OPTIMIZING THE USE OF HISTORY TEXTBOOK THROUGH BRAIN-BASED LEARNING

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ABSTRACT

This research was conducted based on the researchers' assumption to low optimal use of history textbook in school. Such ineffective condition was indicated from functioning book only as a resource material for examination. Even, the existence of the book tends to be a burden either for the teachers and the students. Therefore, brain-based learning can be an alternative to optimize the textbook to improve students' historical thinking and understanding. To achieve this goal, inquiry naturalistic model proposed by Licoln and Guba (1985) was employed in history learning in one SMA in Bandung. Data were collected through observing, tracing and witnessing to historical learning by implementing brain-based learning approach carried out in the classroom. The analysis results revealed that this model brings several impacts, namely: (1) Students are not familiar to express their emotions during their history learning. However, applying cognitive and emotion aspects of the students may help them remember historical facts more easily, (2) the use of cognitive and emotional learning system also facilitates the students to improve their ability in identifying and classifying the facts from the textbook, (3) students still find difficulties in associating one fact to the others, and (4) generally, this model affects students' historical understanding which is indicated from their ability to comprehend the history subject well, to obtain valuable life values, to figure out historical figures, social conflicts, and to understand social changes in the society.

ABSTRAK

Penelitian ini dilakukan berdasarkan asumsi peneliti terhadap rendahnya penggunaan optimal buku teks sejarah di sekolah. Bahkan, keberadaan buku cenderung menjadi beban baik bagi guru maupun siswa. Oleh karena itu, *brain-based learning* dapat menjadi alternatif untuk mengoptimalkan buku teks untuk meningkatkan pemikiran dan pemahaman historis siswa. Untuk mencapai tujuan ini, model naturalistik inkuiri yang diajukan oleh Licoln dan Guba (1985) digunakan dalam pembelajaran sejarah di satu SMA di Bandung. Data dikumpulkan melalui pengamatan, penelusuran, dan saksikan pembelajaran sejarah dengan menerapkan pendekatan *brain-based learning* yang dilakukan di kelas. Hasil analisis mengungkapkan bahwa model ini membawa beberapa dampak, yaitu: (1) Siswa tidak terbiasa mengekspresikan emosi mereka selama pembelajaran sejarah mereka. Namun, menerapkan aspek kognitif dan emosi siswa dapat membantu mereka mengingat fakta sejarah lebih mudah, (2) penggunaan sistem pembelajaran kognitif dan emosional juga memfasilitasi siswa untuk meningkatkan kemampuan mereka dalam mengidentifikasi dan mengklasifikasikan fakta dari buku teks, (3) siswa masih menemukan kesulitan dalam mengaitkan satu fakta dengan yang lain, dan (4) umumnya, model ini mempengaruhi pemahaman historis siswa yang ditunjukkan dari kemampuan mereka untuk memahami subjek sejarah dengan baik, untuk mendapatkan nilai-nilai kehidupan yang berharga, untuk mencari tahu tokoh-tokoh sejarah , konflik sosial, dan untuk memahami perubahan sosial di masyarakat.

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INTRODUCTION

To create an ideal history learning and its objectives, various media are urgently equipped in this classroom to support the learning process. Media as a learning component which cannot be separated from learning process have a crucial role to convey the information so that learning objectives in various disciplines can be achieved (Tanjung, 2015). Regarding this, a textbook is one of the most important media and teaching materials for history learning process (Pratowo, 2011). A Historical textbook is a learning tool commonly used in schools functioning to support the learning process (Utami and Widiadi, 2016). In Indonesia, history textbooks are frequently circulated in schools and used by lecturers or teachers as main resources to conduct the learning processes (Supriatna, 2007). Most of them address that the contents are always in accordance with the current applicable curriculum (Hasan, 2000). Therefore, the role of historical textbooks is very strategic to contribute cognitive formation (intellectual) as well as the affective one (appreciation, values) in all levels of education (Utami and Widiadi, 2016).

However, there are some problems identified in using historical textbooks during the learning process particularly related to the inefficient of the book usage and quality of the content. In terms of the inefficient usage, the use of history textbooks is not optimally utilized by the teachers to accelerate learning output since it mostly consists of the list of materials, learning tasks and exercises for examinations. Even it was found that in some places the textbooks made the teacher stuck and the students feel bored with the contents of the books. This learning situation leads the students to be unmotivated in their learning because they lose their enthusiasm to use the text book which is considered as monotonous resources.

With regard to the book content, it only provides some historical events and facts without reflecting and connecting to the real context materials. Therefore, it did not give interesting materials to read through and even the students tend not to join the classroom learning. A study related to this case was conducted by Hasan (2000) showing his findings that history books had been loaded with countless facts (number of years, name of perpetrator, place of occurrence and course of events) which were described monotonously without clear and interesting description. In addition, Hasan (2000) also criticizes that writing history textbooks is also viewed from the historical events side although in fact the content found did not provide sufficient historical events that can be used as valuable resources as students' life reference.

This condition raises an assumption among students learning history is no more than memorizing historical facts and events. This belief influences on low students' motivation to learn history as they have low reading power of historical textbook. In fact, as revealed by Sjamsuddin (2008) "reading" is one of the absolute requirements in learning history in which reading culture is a characteristic of cultural development within society or nation oriented towards education and science. Lord Bacon, a British philosopher added that "Reading makes a person contain" (Sutikno, 2006).

Due to various problems including some limitations in utilizing history textbooks, it is necessary for teachers to further study the textbooks and to optimize it by using various strategies and approaches such as brain-based learning. Although Brain-based learning is not a new thing in an education field, however this model is still rarely applied in history learning. In the last two decades, research on brain-based teaching has rapidly developed and many educators applied this model to achieve amazing results (Jansen, 2008).

Brain-based learning is a brain-based learning ability searching to understand a relationship between the brain and learning process through leading us to role of emotions, patterns, meaning, environment, rhythm, movement, gender, and enrichment. (Jansen, 2008). Brain-based

teaching is categorized as an application of neuroscience in education. Barbara K. Given (2007) considers that the application of Brain-based teaching in education field is very significant since it is identical to develop a desire to learn, to understand how to learn, and to apply teaching practices based on how the brain actually functions. Barbara K. Given (2007) developed five learning frameworks namely: emotional learning, social learning, cognitive learning, physical learning, and reflective learning. Nevertheless, in the Given's concept (2007: pp. 66-67), there is no independent learning as a framework. The actions of each system will affect the other systems as a whole.

Research on brain based learning began to intensify since the 1990s and mostly revolves around the teaching and learning process. A plenty of research on neuroscience has brought a significant effect on the rapid research of brain-based learning. Research on brain-based learning since the 1990s began to be intensively carried out. Some researchers such as Armstrong (2009); Crowell (1999), Caine et al. (2009); Goleman (1994); Jensen (1995/2000, 2005); and Sousa (2006) are the pioneers in the brain-based learning movement (Connell, 2009: p. 29). Teacher education in the United States and several other countries have started to implement brain-based learning followed by other countries around the world, including Turkey, Chile, England, and Thailand which also use brain-based learning techniques in their schools (Connell, 2009).Therefore, the 1990s were heralded as a "brain decade" in which research on brain-based learning play as a driver to investigate the intricacies of how the brain works so that the learning process can be more optimal (Caine & Caine, 1991). Brain-based learning comes from neurological research which results a brain-based learning process being considered a "new paradigm in learning" (Jensen, 2008). The purpose of brain-based learning is in accordance with the objectives of developing history learning, namely to build personal, social and intellectual abil-

ities (Agung, 2015).

Optimizing the use of textbooks in history learning using brain-based teaching is expected to be able to improve students' historical thinking and historical understanding. Historical thinking is a thinking ability that allows students to distinguish the past, present, and future; to ask questions; to find and to evaluate evidence, compare and analyze historical stories, illustrations, and notes from the past; to interpret historical records; and to construct history according to each student's version (Ma'mur, 2008). While historical understanding is a standard that stipulates students to know the history of their family, community, state, nation and world. Therefore, the problem which is addressed in this article related to how the use of historical textbooks with a brain-based teaching approach impacts students' historical thinking and historical understanding.

RESEARCH METHOD

This study employed a qualitative approach starting from collecting data until making conclusions. The results of the study are expected to be able to improve the quality of history learning through developing a model for optimally using textbooks as a means of supporting the learning process. In this activity, researchers used an Inquiry naturalistic model proposed by Lincoln and Guba (1985) in which the researchers acted out as the main instrument. Generally, Naturalistic Inquiry can be defined as an inquiry conducted in natural settings / settings using natural methods (Aliasar, 1998). It is due to social phenomena cannot be understood with natural phenomena but it must be understood from the inner perspective (inner perspective) based on the subject of the perpetrator.

In terms of the design of the study, some researchers directly observed, traced, and watched the implementation of history learning using a brain-based learning approach. The target or object of this study is limited in order the collected data can be extracted as much as possible and

impossible for widening the object research. Therefore, the credibility of the researchers themselves determines the quality of this research (Bungin, 2001). Lincoln and Guba (1985) prefer to use the term of naturalistic inquiry because the prominent feature of this research is on observing and collecting data in natural settings / settings without manipulating the subject under study.

This research was conducted in a Senior High School 5 Bandung, and the subjects involved were a teacher and 35 students of XI IPS A (social science class) focusing on their History learning. However, the researchers themselves are the main instrument (human instrument) who go to the field (class) to collect the data. Data were collected through classroom observation, interviews and documentation. All of these techniques are intended to collect the data in the form of quotations, results of literature review, interviews, field notes, photos, video-tape recordings, personal documents, notes / memos, official documents and others.

RESULTS AND DISCUSSION
Qualitative research seeks to understand how individuals or groups interpret their past, present, and future experiences. In accordance to Creswell (1998), to present a qualitative study, an explanation must begin with a general description including the description of the informants involved. Therefore, it should be stated briefly about students' profile who becomes informants in this study. From the initial observations and some information from the teacher, it was found that the students in that class had different categories of learning characters namely; students who were active and focused (10 students), active but out of focus (2 students), passive but focused (19 students), and faceless and out of focus (5 students). It is supported by the results of preliminary observations which showed that only 30% of students were active in learning history. Relating to history textbooks, it was found that only few students who had the history book although the teacher has required them to have it since

in the tenth grade. There were only 10 students who prepared the textbook while most of them did not bring the book, and there were 6 people carrying M.C. Ricklef's book, entitled Modern Indonesian History 1200-2008. As a result, in every meeting, most students should go to the library to borrow the book in which it made the learning time ineffective. In detail, Historical textbooks owned by students are various including historical textbooks published by Erlangga, Grafindo, and Esist publishers. In addition to M. Ricklef's book, there are also five students who have a book on National Cultural History written by Soekmono.

Implementation of Using Historical Textbooks with Brain Based Learning
According to Dr. Barth, brain-based learning is a learning process that gives students opportunity to increase their learning potential (Calhoun. 2012). Brain-based learning encourages students to actively participate in their own learning and creates a student-centered learning environment. On the other hand, Jensen (2008) defines brain-based learning as "a learning following the way how the brain is naturally designed to learn".

Furthermore, the brain as a learning organ needs to be continually studied to design an effective learning environment. Brain-based learning is an instruction which considers how the brain acquires, processes, and interprets information, as well as connecting, storing, and recalling messages (Zaydeh and Al Astal, 2014). The main idea of brain-based learning is to make learning time more effective and efficient so that they can produce extraordinary results for those who are taught metaphors (Phillips, 2014). One of the basic goals of neuro-pedagogy (brain based learning) is to improve the educational process by using neurology. Neurological knowledge is seen as a science that integrates knowledge from various fields and it is expected to produce a variety of approaches and new shapes of learning (Máčajová, 2013). To be more detail, the principles of history learning using Brain-

based Learning approach are explained below: (1) Create a comfortable learning atmosphere by giving friendly humor and reduce academic anxiety; (2) Teach emotionally and expressively aligning with students' emotions; (3) Connect textbook material with actual information; (4) Create a mind map (summarize textbook material); (5) Students are invited to express their feelings about the reading content in the textbook; (6) Students are invited to dig up information in textbooks and stimulated to express their opinions about the values based on their experiences; (7) Mnemonics, or giving remembering techniques; (8) By using Question and Answer, the teacher explores students' views and feelings when they become certain historical figures; (9) By reading a description of material in the textbook, students are invited to think through discussion and to ask and answer questions about certain material; (10) Choose a caricature or picture found in the textbook and ask students to provide an opinion about picture and caricature; (11) Invite students to share personal matters relating to the material in the textbook; (12) Make questions that explore students' reflective thinking about certain historical events; (13) Draw conclusions from the reading; (14) The teacher provides challenging academic assignments through meaningful projects and opportunities to gain real experience on their own, with friends, in small groups

The components of emotional learning approach in the history learning during eight observations capture the teacher's approach to the students. The result showed that a warm and friendly chat was often done by the teacher in every meeting especially when students were carrying out group work. The teacher acted as a mentor showing genuine enthusiasm for students by approaching each group to answer questions and ask students' difficulties in completing the assignments. The teacher patiently responded to each student's question, no matter how silly the student's questions were.

Mostly in every meeting, the class is full of joyfulness and a lot of humors cre-

ated by the teacher. By doing so, the teacher minimizes students' academic anxiety so that there are no psychological barriers to ask anything in the learning process and reveal what is on their head or their feeling. When the teacher connects material with Australian interception case, there are students chattering some humors as follow *"There are many agents in this class, you know, there are credit agents, aqua agents and gas agents, ma'am"*.

It provokes students to laugh and gives a sense of humor in the class indicating that they are comfortable with the classroom atmosphere. When students use their emotions as their thoughts in the learning, it makes them thinking that learning is more enjoyable (Heartz, 2009). However, there were also found several meetings where the class atmosphere seemed gloomy including the fourth observation. At the meeting many students were absent due to illness. This has an impact on the learning process where many students were not motivated to do the assignments given by the teacher. In fact, students had time to protest and to express in the form of "nausea" behavior when the teacher gave homework assignments. As a result, four of the eight groups were late in a week to collect tasks. It clearly indicates that emotional elements cannot be ignored in classroom.

Referring to the analysis result of classroom observation and interview with the students particularly with those who were categorized as passive and unfocused in their learning, it was revealed that they experienced emotional disorders influenced by many factors such as: family problems, fighting or breaking up with boyfriend, scolded by the teacher, or being sick. Those problems became one of the teachers' concerns because many students experienced the same things. It was indicated by some criteria such as being passive and unfocused. Instead of being passive and unfocused, the students faced a problem in responding the teachers' questions and answer it not properly. Even, it can be seen that they seemed tear - tore the paper, use their cellphone, and com-

plained to themselves.

Nevertheless, the bad atmosphere does not always have a negative impact on the class, for example in the sixth observation. The teacher at the beginning of the lesson asked for prayer from students for his colleague who passed away of "breast cancer". It made students focus on learning due to the emergence of students' empathy for the teacher's sadness. The positive emotions of students toward the teacher seemed to help the learning process better.

However, there are several elements of the emotional learning that have not been identified during the observation as follow. *Firstly*, the teacher did not help students to find motivation to learn, students who lose their motivation seemed sleepy in the class, playing HP, and not paying attention to the teachers. *Secondly*, the teacher faced some problems due to time constraints and overloaded materials that made teachers difficult to achieve a learning target for each student. *Thirdly*, learning has not been directed towards controlling emotions, behavior, and stress management. During observation, it is also identified many frustrated behaviors experienced by students such as crying, anger, and others. It is due to students' seat position as they sat on the back bench. It affects their learning because they tend to be passive and unfocused on their learning process. When there are assignments related to textbooks, they were passive and playing their cellphone continuously. Thus, learning has not yet arrived at the process of understanding emotional intelligence "identifying and labeling feelings, reading moods and feelings of others, managing moods, controlling stimuli, delaying satisfaction, expressing feelings adequately, and empathy for others."

Deal with the students' enthusiasm, it will appear if teacher used familiar and interest material for the students. Historical material that is considered interesting for the students is mostly strange, contains irony, new historical knowledge, and meaningful to them. Thus, these factors can be used as a basis for teachers to choose historical material that invites students' enthusiasm.

Cognitive learning system according to Given (2007) is the system that receives the most attention because this system is related to reading, writing, counting, and all other aspects in the development of academic skills. During classroom observations, there are several activities that showed this learning pattern, namely: (1) Students are assigned to identify the process of the archipelago's initial contact in Islam; (2) Students discuss their textbooks and the teacher prepared a time line; (3) Students examine the contents of the textbook regarding the evidence of Islam and identify it based on the date of the year; (4) The teacher assigns to classify evidence from within the country and evidence from abroad; (5) Discussion explains the process of Islamic Hypothesis in Indonesia; (6) The teacher displays slides on channel distribution (trade, marriage, art, education, Sufism, da'wah, politics) and interesting and colorful silde; (7) Students are instructed to make a quick formula; (8) The teacher always connects current material discussed with the subject matter.

One of the approaches developed by Eric Jansen in Brain-Based Learning is memorizing or remembering techniques. From the results of the study, it reveals that different lessons require different ways of storing and remembering the information (Jansen, 2008: 334). Here are some mnemonics made by students to memorize the names of Songo Guardians in the form of abbreviations and short narratives, namely: (1) Ibrahim, the bonang player from holy keeps time on mount **jati** while eating apples with giri and murya in a temperature of 0 **derajat** (degree); (2) There is a bus in the Muria Mountain and the driver smoked a cigarette named **Kudus**. The bus to Wonogiri brings Semen **Gresik** and Bonang musical instruments. When he arrived on the mountain, there are a lot of foam slipped by an apple until it fell into the river and burned up to 1000 **derajat** (degrees); (3) AmJaBonKaldragirmurkuSik; (4) Eating **Apples** with satay **maulana** yusuf with **giri** who got fever up

to 40 **Derajat (degrees)** with **Mulia** aside the cross of **Kalijaga** after that he possessed by a **Kudus (**sacred**)** soul above **gunungjati** (jatimountain**); (5)** G3K2AMBD; (6) GreNga-BaDragiMuKuKaGuGu; (7) Gujat Sik guard the mop Mur, bro, Dus jat; (8) Gresik likes to play handsome with threads at 20 degrees in Kali. The giri likes soto kudus and Muria likes to mount teak; (9) Giri, Degajat, you are playing bonang while eating as high as a mountain, which is between Gresik and holy cities; (10) Degree of going to the mountain of teak passing the **Kalijaga** continues to buy apples in cubes whose contents are keusik all thrown bonang until the teeth dislodged and went mad.

Based on the explanation above, a social learning system encourages students to work in group, respect others, and enjoy people's attention. The social system deals with individual interaction with others or known as interpersonal experience (Given, 2007). From the results of observations and analysis of students' assignments, it appears that students are motivated to be able to work with others by discussing their difficulties. To be clearer, the social learning system that has been done throughout the learning process can be seen below: (1) Students got a writing task as a group task. They were supposed to write information in the form of tables, two disseminating characters besides the guardian of Songo, which is done with peers. The points that must be identified by the students are the name of the person who spreads the religion, his background, the area that was disseminated, and the way it was spread; (2) Group tasks regarding the Islamic kingdom in the archipelago. Some points that should be noticed here is to study a map of the land and the establishment of its origin, the king, relations with the west (treaty warfare, attempts to hold the West), some great things, critical questions, and things considered useful, inspired students, from learning about Islam in Indonesia.

During the learning process, the teacher did not apply a physical learning yet since the model seems too difficult for the students. As stated by Given that physical learning system (2007) is a learning process oriented towards active students' participation and kinesthetic aspect (movement or action). In this learning model, teachers are expected to train, inspire, and support active participation for students' success. Thus, this learning system is quite complicated to apply in the history class.

Meanwhile, reflective learning according to Given (2007) guides students to understand themselves. Jensen (2008) describes the importance of reflection process including: developing skills and understanding of self-reflection, positive inner dialogue, learning from mistakes, and recognizing strengths and weaknesses. During the observation, the teacher directs students' reflective thinking on the usefulness of learning historical materials. By doing so, there are several benefits can be gained by the students in learning historical material as follow: (1) Knowing the history of the Islamic Kingdom; (2) being an educational tool; (3) being new inspirations; (4) being an entertainment; (5) Knowing the fact that if Demak Kingdom does not exist, the region will still be Hindu-Buddhist; (6) obtaining knowledge of Demak kingdom and other kingdoms; (7) knowing the history of archipelago that has been exporting rice since a long time ago, and questioning why Indonesia is importing rice nowadays; (8) With the existence of Islamic learning in the archipelago, knowing the struggles of the propagators of Islam until Islam is now the majority religion in the archipelago.

The Impact of Using Textbooks through Brain-Based Learning on Students' Historical Thinking Ability

Based on the observation results, it was found that using textbooks through brain-based learning approach help students to identify facts in textbooks, classify facts in textbooks, and then link between one fact and the others more easily. In this case, students are able to identify facts that show evidences of Islamic arrival to Indo-

nesia. The evidences revealed by students are explained as follow: (1) In Sumatra (on the northeastern coast of northern Aceh) a tombstone of Sultan Malik al-Saleh was investigated from 696 Hijriah (1297 AD). There were similarities identified between the tombstones in Pasai, North Sumatra, on 17 Dzulhijah 831 H / 27 September 1428, also tombstones at the tomb of Maulana Malik Iberahim (822 H / 1419M), in Gresik, East Java, with a tombstone in Cambay, Gujarat India. It is predicted that the tombstones were imported from Gujarat to the Archipelago Region along with the spread of Islam; (2) In Leran, Gresik (East Java) there is a gravestone inscribed with Arabic letters, which contains information about the death of a woman named Fatimah bint Maimun who was 475 Hijriah (1082 AD); (3) Ma Huan's Note (1400); (4) Marcopolo's travel record (1292) in Samudara pasai. There was news from Marcopolo who came to Perlak in 1292 reporting about many Gujarat traders who had crossed Islam in North Sumatra; (5) Chou Kou Fei's notes

Then the learning turned to process of identification specifically identifying facts about the Islamic Kingdom in terms of the process of establishing the kingdom, the ruling kings and relations with outsiders provided in the textbook. From these data, it can be concluded that students are able to identify various facts about the history of Islam and can easily classify these historical sources based on sources from abroad and domestically, however they still faced difficulties to combine these facts. The following are the types of facts that students thought it hard to find the answers in the textbooks. (1) Children found it difficult to identify some facts not found in textbooks, therefore it is important for the teacher to further study these textbooks in the process of learning history in class; (2) Children have difficulty in identifying facts related to geographical location elements. They were confused about where Cambay, Gujarat, Koromandel, Leran (Gresik) are located as well as where Islamic kingdoms are located; (3) Students have difficulty in identifying facts relating to the elements of detailed Islamic beliefs (Jurisprudence, Islamic schools, differences in Sunni and Shia, Sufism and their schools, and Arabic).

Facts in learning history such as years, names of actors and events, where events, concepts, causality, analysis, interpretation, synthesis / reconstruction are intended to build students' ability to memorize (memorize), understand, and form collective memory (Hamid Hasan, 2012) . Regarding these objectives, students' ability in identifying facts can be classified in the following results as follow: (1) Students recognize that in historical textbooks there are always historical actors. The actors can be categorized as a person, group, community or the entire nation even that rarely found in historical events; (2) Students identify leaders and drivers of a community in a certain period. The leader is generally a person or a group that has an initiative to mobilize a group of people in order to achieve certain goals; (3) Students identify a particular historical fact that has a background and a causal relationship. But as revealed earlier, students have not been trained to reveal the complex interrelationships between these facts; (4) Students identify historical actors who are often treated unfairly in historical stories. In addition, they are mostly represented displaying black and white glasses (heroes, traitors, fighters, rebels) and only mentioned as a name without further involved in the historical events.

However, textbooks are still used only as main resources for information to substitute teachers' role in the class. In fact, other sources of information that require the ability to learn, find, determine relevant information, and collect them have not been implemented in the history class. In this case, History teacher still has to work hard to realize students' involvement in information-seeking activity (Hamid Hasan, 2012). Based on the observation results, students' ability to search historical sources seems to improve as follow: From the results of the observation,

Table 1. The questions asked by students

No	Aspects	Questions
1	Factual questions to obtain information from the reading text	a. Is camphor only produced in Indonesia? b. Is Sultan Malik Al Saleh from an Arab or Indonesian? c. Can Arabs speak Malay? d. Who is Fatahillah?
2	Questions for understanding reading texts	a. Is the Qur'an an Arabic tradition? b. Malacca is the territory of Malaysia, why is it discussed in Indonesian History? c. what is the difference between Teuku and Tengku? d. Aceh's royal flag, why it does look like Turkey?
3	Analysis Questions	a. Why did the council choose guardian Songo? b. why is the capital city moved? c. Ma'am, were you victorious before Europe, Indonesia was first Jaya, VOC could be banished? d. Why in the archipelago, when the entry of Islam did not occur such a huge conflict as in Mecca?

the following are described about the students' ability to search historical sources, including: (1) referring skills (reference skills), are related to ability of finding information through table of contents, chapters, sub-chapters, indexes, and others. This ability can be seen from the articles made by students, such as "This gravestone is the oldest Islamic tombstone found in Leran, East Java and has a date of 475 H (1082 AD). This is the tombstone of a woman, the daughter of a man named Maimun (Ricklefs, 2008: p. 3). The book that students use is the Erlangga-published Class XI History Package Book, Modern Indonesian History (M.C. Ricklefs), Introduction to Indonesian Volume 3 (Soekmono) Cultural History, and the Book of History Package XI IPS class by I Wayan Badrika; (2) understanding skills (comprehension skills) are dealt with ability to understand textbooks content, written texts, words and phrases, relationships between ideas, diagrams, maps, and others; (3) analyzing and criticizing skills associated to ability of questioning. These students' skills should be supported by their reading skills and asking questions so that they can notice certain aspects or problems. Furthermore, intelligence and mental skills also should be taught to the students as a perquisite to categorize reading content and criticize it.

Based on the explanation above, it can be concluded that the strategy of reading history textbooks is closely related to the questioning strategy. Every reading strategy can be followed by a questioning strategy with the aim to increase acquisition, process and produce information (Supriatna, 2007: 130). If this model is further developed, it may be an alternative to improve quality of history learning more specifically to be an interesting lesson which encourage students to become independent learners. In addition, it mainly improves students' skills such as processing, analyzing information, drawing conclusions and producing new knowledge from the texts they read (Supriatna, 2007).

By applying a questioning strategy in a cognitive and emotional approach, as well as reflective, the students were challenged to issue of critical questions. The results of observation and data analysis from class XI IPS A students, the questions asked by students can be categorized into several types of questions.

From those data, it can be concluded that the type of questions raised by students is an analytical question requiring a

deep thinking process through comprehending a whole context, finding ideas, analyzing reading content. It is absolutely contradictory with factual questions in which answers of questions can be identified explicitly from the text. In fact, to response such questions, the ability of analyzing and classifying ideas are required from the students. By reading the text integrated with such teacher's questions, students will gain an understanding as well as an ability to analyze the reading content (Supriatna, 2007).

Furthermore, students spontaneously recognize that to response those questions require them to find, use, and even analysis other resources. In some cases, it was seen that the students were not able to answer several analytical questions. To overcome this situation, the teacher tries to direct them by giving clues to answer it. However, once it did not work well, the teacher just gave the intended answers to the students directly.

On the other hand, the students' ability to evaluate historical facts is manifested in two ways, namely students' critical questions and their analysis of historical evidence. Several questions indicating students' critical power that appeared during history learning process can be seen as follow. *Firstly*, Hikayat Raja-Pasai is one of the sources of the entry of Islam in the archipelago. But is it true that a sultan Malik As Saleh can read the Koran and be circumcised in magic after he awakens from a dream, the Prophet appears and gives him the religion of Islam? From the analysis of students' responses, it shows that they questioned historical narratives that do not make sense. They argue that unreasonable historical events cannot be accepted since the students' thinking, everything has a process including how the Sultan can understand Islam, can read the Qur'an, both of which will require the existence of a scholar who is the teacher. However, from students' opinions, they still believed with the description even though it is considered as unreasonable things. It is unsurprised since some cases in religion are not always rational. In ad-

dition, the teacher then explained to the students that supernatural things were mostly disseminated to add to magical power and sacredness of a king's position. This was needed so that the people would remain loyal to the king even though the king made a conversion.

Secondly, the book states that the gravestone / grave of Sheikh Maulana Malik was imported from Gujarat. How could the inventor of the tomb know that the stone was imported from Gujarat? Students' critical power was proven from those questions, even though such questions may indicate a low students' reading intensity since the answers are already explicitly written in the textbook.

From the description above, it reveals that the students' ability to identify historical evidence and relate it to certain opinions can be considered as the students' critical thinking patterns. Critical thinking is a thinking concept that has four attributes namely analysis, attention or attention, awareness or awareness, and giving independent consideration (Haris, 2001). Each concept is different from other concepts based on its attributes and the structure of the essence. A person is categorized to think critically when mastering or possessing the abilities of these four attributes. Out of the four points, attribute of analysis and attention appear in the questions and descriptions given by the students.

The ability of the students to understand historical interpretations leads to a deep understanding of various historical events that are considered important to build critical thinking skills, learning abilities, curiosity, social care and national spirit (Hasan, 2012). With regard to understand the content in the textbooks, the students who learn history must be able to identify various types of information obtained from a source: facts, concepts, generalizations, theories, procedures, processes, values, attitudes of psychomotor skills and so on.

In the process of understanding information what Gagne said should be a focus in which he advocates the term

"cognitive strategy" in learning process. This term implies that learning activities in understanding information must train students in various ways to understand information. Based on the obtained data, the process of understanding information found in the child's process of 7 understanding and analyzing the historical hypothesis. Specifically, there are 45.4% of students who think Arab hypothesis is the strongest, and 27.3% of the students judges Indonesian hypothesis is the strongest one. Meanwhile, there are 18.2% who rate Persian hypothesis as the strongest and as much as 9.1% rate Chinese hypothesis as the strongest. However, behind all mentioned components, it can be inferred several points: (1) Students are able to identify the strengths and weaknesses of each hypothesis; (2) Students can relate the linkages of hypotheses with the evidences that support them; (3) Students can provide feedback regarding the weaknesses of various other hypotheses including evidences that support them.

Edwar Hallett Carr (1961) stated that "History is a continuous process of interaction between history and its facts, and unending dialogue between the present and the past". It means that History is a process of continuous interaction between historians and the facts that exist in those subjects, and a dialogue that has no end between the present and the past "(1982: 30). Therefore, history is basically a result of reconstruction of dynamic historians based on the interpretation of available facts. The reconstruction was carried out based on the *prossesual* insights and skills, as well as scientific principles that were very much determined by the completeness of the facts. However, the facts are never absolutely complete thus it requires creativity to help the students develop their imagination (not fiction) (Supardan, 2008). Here are some results of the students' construction related to the history about Islam in Indonesia which they got after analyzing various textbooks:

Firstly, Islam firstly came to Indonesia in the first century Hijri (651 AD) especially in the coast of Sumatra. Then, Is-

lamic community was constructed where the first Islamic kings in Indonesia were from Aceh. In the following years, many Indonesian people actively took a part to introduce and to disseminate Islamic belief to other areas in Indonesia. Most of Islamic preachers did their mission while being a merchant. Islam was spread in Indonesia through a peaceful manner. The arrival of Islam in Indonesia brings high intelligence and civilization in shaping the personality of the Indonesian nation.

Secondly, use of Arabic. According to the students, acculturation processes can occur through the trade process. It is assumed that the foreign traders who come to the archipelago learn local languages first and then they communicate with local people to spread their beliefs and cultures through trading. The acculturation process may be done through sign language and body language. Although there is no language such a lingua franca at that time, the communication and information transmission could be done directing to acculturation process.

In general, what is being experienced in the present is a continuation and adjustment of what happened in the past. The differences between the past and the present require changes and adjustments. Therefore, to understand the present, students must also understand the past in which students must think in different time dimensions. This is considered as an intellectual challenge for the students. Historical material has a potential to motivate learners to recognize the nation's values that were fought for in the past, maintained and adapted for the present life, and further developed for future life.
Some findings based on the students' understanding toward the relation between present and past events can be seen below: (1) The students understand that the diversity of Muslims religious understandings at the level of school, *fiqh*, Sufism, thought and others occur at this time starts from the previous *Islamization* processes and this phenomenon is much influenced by diverse nations; (2) The students consider that currently Muslims have problems in

the practice of their teachings due to western influences which have begun to emerge during the period of Western colonialism and imperialism simultaneously done with the time of Islamic growth. Therefore, there is a term "Islam Kartu Pelajar" which refers to a Muslim with secular ideas.

Levstik and Barton (1997: p. 91) reveal that *powerful historical stories* are *cultural forces* because they are able to present historical interpretations through an impressive way and directly influencing the students' historical thinking. A close relationship between the teacher and the students can create a humorous classroom which raises students' confidence, share their opinions and ask any questions. However, students are not used to express their emotions when learning history, especially those related to textbooks for example the students felt awkward when telling personal things related to Islam.

Regarding this, previous related studies confirm that some reasons behind "a boring history class" is due to low students' emotions involvement during the learning process which is not balance with their cognitive one (Heartz, 2009). When students use their emotions as their thoughts in learning, they may feel history learning more enjoyable and joyful (Heartz, 2009: 4). Thus, with an ideal synergy between cognitive and emotional learning, historical facts are easily remembered by the students, especially the interesting ones. Interesting historical facts which are previously considered as strange information, ironic thing, and new knowledge become a meaningful one to them. It is in line with Kama Abdul Hakam (2000) who posits that learning without the influence of emotional elements will not affect behavior, and the education system that sets aside feelings and emotions is clearly ineffective. Balancing between intellectual and emotional aspect when learning will provide a better opportunity to remember historical facts, create more enjoyable learning history, and bring students closer to the nation's past.

There are some parts of students' historical thinking which have not been able to emerge using the brain-based learning approach namely: the ability to understand changes in a period of time and to compare as well as to analyze historical stories or illustrations. In fact, those abilities should be supported by critical thinking skills. According to Slavin (Wandi, 2008: p. 65), one of important principles in education is that teachers should not provide knowledge directly to their students, but students must build their own knowledge in their minds. Meanwhile, the teacher's role is to provide convenience in this process by giving opportunities for students to find or apply their own ideas (Moh. Nur, 1996, Wandi, 2008). To build this knowledge, a thinking process is needed. Thinking is a personal activity that results in a directional discovery to a goal (Purwanto, 1992), or on the other hand, thinking is considered as a cognitive process, a mental activity to acquire knowledge (Presseisen, 1985 in Wandi, 2008). There are three things that can make up rational thinking skills: analytical, critical and creative.

From the description above, it seems that the brain-based learning approach should be supported by the following steps so that the students' critical thinking skills may improve through: (1) Interpreting historical sources both in following explanations of textbooks and opinions of historians; (2) Making "presupposition" questions (example: will Indonesia be independent if Hirosima and Nagasaki are not bombed by the United States?); (3) Developing a *synectic* learning model (Gordon, 1961); (4) Conducting historical research in the field, by comparing through the types of "open questions" between historical facts in the field and writing in textbooks; (5) Conducting historical studies using approaches and methods of "inquiry" or "Postmodernism" or "structuralism".

The Impact of Using Textbooks through Brain-Based Learning on Students' Historical Understanding Ability

Historical understanding relates to making

-meaning process carried out by the students when reading textbooks. Historical stories according to Egan (Levstik and Barton, 1997) are always able to involve human responses and interests to certain historical events, and they begin to better understand history (historical understanding). This case is further elaborated by Levstik and Barton (1997) that "Stories are, after all, generally more compelling reading than a textbook". Both in primary education and in high school history learning must produce as stated by Waterworth (2000) that it is as an effort to "accommodate or expand students' appreciation of the historical events they learn".

The history learning process must provide opportunities to every student to understand, to give appreciation, to develop valuable values in their life, and to use historical knowledge and values to develop their nation's life. History learning will be better in the position of "bank of examples" through biography education. Through the biographical approach, students will know more about personalities of historical actors so that ways of thinking, insights, values and attitudes, as well as actions of historical actors become "bank of examples" for the students. Through this "bank of examples" students can emulate the behavior of historical actors, develop it to be inspiration and then develop inspiration into aspirations (Hasan, 2012). To be clearer, here are some expressions from students that illustrate their appreciation of historical events: (1) If I become the recipient of Islam, I will train my mindset to think which is right and what is wrong; (2) If I am the recipient of Islam, I may not pay attention first. However, by seeing an Islamic figure who shares Islam with a good manner and has decent behaviors will affect me to think that Islam is the right religion. Then I will believe in Islam; (3) When becoming a recipient, I may feel interested when there are traders / foreigners who come and teach me new cultures without forcing me to leave the local traditions. By doing so, people will be interested in learning the culture more.

Overall, using brain-based learning may bring some benefits on the students' historical understanding. First, the use of history textbooks through brain-based learning approach helps them to understand history better, to gain important values in life, to feel and to appreciate the characters, to recognize various conflicts and other human problems. Second, reading history through this approach also helps students to understand the process of social changes in society. In addition, from students' perceptions, the textbooks help them to know better and deeply about their family, environment, community, culture, society, and history of the nation. Furthermore, the use of historical textbooks with a brain-based approach helps students to get experience of their own past events. From these data, it can be concluded that historical textbooks help students improve historical understanding in several ways such as making students easier to understand and interpret history, to gain important values in their life, to feel and live the characters, to notice various conflicts and other human problems. The use of history textbooks through a brain-based learning approach to improve the students 'ability to understand the current events based on the past, the ability of students to live up to historical descriptions, and students' abilities in the reflection of History.

To make it clearer, the influence of studying textbook on students' historical understanding can be seen from the following description: (1) Giving a deep understanding of society. They understand that the present is a continuation and adjustment of what happened in the past; (2) Building students' historical awareness about the importance of understanding, appreciating, developing values from history into their own values, and using historical knowledge and values to develop the national life of their nation; (3) Building students 'historical awareness of students' awareness that to be a historical figure must give a big role in society; (4) Promoting students 'historical awareness related to students' religious behavior per-

sonally so that it may improve Muslims' condition in general; (5) Constructing students' historical awareness about diversity starting from the arrival of Islam which is diverse in terms of the arrival time, the carrier, and the way of *mubaligh* including the guardian of *Songo* preaching Islam in Indonesia; (6) Creating students' historical awareness that most of the Indonesian must be smart to find partners to see the social conditions so that they can compete and win from other nations.

CONCLUSION

Brain-based learning in education has been a familiar learning approach, however in History subject, there are still limited studies that extensively focused on this topic. In the last two decades, research on brain-based learning has rapidly developed. Moreover, many educators implementing this approach have achieved amazing findings. Based on the classroom observations on eight meetings, it was found that there are several emotional learning aspects that appear during the history learning namely: a close relationship between the teacher and the students in the way the teacher friendly approached the students during class discussion and a cheerful and enjoyable class created by the teacher since a lot of humors and jokes can be found along the learning process. By doing so, the teacher minimizes students' academic anxiety, so that there are no psychological barriers during the learning process but the students become enthusiast and motivated to learn.

On the other hand, the students who were categorized as passive students in class and did not focus on their learning revealed that they experienced emotional disorders. Those students were still not familiar to express their emotions when learning history, especially those contents related to textbooks. They felt little bit awkward when the teacher asked them to tell their personal things related to their belief, Islam. Students are invited to be able to collaborate with others, identify facts and discuss their difficulties. During the learning process, the teacher has not shown a physical learning. The system of reflexive learning can be seen from the teacher's efforts to engage the students to express the benefits of studying historical material.

The use of cognitive and emotional approaches in learning brought students to have the ability to identify and to classify facts in textbooks. However, in this study, the students still met difficulties to link between facts to the other one. There are some parts of the students' historical thinking which cannot be emerged using the brain-based learning approach such as the ability to understand changes in a period of time and the ability to compare and analyze historical stories or illustrations. Those abilities should be supported by critical thinking skills. The influence of the textbook study on the students' historical understanding can be seen from the following description. Furthermore, the use of this model gives students opportunity to better understand history, gain important values in their life, feel and appreciate the characters, various conflicts and other human problems. The use of historical textbooks through a brain-based approach helps students to connect facts with their own past events and to understand the culture that exists in the society. In addition, this approach also helps them to understand the current events by associating it with the past one.

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