* is the rules that have been agreed upon by both parties in the context of learning process activities.

So the scheme of its communication components in the context of Visual
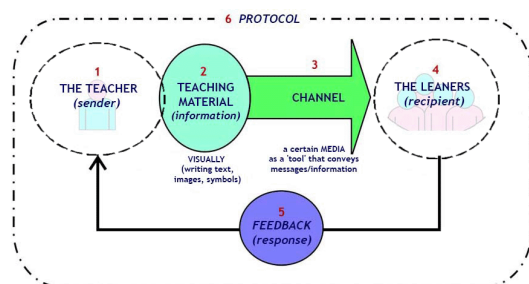
Communication Design can be described as follows:

Figure 2. The scheme of its communication components in the context of Visual Communication Design.

In its development, Visual Communication Design has three basic functions (Cenadi, 1999:4), namely: (a) *As a Means of Identification*. The main basic function of visual communication design is as a means of identification. A person's identity can tell who it is, or where it came from. Similarly, an object, product or institution, if it has an identity will be able to reflect the quality of the product or service and easily recognizable, both by both the producer and the consumer. If visual communication design is used for the identification of a particular course, then it is easier for people to determine the characteristics and scope of teaching materials summarized in it; (b) *As a Means of Information and Instruction*. Visual Communication Design essentially aims to show the relationship between a thing with other things in the direction, direction, position and scale, for example maps, diagrams, symbols and direction. Information will be useful when communicated to the right people, at the right time and place, in understandable form, and presented in a logical and consistent manner. Symbols we encounter daily such as signs and traffic signs, symbols in public places such as public phones, toilets, restaurants and others must be informative and communicative, readable and understandable by people from different settings back and circles. This is again one of the reasons why visual communication design should be universal; and (c) *As a Presentation and Promotion Means*, that is to convey a message, get attention from the eye (visually) and make the message memorable; for example a poster. The use of images and words required very little, has a meaning and impressive.

Generally, to achieve this goal, the images and words used are persuasive and interesting.

Thus, in the context of designing instructional media, the position of Visual Communication Design serves *as a means of information and instruction*, where the information and instructions intended here is the teaching materials that will be delivered to learners. However, it should be realized that the design of instructional media created by the approach of Visual Communication Design is not intended to replace the teaching position in the learning process, but only as a 'tool' or intermediary/medium that can be used by the teacher so that the learning process can run effectively and efficient in achieving learning objectives. Although the Visual Communication Design approach is not the only way to create/produce a learning medium, but if the approach is applied it needs to be understood (even mastered skillfully) that there are elements in designing a Visual Communication Design work, among others:

a) *Layout*. Layout is an arrangement made on a book, magazine, or other publication form, so that the text and illustrations match the expected shape. Layout also includes all forms of placement and arrangement for edge notes, drawing, border placement, size placement and illustrative form, or can be categorized as layout creation is an activity of assembling certain elements into a good composition, so as to achieve the goal.

b) *Typography*. Some types of letters impress certain nuances, such as the impression of heavy, light, strong, soft, beautiful, and other traits or nuances. The art of choosing letters, from the hundreds of available designs or font designs, combines them with different fonts, combines a number of words corresponding to the space available, and marks the script for typesetting processes, using different thickness and letter sizes. Good typography leads to legibility and attractiveness, and the design of certain letters can create styles and characters or be characteristic of the subject devoted (see Jefkins, 1997).

c) *Illustration*. Illustrations can reveal something faster and more effectively than text. Illustrations in visual communication design work are divided

into two, ie hand-produced illustrations or images and illustrations produced by camera or photography. Illustrations have the ability to help communicate the message precisely and quickly and to reinforce it as a translation of a title, so as to form an emotionally charged atmosphere, from the idea as real. Illustration as a picture of an unreadable message and can parse the story in the form of images and writing in the form of graphic information that lure. By illustration, the message becomes more memorable, because the reader will be easier to remember images than words (see Kusmiati, 1997).

d) *Symbolism*. Symbols are very effectively used as a means of information to bridge language differences that are used because of their universal nature rather than words or language. An example of a more complex form of symbol is the logo. Logo is the identification of a company because the logo must be able to reflect the image, purpose, type, and objectivity to be different from others.

e) *Color*. Color is an important element that can affect a design. Color selection and processing or merging with each other will be able to give a distinctive impression or image and have a unique character, because each color has different properties. Color is one visual element that produces visual appeal, and in fact the color is more attractive to emotions than reason.

f) *Animation.* The use of elements of motion or called animation, especially in multimedia will create an impression for the viewer, so it can support the display more dynamically. Based on the technical manufacture, the animation is divided into two, namely: *2D animation*, which impressed flat, both the character and color; and *3D Animation*, are created characters that can be viewed from various angles of view and the impression of depth or dimensionless space.

g) *Sound*. Sound is a supporting element that is used to further enliven the atmosphere of interaction. In interactive multimedia, the voice is divided into two, namely the main voice and supporting sound. The main sound is the voice that accompanies the user during the interaction takes place, while the supporting sound is the sound contained in the navigation buttons.

CONCLUSION

One way of designing a learning medium can be done with Visual Communication Design methodology with reference to the overall content of teaching materials and learning objectives. This Visual Communication Design Approach follows the procedure of designing activities, namely: (1) *input stage*, collecting all teaching material and setting learning objectives; (2) *the analysis process*, analyzing each section of the teaching materials and identifying the related problem and determinant factors; (3) *synthesis process and creative process*, that is finding/setting solution accompanied by the process of exploring visualization ideas and arranging the visual elements in a harmonious and aesthetic composition. In the process of synthesis and creative process, done by considering: the layout of the applied elements, the use of tiporafi, graphic illustrations and symbols capable of displaying the content of teaching materials, application of colors, the use of elements of motion (animation) to support the display the content of the teaching materials, and the sounds used to animate the atmosphere. So it can be said that at this stage basically doing visualization activities to the whole or part of teaching materials; (4) *evaluation stage*, that is evaluation of result which have been achieved by doing verification to wetness and learning objectives. Usually, in evaluating there are various things that have not been in accordance with the intended purpose, so that needed improvement/refinement; (5) *output*, is the final product produced after making improvements at the evaluation stage.

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