

THE INFLUENCE OF HYPERTEXT-BASED HISTORY TEACHING METHOD TOWARDS THE INCREASE OF HISTORICAL UNDERSTANDING

Muhamad Arif¹

ABSTRACT

This study was aimed at gaining a comprehensive overview of the influence of hypertext-based history teaching method towards the increase of historical concept understanding. The method used in the study was experimental method, i.e. through non – equivalent control group design (pre-test and post-test). Some points were concluded from the data collected within the study. First, the implemented hypertext-based history teaching model had affected learning activities to focus more on mental activities (thinking process). The whole teaching learning activities benefitted the students a wide chance to study, observe, compose, deliver the questions, answer them, consider others' view, discuss questions by relating them with textual concepts, and make conclusion together. Second, the hypertext-based history teaching model test showed was proved to that the influence the increase of historical concept mastery was increased by n gain of 0.5 at the experimental class, 0.4 at the control class, with significance value of 0.00 and $\alpha = 0.05$

Key word: *hypertext-based history, historical understanding*

Introduction

In an occasion, Sartono Kartodirdjo, once, reflected that the knowledge and the awareness of history could be used for national building (Media Indonesia, Tuesday, August 16, 2005). Unfortunately, the subject has not been functioned well. Furthermore, generally people/students interest towards history are low or even none. The statement also confirms that to the present, the history teaching at school level still has problems. The achievement reached in the subject is still poor.

More concern in this, there are at least two problems impeding the achievement on the subject, namely: (1) the lack of students' motivation in learning story, (2) the scarcity of sufficient innovative steps in conducting the teaching and learning of history that cannot keep up with the fast changing of social life.

Essentially, the lack of students' motivation as has been stated above shows that there's still no serious attention on the teaching of history, which affecting the

¹ **Dr. Muhamad Arif, M. Pd.**, lecturer at the Departement of Social Studies, UIN Syarif Hidayatullah, Jakarta. This article has been reviewed by Prof. Dr. Rochiati Wiriaatmadja, M.A and Prof Said Hamid Hasan, M.A (Indonesia University of Education).

student's lack of motivation. The teaching materials comprising events pertaining to the question of what, where, when, who, why and how are often presented in a dull way and lack of the subject value.

Relating to the history teaching, Garvey and Krug convey that the teaching of the subject is mainly an activity to help students, which are not merely about the mastery of subject matter, but also about the development of students' emotion and intellectuality. Pertaining to this, history can also be defined as: (a) an activity to master the knowledge of historical fact, (b) an activity to achieve the understanding or appreciation towards past events, (c) an activity to acquire ability to evaluate and criticize historical writing, (d) an activity to study the historical research method, and (e) an activity to find out how to write history well (1977: 1-2).

As one of the components in social science education, **since earlier on to the present** to the present, history has been presented in a minimum way, i.e. by using conventional method as of speech, question and answer, task giving, etc. The method conducted in a minimum way has made the subject a dull and uninteresting subject. The fact is very ironic and irrelevant with the objective of social studies as has been formulated by NCSS as follows:

The primary purpose of social studies is to help young people develop the ability to make informed and reasoned decisions for the public good as citizens of a culturally diverse, democratic society in an interdependent world (1994: 3)

Pertaining to the scarcity of accommodating innovative steps in teaching history that cannot follow the fast changing of social life, Siregar states that the instructional theory applied to these days seems to be unable to handle the teaching problems particularly in transferring complicated knowledge. In general, instructional theories do not have basic assumption on subject-material structure causing the lack of teachers' ability in developing teaching methods that can directly keep up with material complexity (2003:3)

The above problems remind us that reformation steps in history teaching design is a big agenda that should be continuously done kept doing. Concerning on this, Somantri formulates some characteristics of social studies reformation as follows:

- a. The subject materials should be more concern on students' need and interest
- b. The subject materials should be more concern on social matters
- c. The subject materials should be more concern on thinking skills, especially investigating skills.
- d. The subject materials more concern on the maintenance and the use of environment.
- e. Human basic activities can be reflected in study program.
- f. Curriculum organization is varied, including the organization of "integrated, correlated, and separated".

- g. The structure of subject matter is various which include national, functional, humanistic, and structural approach.
- h. The social science class should be developed into a laboratory on democracy.
- i. The evaluation does not only concern on cognitive, affective and psychomotor aspects, but also on the efforts on developing democratic quotient (DQ) and citizenship quotient (CQ).
- j. Sociology, anthropology and other social sciences should enrich the study program and so does the elements of science, technology, mathematics and religion (2001: 264)

Technologically, hypertext-based history teaching model considers computer as tutee. The position of computer as tutee has also been explained by Taylor (in Caverly, 1995). In this context, computer is not considered as a set of tool used in the teaching learning process, and as a tutor placing students passively, but also as tutee, namely as a medium and as a learning source that can flexibly be used in teaching learning process (available at dco2@academia.swt.edu, 15-8-2007).

For the benefit of hypertext-based history teaching, a notice should be directed to Bevir's (2000) notion emphasizing the narrative analysis that is understandable to students and in line with the main value of history. Pertaining to this, the narrative should synergize dimensions of act, belief, and attitudinal tendency. The correlation of the dimensions will always be maintained if there is any synergy among the dimensions. Furthermore, it should be emphasized that the narrative is developed based on the writer's imagination, to be delivered to the readers. If human knowledge spreads out in narrative form, it should have a strong epistemological legitimation. The development of the narrative itself should also consider the psychological developmental phase of the reader.

Definition of Hypertext

Hypertext is a set of words in hypermedia multi language (usually marked by different color on color graphic window browser) that has "link" with an html document on another web server (Purwadi, 1928: H-171). Hypertext is buzzwords that allow web to operate and enable a set of similar information to be grouped in many ways at the same time. The hypertext system connects information that eases the search of related information (Levine et al, 1997: 62).

Furthermore, Smith, Wales, and Ferguson (1998) define hypertext more operationally, as an approach in information management focusing on how to keep data in nodes interconnected by link. Each node consists of one concept or information unit. Link system is built by internode connection. The internodes create an interdependent link enabling non-linear channeling. The non linearity emerges as there is a chance to choose the intended information channel, apart from content structure presented by the writer (Siregar, 2003:8)

The concept of hypertext was initially developed by Nelson (in Kamarga, 2004:1) to organize and manage various documents so that it will be easier to access. In this context, hypertext can be defined as a data storing system that can be accessed from any places, thus the navigation is non linier. The concept was then followed up by the research from Berners-Lee (in Kamarga, 2004:2) producing web browser, namely a software functioning as the adapter in changing hypertext codes into what is intended (WYSWYG = What You See What You Get). The WYSWYG is what is then known as WorldWideWeb (WWW) that can be accessed by the internet users around the world.

The web browser software has enabled the WorldWideWeb (WWW) to be very popular in the world, where the internet users can access various sites with various information of texts, pictures, sounds. The internet users around the world can get much information because of the hypertext that enables them to run among information easily and quickly. The internet users can get into WorldWideWeb (WWW). In the first page, internet users can see the menu in the interface page which can be analogized with the table of content of a book. The interface page will show a general content of the site. In the interface page, the internet users can also find hypertext web known as navigator. Through the navigator, the visitors can choose the intended information (Kamarga, 2004:2).

Limitation in teaching history as has been explained above has encouraged the writer to find alternative solutions by conducting a study. It is for this reason that the writer proposed the study entitled: *The Influence of Hypertext-Based History teaching Model towards the Increase of Historical Concept Understanding*.

Formulated Problems and the Aims of the Study

The formulated problem proposed in this study is: How is the influence of hypertext-based history teaching model contribute towards the increase of historical concept understanding?

Based on the formulated question, the study was aimed at finding a comprehensive view on the influence of hypertext based history teaching model towards the historical concept understanding.

Theoretical Foundation

Hypertext-Based History teaching Model

The development of hypertext-based history teaching model was conducted based on a certain philosophical, psychological, pedagogical and technological approach that can be shown as in the column II on table I.

Table 10.1

Philosophical, psychological, pedagogical, and technological study in the development of hypertext-based history teaching model (adapted from Caverly et al., 1995)

| | I | II | III |
|----------------------|---|---|---|
| Philosophical | Rationalism (Descartes) | Phenomenologicalism (Kant) | Empiricism (Locke) |
| Psychological | Radical Constructivism (von Glasserfeld) | Guided Constructivism (Piaget, Vigotsky) | Behaviorism/Information Processing (Skinner, Gagne) |
| Pedagogical | Discovery/ Inquiry (Montessori) | Subject Matter Pedagogy (Goodman) | Transmission/Skills (Gagne, Hunter) |
| Technology | Tool Papert | Tutee Dwyer, Leurhmann | Tutor Bork, Suppes |

The philosophical approach in the development of hypertext-based history teaching model is based on phenomenologicalism. In line with this, Immanuel Kant (in Caverly et al, 1995) explains: “Because our minds have the structure of space and time, we impose order and objectivity on experience. In other words, as we interact with reality, we use temporal (categorization, listing, comparison) or spatial (cause/effect, sequence) dimensions to make meaning of experience and to construct knowledge” (available at: dco2@academia.swt.edu, 15-8-2007)

There are several underlined points of Imanuel Kant’s statement above that if a man (read: a student) interacts with real world, he / she will use time dimension (categorization, listing, comparison) and spatial dimension (influence, links) as to understand any experience and to build knowledge.

Psychological approach in the development of hypertext-based history teaching model refers to psychological concepts developed by Jean Piaget and Lev Vygotsky. Jean Piaget (in Caverly et al, 1995) explains that mental structure (in Caverly et al, 1995) can **apriorily** develop following time flow. The student learns by interacting internally with the real world through mental structure he or she has. That is why Piaget thinks that the learning process may happen when the student synthesizes reality he/she experiences. Meanwhile, Vygotsy (in Caverly et al., 1995) thinks that the student’s active process in social interaction will be more insightful in the process of knowledge construction. Cooperation in social interaction is more insightful in knowledge construction compared to the individual process (available at: dco2@academia.swt.edu, 15-8-2007)

Text Representation Model and Hypertext Representation Model

(1) Text Representation Model

Text representation model has a significant role in the study of a theme in teaching and learning context. It is in line with what Siregar (2003: 22) has been explained that text representation model appreciate for linguistic role, in

playing the concept clearly and appropriately, as well as organizing it based on a more comprehensive and integrative view semantic level . The formulation of text representation model is derived from an academic discourse. The main characteristic of academic discourse is a tight treatment on ambiguity.

In this study, the treatment is presented based on the abstract level of propositional structure, where the more abstract structure is functioned to cover the less abstract one based on contextual field. If the higher level of academic discourse is tightly connected, coherently and cohesively, to the basic characteristic of explanation. To an extent, explanation is a structure covering argumentation in any forms. Thus, explanation is an 'episode' of propositions forming an argumentation. For the sake of representation, proposition as an analysis unit will enable the emergence of a flexible structure. This is in line with the characteristic of proposition that can be reflected in any analysis level as to produce a continuous move. This unit is adaptive to the abstract levels. Accordingly, the integration can be simpler by changing proposition, namely from the direct proposition (micro proposition) to the most abstract one (Siregar, 2003: 22-23).

As an analysis unit, proposition enable a flexible analysis that can move vertically tracing abstract levels so called analytical levels. This characteristic is in line with the description of coherent and cohesion explained above, namely the internode link in an 'episode'. Siregar (2003: 23) explains that the link can only be created if a node is combined flexibly or is elaborated through macro rules, namely: (1) through deletion, by deleting irrelevant nodes, (2) through construction, by building a new node functioning as the main node, and (3) through generalization, by choosing a node functioning as the umbrella.

The derivation of macro structure goes on progressively started from its level to the most abstract one, namely topic. The use of proposition in analysis will demonstrate analysis flexibility resulting from the notion of coherence and cohesion as knowledge to see a construction called as 'episode'. The unity of propositions is controlled by topic and subtopic as each of the topic basically carries out semantic field that can keep the relevancy of a topic it covers. An 'episode' of argumentation is not only supported by conceptual knowledge, but also needs intellectual skill that gives view on which part of the text functioning as the guarantor (Siregar, 2003: 23-26).

Based on the above explanation, it can be said that text representation model is a big analysis structure of a text that is a way of forming knowledge structure of a discourse structure in a model. Text representation model explains the relation between text units and the accuracy of knowledge material structure representing any levels. Text representation model has several criteria, namely (1) the clarity of the relation among text units listing from the top to the bottom. This criteria can be reached through the arrangement of discourses in progress dimension, and (2) accuracy of subject material structure of the knowledge it represents. This criterion is applied with elaboration function from text units. The progress arrangement in elaboration dimension compares the unity of hierarchy

between material units and the accuracy in developing subject matter.

Essentially, hypertext representation model is non-linear. The basic characteristic of hypertext representation model can improve readers' intellectuality. In this matter, the hypertext readers have to firstly know the deep structure of the academic text. If the deep structure of academic text could not be accessed, the reader will stop at the point of only reaching information, not on a unity formed by the synergy of content, substance, and syntax (Siregar, 200: 46). The text representation is as described below on chart 10.I.

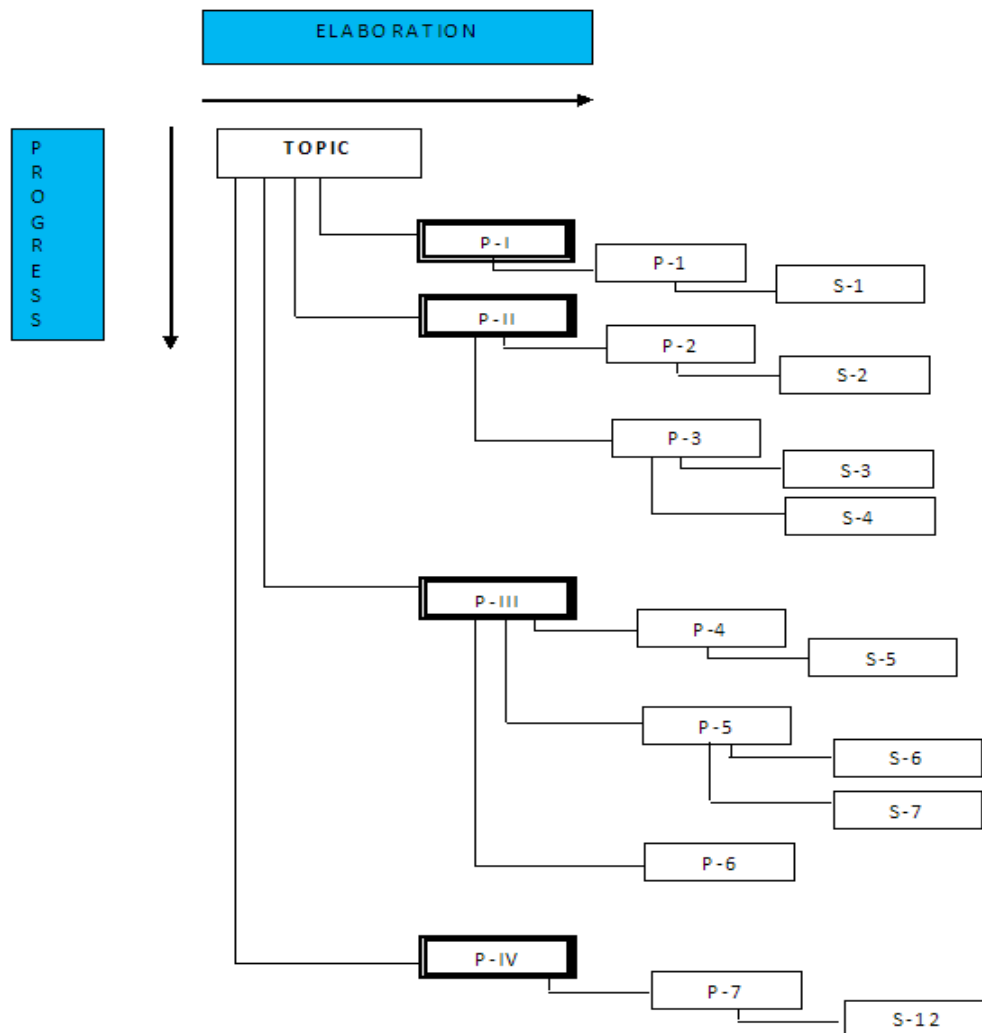


Chart 10.1
Text Representation Model (adapted from: Siregar, 2003: 9)

(2) Transfer of Text Representation to Hypertext Representation Model

In discourse analysis, there are terms of discourse-unit covering paragraph, sub topic, and topic showing the continuity of the units. The continuity is an important thing in deep structure of a text. The representation of discourse unit continuity in text representation model is an important thing in building the

basis of academic hypertext discourse. It can be said that the text representation model could be functioned as the initial hypertext discourse (menu) to guide navigation of a quite long text. The role of text representation model cannot be equalized with the table of contents since the discourse base and its function tightly relate have been to the deep structure of hypertext. The deep structure of a text, however, is the organization of a text based on the semantic structure, namely micro proposition and macro proposition. Therefore, the reading strategy of hypertext can be conducted non-linearly. The subject-material should be seen as a set of proposition. Within the propositions, each of the propositions is represented in the form of column based on the level of abstraction. Discourse act embedded within the proposition is represented by linking lines among the columns related to the higher proposition (Siregar, 2003: 47). See Chapter 2 for a clearer description.

Navigation level, as can be seen in the top column, comes in three levels. The first level is the main topic, while the second and the third level represent elaboration level of the main topic. On the second level, the topic is developed into a various main macros. While on the third level, each of the main macro is developed into sub macros (Siregar, 2003: 49). After choosing one of the main macros, the reader can raise his or her navigation from scanning to browsing. In browsing level, the navigation task is equipped with the development of intellectual skills (Siregar, 2003: 49).

The above explanation quite describes the difference between textual discourse and hypertext discourse. Pertaining to this, Miall (1997) explain as follows:

A basic difference is between documents that are prestructured (for example, with table of contents), in contrast to those that are self-navigating. A prestructured hypertext imitates the design of a book with chapters, perhaps with subdivisions within each chapter, etc., and could be seen graphically as a tree diagram. The self navigating, once you have moved past the opening, depends on links embedded within the text. Since there may be more than one link, the choice about where to go next will depend on your current interest or need. This kind of hypertext can be seen as a web. Some critics would argue that only the second kind is true hypertext.

The main difference between text representation model and the hypertext one is that the hypertext representation model is developed electronically. This principle is an important characteristic since hypertext is not limited to area dimension, but also to space dimension. The space is created simulatively indicated by the emergence and the submergence of electronic page under the users' control. In this notion, hypertext is represented in left window that covers macro structure, while in the right window, there is the text. The windows covering text is dependent function of navigation window (macro structure) (Siregar, 2003: 50).

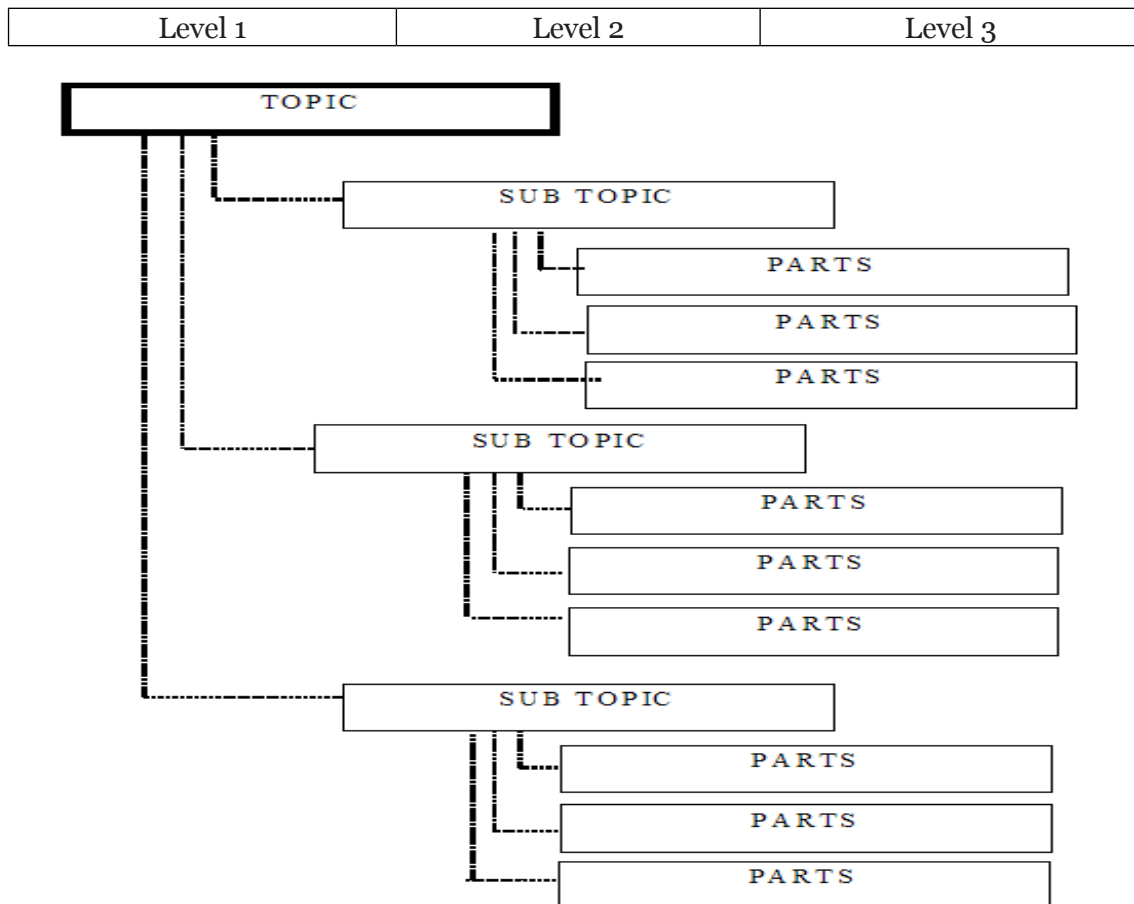


Chart 10.2

Hypertext Representation Model (adapted from Siregar, 2003: 48)

(3) Hypertext Navigation Structure

Siregar (2003: 43-44) subsumes the notion from Bernard about several factors pertaining to hypertext menu, namely: (1) internal structure, the structure created by subject-material, (2) navigation structure, the physical structure of information nodes based on users' perception, and (3) basic character structure, the structure represented by the table of contents of the hypertext. The three factors are separated one to the other to control the hypertext accessibility. The result of matrix analysis, however, will be used to refine the hypertext representation model.

In subject – material structure hierarchy, there are elaboration and progress where the structure is presented based on abstract level of every node. Therefore, hypertext can present a quite wide and deep non linear discourse. It is because the representation system gone step by step based on abstraction levels. The navigation, however, is more than material subject function controlling nodes and links. Therefore, there will be integration of material-subject structure and discourse structure (Siregar, 2003: 46)

As has been stated above, the navigation structure is physical structure of information nodes of users' perception. Operationally, Miall (1997) explains the following navigation structure as follows:

Thus in a self-navigating hypertext, the order in which you visit the nodes or lexic (terms for the separate sections of text) is determinate by you, the reader. There is no overall logical order; links can be circular, recursive or multiply related. This is the postmodern image of intertextuality. ... in the self-navigating hypertext, text is presented as short sections, or nodes, not in the form of a continuous, linear essay. Thus the nodes (as I will call them) must have some degree of self-sufficiency: each should make a coherent point or raise an intelligible issue.

It should be underlined that texts are controlled from macro window; so that reader can control the navigation directly. The macro structure in the left window is buttons that may create two images if they are pushed, namely: (1) the emergence of the new sub buttons as sub topics, and (2) the swap of page image on the left with the appropriate text in accordance with topic button pushed (Siregar, 2003: 51-52).

The discourse formulated in hypertext enables the users to connect parts. The connection is allowed by the nodes of links. Miall (1997) gives several parts of nodes as follows:

Types of node:

- a. Introduction (places the forthcoming hypertext within its context: what is it? Why was it written?).
- b. Overview (introduces main topics and subdivisions of the argument; may provide several links to these, allowing the reader to jump first to whichever part of the argument attracts interest).
- c. Conclusion (sump up and tells you where you have been; may suggest fusther implications beyond those that have been dealt with).
- d. Argument (presents a specific issue within the larger topic).
- e. Example (illustrates an argument with evidence, an illustration, etc.)
- f. Context (points to the larger picture implied by the immediate issue).

Pertaining to the internode link, Miall (1997) explains as follows:

Types of link:

- Structural: e.g. exit; contents; nodes-map (provides overall orientation and places to get started).
- Internal, within current document (for an internal link, see "spatial" above).
- Internal, to a separate node (all the links to the right are to other nodes, i.e. to text or graphics that are not part of the present document).
- Graphic (two kinds: a graphic that is called up, or an inline graphic).
- Reference (to author cited, etc.: embedding links from an author's name within

a text is now a common way of referencing; the link jumps you to a specific place in a bibliography).

- External node (a jump to a remote location on the internet).

By the existence of linking nodes, hypertext can be used as basis in developing interesting teaching model, where each student can find various kinds of information of the knowledge they wanted, and they can also discuss the acquired knowledge, either with another students or with the teacher, optimally.

The Use of Hypertext as Teaching Media

The analysis of documents related to hypertext development in teaching and learning still shows several problems. It is because of the various notions towards the argumentative discourse. The notion towards argumentative discourse can be grouped into three, namely: the conceptual notion, linguistic notion, and discourse notion. The conceptual notion is generally developed by the Artificial Intelligent (AI) experts. This is reflected from the work focused on proposition content aspect (interconcept connection) of argumentation. Linguistic notion focuses on constraints of knowledge controlling proposition interrelationship. Meanwhile, the discourse analysis notion focuses on text structure based on its daily function (Siregar, 2003:4)

The hypertext development in teaching requires synthesis among the three notions. It is the synthesis that creates argumentative discourse. The strategy used in synthesis is by functioning proposition as an analysis unit that can be flexibly used to present subject-material in several analysis levels. In the linguistic sentence level, proposition can function as micro proposition, in the conceptual level, it can represent several micro propositions, and in the discourse level, it can put several micro propositions into the macro one. The synthesis results in Hypertext Representation Model (HRM). This model is developed from Text Representation Model by developing elaboration dimension into navigation dimension, i.e. from book page dimension (surface) into electronic page dimensions (space). The development is available since the navigation problem is solved first by reinterpreting elaboration dimension (Siregar, 2003: 4-5).

The literature study result shows that navigation issue is the central issue in hypertext since its emergence. Moreover, the issue is an epistemological issue differing hypertext from linear text since it questions the position of cohesion and coherence (Siregar, 2003:9). Cohesion and coherence can be seen as internode link that every node is kept binding with its context. A new link can be meaningful when the users understand the next node based on the set of nodes grouped into an 'episode'. In line with this, Rosenberg states that a set of nodes in readers' mind is the real representation of a meaning that was previously abstract. The notion is needed in order to understand hypertext since it is parallel with the meaning of cohesion and coherence in sequential text. What the text readers do is finding the structure and meaning so called as the activity of collecting information (Siregar, 2003: 21).

It should be known that there is any difference between sequential text and hypertext. Hypertext activity mainly relates to the finding of meaning on the higher level, i.e. efforts in finding meaning of a set of node, not a set of sentence. Therefore, the hypertext activity is the activity of ending a node on the node level and ending the set of node on the higher level, such as on narrative or augmentation. This notion also confirms that each link has an optimum relevance with the previous node development, but the meaning may still be unclear unless one has dug it out. Therefore, the meaning of a new link emerges as one reaches a level of finding 'episode' (Siregar, 2003: 21).

The process of finding 'episode' tightly relates to the interactive environments among hypertext actors of writers, readers and content of the hypertext. The three actors have basic knowledge resembled a certain topic. Without basic background knowledge, one will not be able to read hypertext (Siregar, 2003: 22).

Recently, few studies indicate that there is a need to implement information technology product in pedagogical context. One of them is technology product relates to hypertext roles as instructional media. Concerning this, Miall (1997) tends to place hypertext as tools or media in delivering information in teaching activities. The following is the further explanation:

If hypertext is used merely as a medium to present information, then the authority of the medium must outweigh that of the students, just as text book, teacher, school timetable, and education boards have always done. Extending the hypertext available to include the internet is a difference in degree, not in kind: more of the same will no end in giving control over knowledge to the students. Let the students be author in her own learning, then the hypertext tool offers a different potential. Students can either author their own hypertext, or a teacher can use hypertext as a medium to report work that students have done (Miall, 1997).

The above explanation shows that hypertext can be used as a medium in delivering information, so that it will enable students to have authority in using them in learning activities, more than the use of text book, listening to the teacher explanation, and following schedule as has used to be done. Hypertext media will enable students to be the controller of their own learning. Meanwhile, the teacher can use hypertext as a medium to write all students' activity.

In teaching and learning context, there should be any attention towards Spiro's notion (in Syukur, 2003) that hypertext system constructed in various ways may constraint students since they will make the students confuse as they lost and lose the branched links. This situation can happen to the students who have just known hypertext as learning media. On the other hand, the students who have got used to it, may be trapped in incoherent information because of various choices and facilities in node searching that link various information. Students may get much information, but not the intended one since the information structure is neglected caused by unidirectional navigation. This situation needs a more accessible hypertext based teaching, as well as the material plan relevant to curriculum demands.

Hypertext is much able to be developed into a teaching medium relevant with the philosophy of constructivism. During the interaction with hypertext, the students can dig various information and/or knowledge so that they can use their cognition to organize information based on their needs. According to Spiro (in Syukur, 2003), this condition can develop students' intelligence much more than when they face basic sequential texts.

Hypertext based teaching environment and situation will enable students to develop cognitive flexibility. As has been explained by Altun (2000), by studying narrative on the screen as they are searching for the information links, the students, in fact, do a complex cognitive activity. Siregar (2002) conveys that if the process is continuously conducted, the students will increase and strengthen the benefit of cognitive flexibility, where it is the condition needed to be mastered at the next level. Hypertext gives a flexibility space to students compared to those available on text books (Foltz, 1996).

Hypertext that gives a chance to students to relate various materials and present them in text representation will enrich students' perception on the knowledge they get. As has been explained by Syukur (2003), if students more interact with an object in different situation, they will have a more complete schema attribute on the object they study. Therefore, the students will be more flexible at the next learning, where the students are required to apply their knowledge in different situation.

The use of hypertext based history teaching model as has been explained above is very adaptable because the hypertext character involves cognitive interaction among text to the readers. The hypertext character can be seen in chart 3.

The process of knowledge construction involves interaction among information (knowledge), hypertext, and user (student). The content is information (knowledge) formatted into hypertext. The relation among contents is formatted to an extent so that it becomes syntactical relation. It is based on the syntactical relation that the reader (student) will find the substance of information (knowledge) read. The discourse act is conducted by informing, eliciting and directing. The discourse act should be in line with content, substance, and syntactical of the formatted information (knowledge). Hypertext may help the reader (student) to develop ability because of several characteristics of hypertext as of: (1) intelligible, it is able to reach because of the consistence of the knowledge, (2) plausible, it is easy to be comprehended as it is limited to the topic studied, and (3) fruitful, it has more than one understandable value (Siregar, 2006).

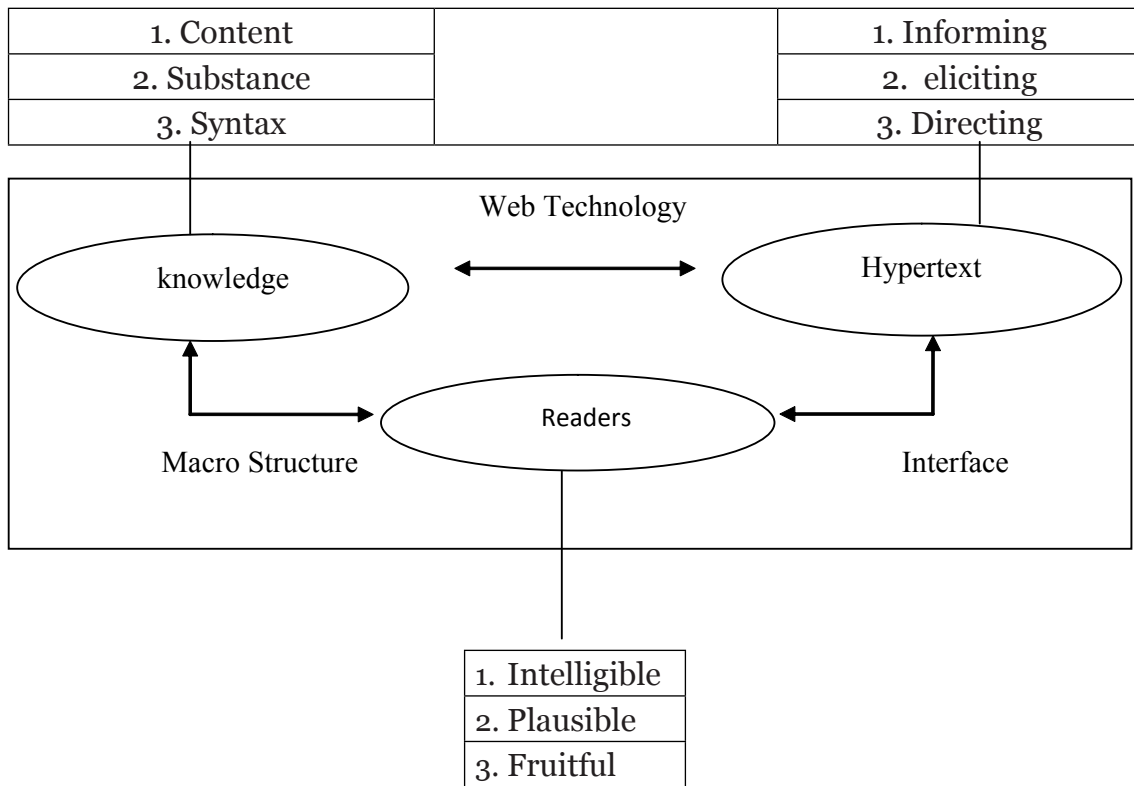


Chart 10.3
Inter Component Interaction within Hypertext (Siregar, 2006)

The Development of the Comprehension of Historical Concept

Concept is an abstraction representing a class of object, event, and act having the same attributes (Daha, 1996: 80). Concerning this, Fraenkel (in Sjamsuddin, 1996: 6) explains that concept means a structure representing the interdependence of parts grouped in a certain attributes. Concept has label and definition. Definition is the result of abstraction and simplification of the concept. The concept organizes object based on general characteristics of a certain object, event, person, or a group of experience. The concept consists in notional worlds or human mind.

Pertaining to history teaching, National Center for History in the Schools (2005), in a study of Overview of Standards in Historical Thinking, explains the concept of history as follows:

Historical understandings that define what students should know about the history of families, their communities, states, nation, and world. These understandings are drawn from the record of human aspirations, strivings, accomplishments, and failures in at least five spheres of human activity: the social, political, scientific/technological, economic, and cultural (the philosophical/religious/aesthetic), as appropriate for children (National Center for History in the Schools (2005).

Through the understanding of historical concept, as has been stated above, the students will dig themselves through the searching of aspiration, effort, success, and failure in social, politic, scientific and technological, economic and cultural spheres. The investigation is conducted towards family history, neighborhood, nation, country and even the world.

According to National Center for History in the Schools (2005), the understanding of historical concept needs few conditions as follows:

Historical understanding requires that students have opportunity to create historical narratives and arguments of their own. Such narratives and arguments may take many forms – essays, debates, and editorials, for instance

Historical understanding also requires that students thoughtfully read the historical narratives created by others. Well-written historical narratives are interpretative, revealing and explaining connections, change and consequences. They are also analytical, combining lively storytelling and biography with conceptual analysis drawn from all relevant disciplines. Such narratives promote essential skills in historical thinking.

Reading such narrative requires that students analyze the assumptions – stated and unstated – from which the narrative was constructed and assess the strength of the evidence presented. It required that students consider the significance of what the author included as well as chose to omit – the absence, for example, of the voices and experiences or other men and women who were also an important part of the history of their time. Also it requires that students examine the interpretative nature of history, comparing, for example, alternative historical narratives written by historians who have given different weight to political, economic, social, and/or technological causes of events and who have developed competing interpretations of the significance of those events (NHCS-UCLA, 2005).

The above explanation asserts that historical understanding needs several condition, namely: (1) there is a chance to develop historical narratives and arguments, (2) there is a full understanding towards historical narratives produced by other parties, (3) there is an ability to analyze assumptions as the basis of historical writings, (4) there is an ability to identify several important (meaningful) matter exposed by the history writer, and (5) there is an ability to compare interpretation of historical writing with another alternatives produced by historian. The historical concept taken in this study, however, refers to the concept of Historical Thinking and understanding for Minnesota Students at the High School Level developed by Educational Standards, Technology, Applications, and Resources (EdSTAR) Minnesota, to cover:

- a. The ability to analyze and synthesize historical discourse based on several themes of social, culture, politic, economy, science, and technology including:
 - (1) categorization and organization of historical information based on a certain themes, and
 - (2) exploration of a more historical themes, namely social

- history, cultural history, political history, science and technology history, and economic history.
- b. The development of historical questions and whole skills using various historical stories including : (1) evaluation of historical sources, (2) analysis based on quantitative data including basic statistical analysis, (3) identification and analysis of ambiguity and comparison of historical sources, and (4) analysis of the influence of ethnicity, gender, culture, social status and social role towards historical narratives.
 - c. The study, analysis, and interpretation of historical events by comparing them with the existing perspectives including: (1) comparison of the influence of notional difference and belief on world history development, (2) test of how the influence of an organization built based on notion and belief towards continuity and changes, and (3) comparison of competition of narratives in line with their perspective.
 - d. Interpretation on historical events, identification of historical problems/ issue, and consideration on another alternatives, including: (1) formulation of historical questions relevant with specific issues, (2) development of plans to collect and interpret historical data, (3) investigation and evaluation towards various point of view, (4) study and evaluation towards information, and comparison of relevant information and the irrelevant one, (5) evaluation of historical source causing different point of view and bias, and (6) analysis towards point of views, conclusions, facts and motives of historical sources (EdSTAR Minnesota, 2006).

In this study, the concept of Historical Thinking and Understanding for Minnesota Students at the High School Level developed by Educational Standards Technology, Applications, and Resources (EdSTAR) Minnesota (2006) as has been stated above is used as the basis for developing a set of test worksheet in order to measure the understanding of historical concept, namely that relates to the Proclamation of Indonesian Independence and the Efforts to Safeguard Sovereignty of the Republic of Indonesia.

Research Method

The study used experimental method, namely with Non – Equivalent Control Group Design (Pre- test and Post-test). In this design, the researcher decides the experimental class group (group B) and control class group (group A). The two groups followed the pre-test and post-test but only the experimental group (group B) who got some treatments (Creswell, 2000: 123-124).

The analysis of data from pre-test and post-test was conducted through statistical test using Software SPSS version 10.0. The software is derived from general statistical equations. To test whether the data was normally distributed or not, there is Kolmogorov-Smirnov test from SPSS. If the probability was >

0.05, the H_0 was accepted, or in other words it is normally distributed. Based on the Kolmogorov-Smirnov test for one sample, it was known that the pre-test, post-test, and gain of control and experimental classes are normally distributed. Meanwhile, to test the second hypothesis, pertaining to the homogeneity of variance of population, the study used F test (Sntoso, 2002: 169). If the probability value was >0.05 , the population has homogeny variance.

If the data showed normal distribution and homogeny variance, the next step was testing the null hypothesis (H_0), i.e. there is no significant difference in learning achievement between the class group and the experimental one. The hypothesis was tested by independent sample t test. If the probability was >0.05 , the H_0 was accepted, which means that the two population means are identical or do not different. If the probability was <0.05 then H_0 was rejected, which means that the two population means are not identical or proved to be different (Santoso, 2002: 245).

The research variable, however, are as follows:

Independent variable (X): Hypertext based history teaching model

Dependent variable (Y): The historical understanding

Findings

The writer's experience – for years working as a history teacher – supports that teaching history is not a simple thing. History it seems left so many unsolved problems. The problems mainly emerge when facing the following philosophical questions. First, what kind of materials that should be included in history teaching at a certain level? Second, how should the subject material be presented so that it can interest and be understandable to the students? Third, how should the teacher deliver the subject material? Fourth, for what reason should the students follow the subject material?

Presumably, there are still many questions in Indonesian students' mind as well as in the teachers' pertaining to the history teaching and learning for these years. Many questions **seemed as if had not been solved**. Many parties were still in doubt in creating history teaching climate within the class.

It also happened to the teaching methods, which are hoped to be a way of making students interacts with history material. It has been still consistently monotonous. Many history teachers still rely on speech ability and many times they feel helpless when they find the fact that the teaching climate within the class is freezing as the students were dull and bored. This condition quite affected the students difficulties in learning history senses often makes it difficult for the students to find the meaning of historical learning they follow. The teaching learning seems to stop at the students ability to answer questions pertaining to what, who, when, where, how, and why. The energy to recall the answers the

artificial questions seems to make the students forget the most important fact in history learning, i.e. the importance of learning history.

It is to overcome the above phenomena, the implementation of hypertext based history teaching creates different teaching learning climate and different learning achievement. The writer found a fact that hypertext based history teaching learning can be developed into an alternative in teaching history. Based on the observation conducted within the study, the data obtained were as follows:

Teaching activities which are more focus on mental activity (thinking process)

The implemented hypertext based teaching model on learning activities are focused on mental activity (thinking process). This at last reflects on several things as follows: (1) students' activity in digging out historical information from the given hypertext media, (2) students' activity in discussing their personal findings within small groups determined in advance, (3) students' activity in representing papers and discussing it openly in front of the class. All the activities have given a wide chance for students to study; comprehend; formulate, deliver, and answer questions; consider others' opinion; discuss the questions and relate them to textual concepts; and conclude together.

What has been explained above support the shift of teaching learning process, from teacher centered to student centered as what is intended by constructivism philosophy. Concerning this, each student should be seen as an individual who has his or her mental model or cognitive structure in understanding environment. Therefore, the knowledge construction process goes on through assimilation and accommodation with his or her environment (Piaget in Dahar, 1996: 160).

As has been known, recently, constructivism has often been used as reference in educational study, whether in theoretical perspective or in the practical one. Generally, constructivism explained that one's knowledge is the construction done by him or herself. Without one's activity to digest and create, one will not have knowledge. It is pertaining to this that Piaget extremely states that knowledge cannot be transferred from teachers' brain who are considered knowledgeable if the students do not proceed and create it themselves. The knowledge creation happens if one changes and develops the schema he or she has, as he or she faces challenges, stimulus, or problems. Through the assimilation and accommodation, one's knowledge is developed and improved (Piaget in Suparno, 2001: 123)

The knowledge creation is firstly determined by his or her activity or reactivity in facing problems, sources, or a new environment. It is his or herself who builds the knowledge. However, it does not mean that other people or social environment have no role. People or social environment influence knowledge creation, namely as the trigger, critic, and challenger, so that the creation process will proceed better. By facing and building relation with others, one's notion may then be challenged, straightened, and confirmed (Suparno, 2001: 123).

Teaching focusing on students' thinking or mental process, not only on the result, implies that besides the correctness of the answer, the teacher also needs to understand the process used by the students until they have the answer. Therefore, the teaching focuses on the role of students in initiating something as well as their active involvement in leaning process. In such of the class, the ready made knowledge is not emphasized. Meanwhile, the students are pushed to find their own knowledge through spontaneous interaction with their environment. Therefore, teachers are demanded to prepare various activities that allow students to interact directly with physical world.

Constructivism learning affirms that students have to find and transform complex information by themselves, check new information using their old concepts, and revise them if the old concepts do not work anymore. In order to deeply understand and apply knowledge, students have to work hard to solve problems, find everything for themselves, and really make an effort with their own notion (Slavin, 1994).

The main constructivism learning theory is that students actively construct their own knowledge. Learning is an active mental work, not merely about receiving information from the teacher passively. Pertaining to the students' mental, teachers play an important role in giving supports and challenges for the students' mind, but it is the students who have the key in learning process.

The Increase of Historical Understanding

One of the indicators of successful implementation of hypertext based history teaching model is the students' mastery of concepts (of the subjects) after the teaching process. To know the success of the model, there were pre-test and post-test. Pre-test was conducted to measure the mastery level on various concepts before the teaching process. Meanwhile, post-test was conducted to measure the mastery level of the concepts after the teaching process. By comparing the result of pre-test and post-test, the increase of concept (teaching material) mastery can be obtained. The increase after the teaching was measured by g factor (normalized score gain) with the following equation:

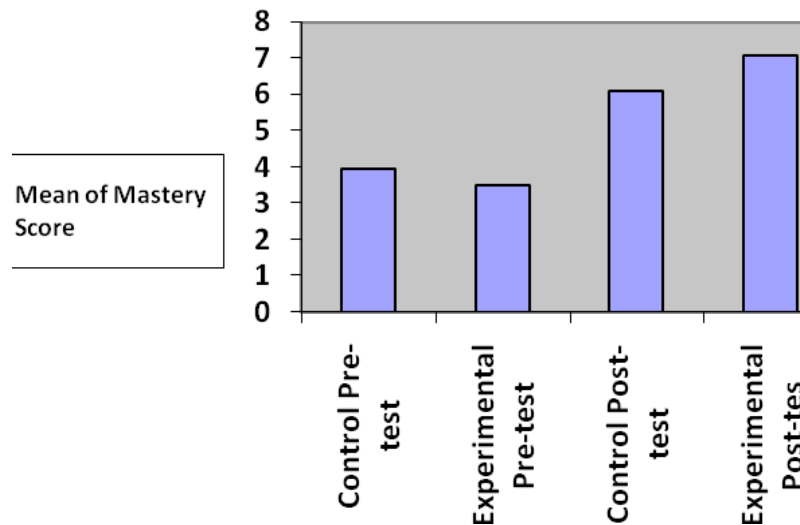
| | |
|--|---------------------------|
| Normalize gain: $\frac{\text{post-test score} - \text{pre-test score}}{\text{Maximum pre-test score}}$ | $NG > 0.70$:High |
| | $0.3 < N.G < 0.7$:Medium |
| | < 0.3 :Low |

(Meltzer, 2002)

The N gain level is categorized into:

The score gained from pre-test and post-test show that the mean of control class pre-test score was 3.97 while the mean of its post-test score was 6.10. Therefore, it can be known that n gain mean of control class was 0.36. Compared to the experimental class, it was known that the mean of experimental pre-test score was 3.5 while its post-test one was 7.1. Therefore, n gain mean of experimental class was 0.48. It should be underlined that the highest (post-test) score of experimental class was 9 achieved by one student. The lowest (post-test) score, however, was 6 achieved by 10 students.

Pre-test and post-test scores of control and experimental classes can be seen as in the following graphic I.



Graphic 10.1

Pre-test and post –test mean scores of control class and experimental class

In order to find out how far the influence of the treatment in hypertext based history teaching to the mastery of historical concept (subject material) reached by the students, there **was statistical test**. The result from t test on control group was analyzed by SPSS program as can be seen in the following table 1:

Table 10.2
Summary of Pre-test Result of Control Class and Experimental Class

| Control Class | | Experimental Class | | Sig* ($\alpha = 0.05$) | Conclusion |
|---------------|------|--------------------|------|-----------------------------|-----------------|
| Mean | SD | Mean | SD | | |
| 3.97 | 1.05 | 3.52 | 0.95 | 0.056 | Not significant |

*based on the t test, the probability value was > 0.05 , so that H_0 was accepted or the two population mean is same/insignificant (Santoso, 2002: 245)

The result from t test of experimental group was analyzed using SPSS version 10.0 that the summary can be seen in table 2. Meanwhile, the summary of gain value of class control and experimental class can be seen on table 3.

Table 10.3
 Summary of Post-test Result of Control Class and Experimental Class

| Control Class | | Experimental Class | | Sig* ($\alpha = 0.05$) | Conclusion |
|---------------|------|--------------------|------|-----------------------------|-----------------|
| Mean | SD | Mean | SD | | |
| 6.1 | 0.83 | 7.1 | 0.86 | 0.00 | Not significant |

*based on the t test, the probability value was < 0.05 , so that H_0 was rejected or the two population mean is different/significant (Santoso, 2002: 245)

| Control Class | | Experimental Class | | Sig* ($\alpha = 0.05$) | Conclusion |
|---------------|------|--------------------|-----|-----------------------------|-----------------|
| Mean | SD | Mean | SD | | |
| 0.36 | 0.14 | 0.49 | 0.2 | 0.00 | Not significant |

*based on the t test, the probability value was < 0.05 , so that H_0 was rejected or the two population mean is different/significant (Santoso, 2002: 245)

The t test result above shows that there was any difference in the concept mastery significantly between control class and experimental class. The increase of concept mastery after the teaching was formulized with n gain. The increase of n gain of experimental class (≈ 0.5) was bigger that of class control (≈ 0.4). Nonetheless, the two groups could still be categorized to have “medium” increase, i.e. with n gain of about 0.3-0.7 (Meltzer, 2002).

Conclusion

Based on the data found from the process and supported by data processing and analysis, the conclusions are as follows:

- a. The implemented hypertext based history teaching model had conditioned improves teaching activities by more focusing on mental activity (thinking process). All learning activities should provide a wide opportunities to students in studying, comprehending, formulizing question, delivering question, answering question, considering others’ opinion, discussing questions by relating them with conceptual concepts, as well as concluding.
- b. Hypertext based history teaching model influences historical concept mastery showed by n gain of 0.5 in experimental class, and 0.04 in control class, with significant level of 0.00 and $\alpha = 0.05$.

Recommendations that can be delivered from the study are as follows:

- a. The hypertext based history teaching model need to be developed seriously into history teaching

- b. To implement hypertext based history teaching, as has been explained, previously, requires that history teachers have ample knowledge to work on computer, as well as skill to implement it to teaching learning activity in the class.

REFERENCES

- Creswell, J.W. (1994). *Research Design: Qualitative & Quantitative Approaches*. (Desain penelitian: Pendekatan Kualitatif & Kuantitatif). (Diterjemahkan ke dalam Bahasa Indonesia oleh Angkatan III&IV KIK-UI bekerja sama dengan Nur Khabibah). Jakarta: Penerbit KIK Press.
- Dahar, R.W. (1996). *Teori-Teori Belajar*. Jakarta: Penerbit Erlangga.
- Garvey, B. & Krug, M. (1977). *Models of Historical Teaching in the Secondary School*. Oxford University Press.
- Hasan, S.H. (1996). *Pendidikan Ilmu Sosial*. Jakarta: Depdikbud, Proyek Pendidikan Tenaga Akademik.
- Husband, C. (1996). *What is History Teaching*. United States: Open University Press.
- Johnson, K.A. (1989). *Instructional Design: New Alternative for Effective Education and Training*. New York: NUCEA.
- Kahin, G. M. (1970). *Nationalism and Revolution in Indonesia*. Ithaca and London: Cornell University Press.
- Kamarga, H. (2004). *Teknologi Web dan Hiperteks*. Bandung: Program Pascasarjana Universitas Pendidikan Indonesia.
- Kartodirdjo, S. (2005). *Pemahaman Sejarah dan Apresiasi Generasi Muda terhadap Sejarah Bangsa*. Media Indonesia, 16 Agustus 2005.
- Levine, J.R., et al. (1997). *Cara Mudah Menggunakan Internet*. Jakarta: Penerbit PT Elex Media komputindo Kelompok Gramedia.
- Loebis, A.B. (1992). *Kilas Balik Revolusi: Kenangan, Pelaku, dan Saksi*. Jakarta: Penerbit Universitas Indonesia Press.
- Malaka, T. (2005). *Merdeka 100%: Tiga Percakapan Ekonomi Politik*. Tangerang: Penerbit Marjin Kiri.
- Miall, D.S. (1997). *Reading and Writing Hypertext*. London: Department of English, Westminster Bridge.
- National Center for History In The School. (1994). *National Standards for History, Exploring Paths to the Present*. Los Angeles: University of California.
- NCSS. (1994). *Curriculum Standards for Social Studies*. (Developed by National Council for the Social Studies). Task Force: Donald Schneider.
- NCSS. (1994). *Expectation of Excellence: Curriculum Standard for Social Studies*. Washington: NCSS.
- Notosusanto, N. (2005). Soedirman: Panglima yang Menepati Janjinya. (Dalam: Bashri, Yanto dan Suffatni, Retno). (2005). *Sejarah Tokoh Bangsa*. Yogyakarta: Penerbit Pustaka Tokoh Bangsa.

- Poesponegoro, M.D. dan Notosusanto, N. (1984). *Sejarah Nasional Indonesia VI*. Jakarta: Penerbit Balai Pustaka.
- Pour, J. (1995). *Pengalaman dan kesaksian Sejak Proklamasi sampai Orde Baru*. Jakarta: Penerbit Grasindo.
- Reid, A. (2002). *Sejarah Modern Awal Asia Tenggara*. Jakarta: Penerbit LP3ES.
- Ricklefs, M.C. (1994). *Sejarah Indonesia Modern (Cetakan keempat)*. Yogyakarta: Penerbit Dadjah Mada University Press.
- Ricklefs, M.C. (2001). *A History of Modern Indonesia Since c.1200 (Third Edition)*. Hampshire: PALGRAVE.
- Roem, M. (1972). *Bunga Rampai dari Sedjarah*. Jakarta: Penerbit Bulan Bintang.
- Ruseffendi, E.T. (1994). *Dasar-Dasar Penelitian Pendidikan dan Bidang Non-Eksakta Lainnya*. Semarang: Penerbit IKIP Semarang Press.
- Siregar, N. (2006). ICT Hiperteks: Peranan Antar-muka Pembaca untuk Meningkatkan Pemanfaatannya. *Jurnal Tenaga Kependidikan Vol.1 No.2 Agustus 2006*. Jakarta: Direktorat Tenaga Kependidikan, Dirjen Peningkatan Mutu Pendidik and Tenaga Kependidikan, Depdiknas.
- Siregar, N. (2005). *Dasar Wacana Argumentatif dari Hiperteks Ilmiah untuk Meningkatkan Pemanfaatannya oleh Komunitas Akademik: Fungsi Interaktif dari Hiperteks Wacana Argumentatif dalam Merumuskan Pengajaran Berkemampuan Tinggi*. Bandung: Program Pascasarjana Universitas Pendidikan Indonesia.
- Siregar, N. (2003). *Dasar Wacana Argumentatif dari Hiperteks Ilmiah untuk Meningkatkan Pemanfaatannya oleh Komunitas Akademik*. Bandung: Program Pascasarjana Universitas Pendidikan Indonesia.
- Sjamsuddin, H. (1996). *Metodologi Sejarah*. Jakarta: Departemen Pendidikan dan Kebudayaan, Dirjen Dikti, Proyek Pendidikan Tenaga Akademik.
- Slavin, R.E. (1994). *Educational Psychology: Theory and Practice*. Massachusetts: Allyn and Bacon Publishers.
- Soekanto, S.A. (1981). *Perjalanan Bersahaja Jendral Soedirman*. Jakarta: Penerbit Pustaka Jaya.
- Somantri, M.N. (2001). *Menggagas Pembaharuan Pendidikan IPS*. Bandung: Penerbit PT Remaja Rosdakarya.
- Spiro, R.J. et al. (1994). *Cognitive Flexibility, Constructivism, and Hypertext; Random Acces Instruction for Advanced Knowledge Acquisition in Ill-Structured Domains*. Illinois: University of Illinois.
- Syukur, H. (2003). *Hiperteks and Peranannya dalam Pembelajaran*. Copyright@ HENDRISYUKUR2003.
- Tosh, J. (1984). *The Pursuits of History: Aims, Methods, and New Directions in the Study of Modern History*. London and New York: Longman.

Sumber Internet:

- Caverly, D.C. (1995). *Technology in Learning Assistance Centers: Past, Present, and Future*. Texas: Texas State University (Tersedia: dco2@academia.swt.edu, 15-8-2007).
- Caverly, D.C, *et al.*, (1995). *Foundations for a Constructivist, Whole Language Approach to Developmental College Reading*. (Tersedia: dco2@academia.swt.edu, 15-8-2007).
- EdSTAR Minnesota. (2006). *Historical Thinking and Understanding*. Tersedia: ncss/EdSTAR-Minnesota-Teacher-Historical-Thinking-and-Understanding.htm (29 Maret 2006).
- Library of Congress Country Studies. (1992). *World War II and the Struggle for Independence, 1942-1950: The Japanese Occupation, 1942-45*. Tersedia: <http://reference.allrefer.com/countruy-guide-study/indonesia> [tersedia tanggal 4 Mei 2006].
- Library of Congress Country Studies. (1992). *Indonesia: The National Revolutions, 1945-50*. U.S. Library of Congress. Tersedia: <http://reference.allrefer.com/countruy-guide-study/indonesia> [tersedia tanggal 4 Mei 2006].
- National Center for History in the Schools (UCLA). (2005). *Historical Thinking*. Tersedia: <http://nchs.ucla.edu/standards/dev-k-4c.html> (5 April 2006).
- National Center for History in the Schools (UCLA). (2005). *Overview of Standars in Historical Thinking*. Tersedia: <http://nchs.ucla.edu/standards/thinking5-12.html> (5 April 2006).