

THE INFLUENCE OF TEXTBOOK USE IN HISTORY LEARNING BY MEANS OF BRAIN BASED LEARNING TOWARD HISTORICAL THINKING AND HISTORICAL UNDERSTANDING OF THE STUDENTS

Wawan Darmawan*

Abstract: The study was to examine the teachers' efforts in using the history textbooks within the history learning process in the class by implementing multiple strategies and approaches in order that the textbook use might be optimum and one of the approaches was the brain based teaching. The study applied the quantitative approach and strived to compare the results of qualitative studies that had been conducted previously. In the history learning process in the XI Grade Social Program and the XI Grade Science Program of 4 Bandung State Senior High School that utilized the textbooks, the researcher might explain that through all of the learning approaches (emotional, social, cognitive, physical and reflective approach) basically the students had been able to show their performance in accordance with the five approaches. The most dominant historical thinking indicator that appeared in the learning process was the learning participants' capability in understanding the social concept change in the history and the historic methodology, namely the stages in performing a historical study. On the other hand, the less dominant indicator in the historical thinking within the learning process that the teachers had conducted was the learning participants' capability in displaying different paradigm or in viewing an event from different perspective. Then, the frequently appeared indicator in the learning process that the teachers had conducted was the learning participants' capability to filter the information and to identify the history of their family, community, nation and state. The understanding toward the political climate had been the less appeared historical thinking indicator in the history learning process.

Keywords: History textbook, brain-based learning, historical thinking, historical understanding, history learning.

INTRODUCTION

The history learning process might be well implemented and might achieve the desired objectives if there are multiple media that support the learning process and one of the media is the textbook. The textbook has been an important part in the history learning process because up to date the history textbook has been considered as the main teaching material so that its presence is an inseparable part of the learning process (Prastowo, 2011:169).

Textbook is a learning tool that has frequently been used in the schools and the function of a textbook is to support the learning process. Usually a textbook is the experts in the related domain, in this case the history. In Indonesia, the history textbook is usually written by lecturers or teachers. The history textbook in the form of learning textbook that circulates in the schools has been the main source that the history teachers benefit in order to expand the learning process in the classroom

* History Department, Faculty of Social Sciences and Education, Universitas Pendidikan Indonesia

(Supriatna, 2007). The books that have been published by multiple publishers always quote the word “in accordance with the governing curriculum” (Hasan, 2000:28). The quotation indicates that indeed the books have been the main sources for the students that are in accordance with the curricular demands as having been written in the formulation of Competence Standards and Basic Competencies.

However, there are problems in the textbooks that have been used in the history learning in the schools nowadays. The problems lie on two aspects, namely the inoptimum use of the textbooks and the content of the textbooks. The inoptimum use of the textbooks happens due to the fact that nowadays both the teachers and the students have not used the history textbooks in a maximum way. The textbooks have only been used by the students as an assisting tool for accomplishing the tasks given by the students and for preparing themselves to do the examinations. Even in several cases that the researcher found in the field, the textbooks have inhibited the teachers and the students. The materials that will be developed become focused and limited to the textbooks and the materials that the teachers deliver by means of lecturing similarly to what the textbooks have delivered.

Definitely such textbooks condition leads to a strong view among the students that learning history is not more than learning to memorize the facts. Such view causes the occurrence of attitudes that display boredom, low interest toward history and even an impression that learning history does not mean anything. The danger of this situation is that the students will have low reading capability whereas, as having been proposed by Sjamsuddin (2008: 267-268), “reading” is one of the absolute requirements in learning history.

Indeed, the low reading culture in the society might be seen from the data of IAE study which shows that in 2006 Indonesia was in the lowest rank of reading interest. According to the UNDP data in 2000, the level of Indonesian literacy was 65.50%. The weakness found in the Indonesian people does not only lie in the reading interest but also in the reading materials absorbing capacity. According to Sutikno (2006:95) one of the ways for improving the reading interest is to encourage the high level of curiosity. Then, from the curiosity the reading concentration and the good level of reading focus will appear. Reading culture is one of the cultural development characters in a community or a nation that has orientation toward the education and the science. Lord Bacon, one of the English philosophers, once stated that reading makes someone complete (Sutikno, 2006:95).

In response to the multiple problems, including several limitations of the history textbook, the teachers should review the use of history textbooks in the history learning process by applying multiple strategist and approaches so that the use of history textbooks will be optimal and one of the strategies and approaches that might be applied is the brain-based learning. Brain-based learning is not a new matter in the educational domain; however, the application of brain-based learning

in the history learning has not been found in many in-depth studies. Within the last two decades, the studies regarding the brain-based learning have indeed developed rapidly and the educators who apply the findings from these studies have attained extraordinary results (Jansen, 2008:vii).

Brain-based learning actually a brain capacity-based learning and strives to understand the relationship between the brain and the learning process that delivers people to the role of emotion, pattern, purporting, rhythm environment, gender and enrichment (Jansen, 2008:vii). Brain-based learning actually is an application of neuroscience into the education. Given (2007:40) appraises that the implementation of brain-based learning in the educational domain is very important because education is identical with developing the desire to learn, understanding the learning manner and applying the teaching practice based on the actual brain function. Barbara K. Given develops five learning system frameworks namely: emotional learning system, social learning system, cognitive learning system, physical learning system and reflective learning system. In the conception of Given (2007:66-67) there is not any learning system that stands alone. The action of each system will influence the other system as a part of bigger unity.

The optimalization of textbooks use in the history learning by means of brain-based learning is expected to improve the historical thinking and the historical understanding. The historical thinking skills are the skills that: enable the students to differentiate the past, the present and the future; raise questions; search for and evaluate the evidence; compare and analyze the historical stories, illustration and notes from the past; interpret the historical notes; and construct the history in the students' own version (Mâmur, 2008: 197). On the other hand, the historical understanding standards are the standards which stipulate that the students should understand the history of their family, community, state, nation and world.

METHOD

The approach that the researcher applied in the study was the quantitative one in order to test certain theories by investigating the inter-variable relationship (Creswell, 2010, p.4). In this design, the researcher took notes and analyzed the data from the results of the study by means of statistical calculation and the method that the researcher would apply was the correlation one. In the study, the approach that the researcher applied was the quantitative one because in order to answer the problem formulation the researcher demanded meticulous and objective measurement toward the variable from the object under investigation so that the research would draw generalizable conclusion. Therefore the researcher would like to implement the quantitative approach in the study.

As having been explained in the previous paragraph, in the study the researcher applied the correlational method because the researcher would like to understand the

relationship between one variable and another. The relationship would be stated with the size of the coefficient correlation (r) and the statistic significance (Sukmadinata, 2006:56). With the use of the coefficient correlation and the significance, the researcher would attain the data that might answer the problem formulations so that the researcher would uncover the size of the relationship from one sub-variable to another. The size of the relationship between one sub-dependent variable to another in the study referred to the equality of the dependent variables. The intended relationship was not the influence relationship or the causal relationship among the variables; instead, the intended relationship was the equality relationship between the sub-independent variables and the sub-dependent variables. The equality relationship would generate the positive and the negative correlation.

The correlation study was necessary in order to identify the relationship degree of the history textbook use by means of brain-based learning with historical thinking and historical understanding. The study was conducted after the qualitative study had been finished and had been successful in designing a learning model that had been conducted in the previous stage.

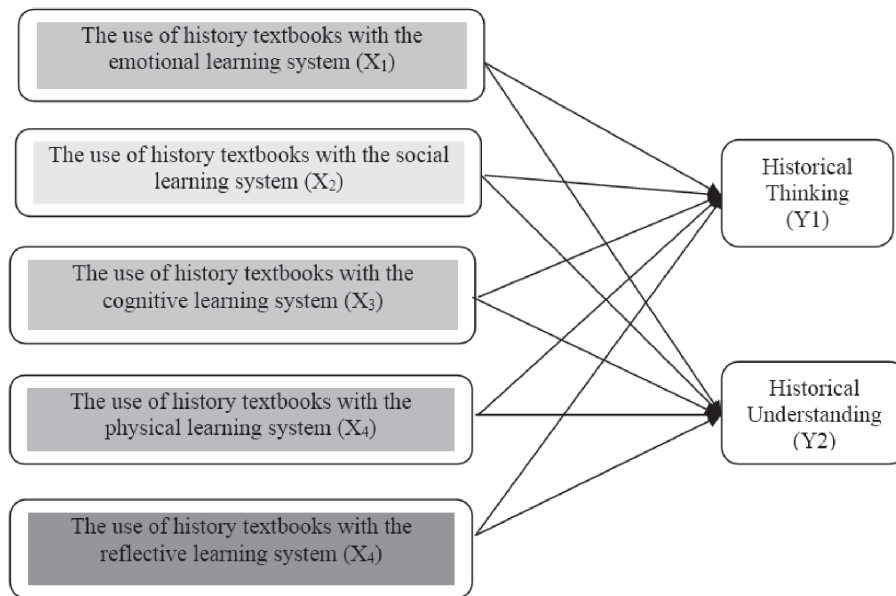


Figure 1: The flowchart of the relationship between the sub-independent variables and the dependent variables

RESULTS AND DISCUSSIONS

- 1. The Influence of History Textbook Use with the Emotional Learning System toward the Historical Thinking and the Historical Understanding:**

From the results of the correlation test, the correlation value that the researcher attained from the X_1 and the Y_1 was 0.357; in other words, there had been a **weak** relationship between the emotional learning system and the historical thinking. In details, the correlation between the emotional learning system elements and the historical thinking would be as follows:

TABLE 1: THE CORRELATION BETWEEN THE EMOTIONAL LEARNING SYSTEM ELEMENTS AND THE HISTORICAL THINKING

<i>Emotional Learning System Elements</i>	<i>Correlation Value to the Historical Thinking</i>	<i>Correlation Meaning</i>
Teachers' Enthusiasm	0.105	Very Weak
Sense of Humor	0.362	Weak
Self-Confidence	0.329	Weak
Learning Desire	0.412	Strong
Personal Targets	0.260	Weak
Challenging	0.234	Weak
Anxiety Decrease	0.113	Very Weak
Independent Tasks	0.207	Weak
Stress Management	-0.021	Zero Correlation
Cooperation	0.119	Very Weak
Emotion Control	0.191	Very Weak
Spirit	0.440	Strong
Relevance	0.343	Weak
Emotional Intelligence	0.261	Weak
Feeling Expression	0.030	Very Weak
Description Exploration	0.123	Very Weak
Pictures and Caricatures	-0.012	No Correlation
Stories of Personal Experiences	-0.037	No Correlation

Source: Data Processing (2014)

From the table, the researcher found information that the main cause of the low correlation between the emotional learning system and the historical thinking was the fact that all of the variable indicators had weak, very weak and even no correlation at all. However, there were two emotional learning system indicators had strong correlation to the historical thinking skills namely the use of history textbooks in the history learning process that encouraged the learning participants' learning desire and that evoked the learning participants' creativity. As having been explained by Hakam

(2000:40), learning without the influence of emotion (desire or motivation) would not influence the behaviors and the educational system that put aside feeling and emotion would definitely be ineffective. Balancing the intellectuality and the use of emotion to the logic during the learning process would provide better opportunity to remember the historical facts, would make the history learning be more enjoyable, would bring the students closer to the past of their nation and would fill the gap in the search for the social facts or the mental facts.

Then, the correlation value that the researcher attained from the X_1 and the Y_2 was 0.402; in other words, there had been **quite strong** relationship between the emotional learning system and the historical understanding. In details, the correlation between the emotional learning system elements and the historical understanding was as follows:

TABLE 2: THE CORRELATION BETWEEN THE EMOTIONAL LEARNING SYSTEM ELEMENTS AND THE HISTORICAL UNDERSTANDING

<i>Emotional Learning System Elements</i>	<i>Correlation Value to the Historical Understanding</i>	<i>Correlation Meaning</i>
Teachers' Enthusiasm	0.060	Very Weak
Sense of Humor	0.205	Weak
Self-Confidence	0.253	Weak
Learning Desire	0.300	Weak
Personal Targets	0.304	Weak
Challenging	0.234	Weak
Anxiety Decrease	0.203	Weak
Independent Tasks	0.245	Weak
Stress Management	-0.023	Zero Correlation
Cooperation	0.336	Weak
Emotion Control	0.246	Weak
Spirit	0.436	Strong
Relevance	0.312	Weak
Emotional Intelligence	0.344	Weak
Feeling Expression	0.031	Very Weak
Description Exploration	0.205	Weak
Pictures and Caricatures	0.071	Very Weak
Stories of Personal Experiences	-0.008	Zero Correlation

Source: Data Processing (2014)

From the table, the researcher found information that most of the emotional learning system indicators had weak correlation value in relation to the learning participants' historical understanding; whereas, in overall the correlation between the emotional learning system and the historical understanding was **quite strong**. The finding was acceptable from the correlation value of each learning system indicator that had been closer to the strong correlation. Thereby, the researcher might conclude that the learning participants' historical understanding would improve with the use of history textbooks that encouraged the learning participants to have the learning desire, the creativity spirit, the cooperation in learning process, the awareness toward the importance of having and manifesting the life objectives and the possession of emotional intelligence.

2. **The Influence of History Textbook Use with the Social Learning System toward the Historical Thinking and the Historical Understanding:** The correlation value that the researcher attained from the X_2 and the Y_1 was 0.279; in other words, there had been **weak** relationship between the social learning system and the historical thinking. In details, the correlation between the social learning system elements and the historical thinking was as follows:

TABLE 3: THE CORRELATION BETWEEN THE SOCIAL LEARNING SYSTEM ELEMENTS AND THE HISTORICAL THINKING

<i>Social Learning System Elements</i>	<i>Correlation Value to the Historical Thinking</i>	<i>Correlation Meaning</i>
Problem solving cooperation	0.189	Very Weak
Personal strength focus	0.268	Weak
Cooperation with small group	0.374	Weak
Diversity appreciation	0.264	Weak
Understanding the importance of cooperation	0.152	Very Weak
Encouraging cooperation through the textbooks	0.266	Weak

Source: Data Processing (2014)

From the table, the researcher found information that most of the social learning system indicators had **weak** correlation value in relation to the learning participants' historical thinking. The weak correlation value was the reason of the low correlation between the social learning system and the

learning participants' historical thinking. However, cooperation in small group turned out to have the highest correlation value in comparison to the other indicators if the indicator would be related to the historical thinking. The reason was that through the discussion pattern facts identification became easier and the students might have discussions if they had difficulties.

Then, the correlation value that the researcher attained from the X_2 with the Y_2 was 0.219; in other words, there had been **weak** relationship between the social learning system and the historical understanding. In details, the correlation between the social learning system elements and the historical understanding was as follows:

TABLE 4: THE CORRELATION BETWEEN THE SOCIAL LEARNING SYSTEM ELEMENTS AND THE HISTORICAL UNDERSTANDING

<i>Social Learning System Elements</i>	<i>Correlation Value to the Historical Understanding</i>	<i>Correlation Meaning</i>
Problem solving cooperation	0.029	Very Weak
Personal strength focus	0.274	Weak
Cooperation with small group	0.352	Weak
Diversity appreciation	0.202	Weak
Understanding the importance of cooperation	0.082	Very Weak
Encouraging cooperation through the textbooks	0.363	Weak

Source: Data Processing (2014)

From the above table, the researcher found information that most of the social learning system indicators had **weak** correlation to the historical understanding. The weak correlation value had been the reason of the low correlation between the social learning system and the learning participants' historical understanding.

3. The Influence of History Textbook Use with the Cognitive Learning System toward the Historical Thinking and the Historical Understanding:

The correlation value that the researcher attained from the correlation between the X_3 and the Y_1 was 0.351; in other words, there had been **weak** correlation between the cognitive learning system and the historical thinking. In details, the correlation between the cognitive learning system elements and the historical thinking was as follows:

TABLE 5: THE CORRELATION BETWEEN THE COGNITIVE LEARNING SYSTEM ELEMENTS AND THE HISTORICAL THINKING

<i>Cognitive Learning System Elements</i>	<i>Correlation Value to the Historical Thinking</i>	<i>Correlation Meaning</i>
Inter-information association	0.156	Very Weak
Association between the memorization and the music, the actual world and the physical activities	0.367	Weak
Focus on problems	0.221	Weak
Information understanding	0.202	Weak
Knowledge search facilitation	0.102	Very Weak
Memorizing strategy	0.226	Weak
Note-taking strategy	0.076	Very Weak
Information-attaining capacity	0.211	Weak
Literacy capacity	-0.009	Zero Correlation
Strongest opinion	0.165	Very Weak
Thinking invitation	0.272	Weak
Information search in the textbooks	0.349	Weak
Mnemonic	0.324	Weak

Source: Data Processing (2014)

From the above table, the researcher found information that most of the cognitive learning system indicators had weak correlation to the historical thinking. The low correlation value became the cause of the low correlation between the cognitive learning system and the learning participants' historical thinking. This finding was quite surprising because in the previous qualitative study conducted in the 5 Bandung State Senior High School, the use of cognitive and emotional approach in the learning process caused the students to possess the capability in identifying and in classifying the facts in the textbooks. However, through the cognitive learning system in the form of mnemonic that the students of XI Grade Social Program 4 Bandung State Senior High School created both in the form of abbreviations and of short descriptions the students could easily remember the facts of Siak Kingdom and Riau Kingdom altogether with the other facts around the discussion of Islam history.

From the results of the analysis toward several factors that had been elaborated previously, there were several aspects that might be explained namely:

- The capability of memorizing facts, understanding information, associating several facts and pursuing literacy would not automatically improve the learning participants' historical thinking. The capability was indeed able to improve the learning participants' capacity in terms of differentiating the past and the present, in understanding the changes and in understanding the cause and effect concept.
- There was one aspect that had been missed in the history learning process by means of textbooks with the brain-based learning and, as a result, the correlation value between the cognitive learning system and the historical thinking capacity became low. The aspect was that the teachers did not train the students to possess and to use the historical thinking capacity. The aspect was apparent in the previous table that displayed the data that the History subject teachers had not frequently exposed the ways of searching the history sources, evaluating the history sources, comparing the history events, interpreting the history, understanding the history interpretation, reconstructing the history and even displaying the historical thinking process.
- However, cognitive learning system had been able to improve the learning participants' memory capacity and the students' daily test average was 8.70.

The correlation value that the researcher attained from the X_3 and the Y_2 was 0.335; in other words, there had been **weak** relationship between the cognitive learning system and the historical understanding. In details, the correlation between the cognitive learning system elements and the historical understanding was as follows:

TABLE 6: THE CORRELATION BETWEEN THE COGNITIVE LEARNING SYSTEM ELEMENTS AND THE HISTORICAL UNDERSTANDING

<i>Cognitive Learning System Elements</i>	<i>Correlation Value to the Historical Understanding</i>	<i>Correlation Meaning</i>
Inter-information association	0.100	Very Weak
Association between the memorization and the music, the actual world and the physical activities	0.257	Weak
Focus on problems	0.153	Very Weak
Information understanding	0.207	Weak
Knowledge search facilitation	0.101	Very Weak
Memorizing strategy	0.184	Very Weak
Note-taking strategy	0.074	Very Weak

Information-attaining capacity	0.259	Weak
Literacy capacity	0.055	Very Weak
Strongest opinion	0.185	Very Weak
Thinking invitation	0.324	Weak
Information search in the textbooks	0.309	Weak
Mnemonic	0.343	Weak

Source: Data Processing (2014)

From the table, the researcher found information that most of the cognitive learning system indicators had **weak** correlation value to the historical understanding. The weak correlation value became the cause of the weak correlation between the cognitive learning system and the learning participants' historical understanding. However, there was one cognitive learning system indicator that earned the highest correlation score among all namely encouraging the students to think. Thereby, the history learning that encouraged the students to think in-depth most of the time had big influence toward the historical understanding capacity.

4. **The Influence of History Textbook Use with the Physical Learning System toward the Historical Thinking and the Historical Understanding:** The correlation value that the researcher attained from the X_4 and the Y_1 was 0.451; in other words, there had been **quite strong** correlation between the physical learning system and the historical thinking. The result was quite contradictory to that of the previous study in the 5 Bandung State Senior High School because during the study the teachers had not displayed the physical learning system. The reason was that the physical learning system was difficult to implement in the history class. In details, the correlation between the physical learning system indicators and the historical thinking was as follows:

TABLE 7: THE CORRELATION BETWEEN THE PHYSICAL LEARNING SYSTEM ELEMENTS AND THE HISTORICAL THINKING

<i>Physical Learning System Elements</i>	<i>Correlation Value to the Historical Thinking</i>	<i>Correlation Meaning</i>
Challenging assignment	0.345	Weak
Inspiring teachers	0.453	Strong
Active involvement in the learning	0.350	Weak
Textbook assignment	0.250	Weak

Source: Data Processing (2014)

From the above table, the researcher found information that most of the physical learning system indicators had **weak** correlation value to the historical thinking; however, the correlation value was closer to the **strong** category. The rather strong correlation value became the cause of the strong correlation between the physical learning and the learning participants' historical thinking. From the above table as well, the researcher also found information that the History teachers who trained and who inspired the students had strong correlation to the learning participants' historical thinking capacity.

Then, the correlation value that the researcher attained from the X4 and the Y2 was 0.437; in other words, there had been **quite strong** correlation between the physical learning system and the historical understanding. In details, the correlation between the physical learning system indicators and the historical understanding was as follows:

TABLE 8: THE CORRELATION BETWEEN THE PHYSICAL LEARNING SYSTEM ELEMENTS AND THE HISTORICAL UNDERSTANDING

<i>Physical Learning System Elements</i>	<i>Correlation Value to the Historical Understanding</i>	<i>Correlation Meaning</i>
Challenging assignment	0.261	Weak
Inspiring teachers	0.390	Weak
Active involvement in the learning	0.388	Weak
Textbook assignment	0.313	Weak

Source: Data Processing (2014)

From the above table, the researcher found information that most of the physical learning system indicators had **weak** correlation to the historical understanding; however, the correlation value was closer to the **strong** category. The rather strong correlation value was the cause the rather strong correlation between the physical learning system and the learning participants' historical understanding. From the above table as well, the researcher found information that the History teachers who trained and who inspired the students had rather strong correlation to the learning participants' historical understanding.

- The Influence of History Textbook Use with the Reflective Learning System toward the Historical Thinking and the Historical Understanding:** The correlation value that the researcher attained from the X₅ and the Y₁ was 0.541; in other words, the correlation was **quite strong** between

the reflective learning system and the historical thinking. In details, the correlation between the reflective learning system elements and the historical thinking was as follows:

TABLE 9: THE CORRELATION BETWEEN THE REFLECTIVE LEARNING SYSTEM ELEMENTS AND THE HISTORICAL THINKING

<i>Reflective Learning System Elements</i>	<i>Correlation Value to the Historical Thinking</i>	<i>Correlation Meaning</i>
Self-reflection skill	0.472	Strong
Internal dialogue	0.356	Weak
Mistakes learning	0.412	Strong
Strengths and weaknesses admittance	0.431	Strong
Orderly problem solving	0.367	Weak
Mind openness	0.318	Weak
Alternative perspective	0.371	Weak
Textbook interpretation	0.453	Strong
Experience lens	0.140	Very Weak
Reading materials conclusion drawing	0.267	Weak
Argument development	0.264	Weak
Pattern thinking	0.293	Weak
Rational thinking	0.603	Strong
Alternative perspective consideration	0.271	Weak
Complicated thinking simplification	0.379	Weak
Long-winded thinking identification	0.131	Very Weak
Positive attitude toward different thinking	0.470	Strong

Source: Data Processing (2014)

From the above table, the researcher found information that most of the reflective learning system indicators had **strong** correlation value to the historical thinking. The strong correlation value was the cause of the strong correlation between the reflective learning system and the learning participants' historical thinking. The indicators that had the strong correlation value to the learning participants' historical thinking were as follows:

- The teachers encouraged the learning participants to have self-reflection skills.
- The teachers encouraged the learning participants to keep learning from the mistakes of the historical figures in the past.

- The teachers encouraged the learning participants to admit their individual strengths and weaknesses as well as the ones from the historical figures whom they reviewed.
- The teachers encouraged the learning participants to interpret the history textbooks.
- The teachers encouraged the learning participants to always think rationally.
- The teachers encouraged the learning participants to have positive attitude toward different thinking.

Then, the correlation value that the researcher attained from the X_5 and the Y_2 was 0.558; in other words, there had been **quite strong** correlation between the reflective learning system and the historical understanding. In details, the correlation between the reflective learning system and the historical understanding was as follows:

TABLE 10: THE CORRELATION BETWEEN THE REFLECTIVE LEARNING SYSTEM ELEMENTS AND THE HISTORICAL UNDERSTANDING

<i>Reflective Learning System Elements</i>	<i>Correlation Value to the Historical Understanding</i>	<i>Correlation Meaning</i>
Self-reflection skill	0,481	Strong
Internal dialogue	0,349	Weak
Mistakes learning	0,346	Weak
Strengths and weaknesses admittance	0,446	Strong
Orderly problem solving	0,357	Weak
Mind openness	0,312	Weak
Alternative perspective	0,416	Strong
Textbook interpretation	0,451	Strong
Experience lens	0,197	Very Weak
Reading materials conclusion drawing	0,225	Weak
Argument development	0,257	Weak
Pattern thinking	0,251	Weak
Rational thinking	0,594	Strong
Alternative perspective consideration	0,362	Weak
Complicated thinking simplification	0,406	Strong
Long-winded thinking identification	0,256	Weak
Positive attitude toward different thinking	0,450	Strong

Source: Data Processing (2014)

From the above table, the researcher found information that most of the reflective learning system indicators had **strong** correlation value to the historical thinking. The strong correlation value was the cause of the strong correlation between the reflective learning system and the learning participants' historical thinking. The indicators that had the strong correlation value to the learning participants' historical understanding was as follows:

- The teachers encouraged the learning participants to have self-reflection skills.
 - The teachers encouraged the learning participants to admit their individual strengths and weaknesses as well as the ones from the historical figures whom they reviewed.
 - The teachers encouraged the learning participants to have alternative perspective in viewing multiple historical events.
 - The teachers encouraged the learning participants to interpret the history textbooks.
 - The teachers encouraged the learning participants to always think rationally.
 - The teachers encouraged the learning participants to simplify the complicated thinking.
 - The teachers encouraged the learning participants to have positive attitude toward different thinking.
6. **The Influence of History Textbook Use with the Brain-based learning toward the Historical Thinking and the Historical Understanding:** The correlation value that the researcher attained from the X and the Y_1 was 0.516; in other words, there had been **quite strong** correlation between the brain-based learning and the historical thinking. On the other hand, the correlation value that the researcher attained from the X and the Y_2 was 0.520; in other words, there had been **quite strong** correlation between the brain-based learning and the historical understanding.

From the data, the researcher might conclude that the brain-based learning that had been developed by Given in her book entitled *The Brain-based learning* (2007:57) would have strong correlation to the historical thinking and the historical understanding if the brain-based learning implemented to the historical thinking and the historical understanding altogether in the same time instead of being separated in different units. The separate implementation of the brain-based learning became the cause of the low correlation value that the brain-based learning system indicators had both in the historical thinking and in the historical understanding.

Barbara K. Given developed five primary learning systems namely the emotional learning system, the social learning system, the cognitive learning system, the physical learning system and the reflective learning system. These learning systems were functioned in order that the learning process might be more effectively implemented and both the students and the teachers would perceive bigger enjoyment in the teaching-learning process. Then, the followings were the influence of the brain-based learning system indicators if they were correlated to the historical thinking and the historical understanding.

TABLE 11: THE CORRELATION BETWEEN THE BRAIN-BASED LEARNING SYSTEM ELEMENTS TOWARD THE HISTORICAL TEACHING AND THE HISTORICAL UNDERSTANDING

<i>No</i>	<i>Correlation</i>	<i>Correlation Value</i>	<i>Correlation Meaning</i>
1	$X_1 \rightarrow Y_1$	0.357	Weak
2	$X_1 \rightarrow Y_2$	0.402	Quite Strong
3	$X_2 \rightarrow Y_1$	0.279	Weak
4	$X_2 \rightarrow Y_2$	0.219	Weak
5	$X_3 \rightarrow Y_1$	0.351	Weak
6	$X_3 \rightarrow Y_2$	0.335	Weak
7	$X_4 \rightarrow Y_1$	0.451	Quite Strong
8	$X_4 \rightarrow Y_2$	0.437	Quite Strong
9	$X_5 \rightarrow Y_1$	0.541	Quite Strong
10	$X_5 \rightarrow Y_2$	0.558	Quite Strong
11	$X \rightarrow Y_1$	0.516	Quite Strong
12	$X \rightarrow Y_2$	0.520	Quite Strong

From the above table, the researcher might also explain that the brain-based learning system indicators that had strong correlation to the historical thinking were: the physical learning system, the reflective learning system and the learning process that combined the five learning systems in the brain-based learning. Meanwhile, from the above table the researcher might explain that the brain-based learning system indicators had strong correlation to the historical understanding namely: the emotional learning system, the physical learning system, the reflective learning system and the learning process that combined the give brain-based learning systems.

The indicators of history textbooks use with the implementation of brain-based learning system that had strong influence toward the historical thinking capacity were namely:

The history learning process encouraged the learning participants to have learning desire.

- The history learning process encouraged the learning participants' creativity.
- The history learning process encouraged the cooperation in a small group.
- The history learning process that trained the capacity of memorizing facts, understanding information, associating several facts and pursuing literacy might improve the learning participants' capacity in understand the cause and effect process and changes.
- The history learning process trained and inspired the learning participants.
- The history learning process trained and encouraged the learning participants to have self-reflection skills.
- The history learning process encouraged the learning participants to always learn from their mistakes.
- The history learning process encouraged the learning participants to admit their own strengths and weaknesses.
- The history learning process trained the interpretation process toward the history textbooks.
- The history learning process encouraged the learning participants to think rationally.
- The history learning process encouraged the learning participants to have positive attitude toward the different thinking.
- The history learning process utilized the brain-based learning systems altogether in a learning process.
- On the other hand, the brain-based learning system indicators that had strong influence in the historical understanding were:
- The history learning process encouraged the learning participants to have learning desire.
- The history learning process encouraged the learning participants' creativity.
- The history learning process encouraged the learning participants to cooperate in the learning process.
- The history learning process encouraged the learning participants to be aware of the importance of having and pursuing the life objectives.
- The history learning process encouraged the learning participants to have emotional intelligence.

- The history learning process trained and encouraged the learning participants to have critical thinking skills.
- The history learning process trained and inspired the learning participants.
- The history learning process encouraged the learning participants to have self-reflection skills.
- The history learning process encouraged the learning participants to admit their own strengths and weaknesses.
- The history learning process encouraged the learning participants to alternative perspective or different way of thinking than the other people.
- The history learning process encouraged the learning participants to have interpreting skills toward the history textbooks.
- The history learning process encouraged the learning participants to have rational thinking skills.
- The history learning process encouraged the learning participants to simplify the complicated thinking.
- The history learning process encouraged the learning participants to have positive attitude toward the different thinking.
- The history learning process that utilized the brain-based learning systems was conducted altogether in a learning process.

The influence of textbook review by means of brain-based learning that had been conducted altogether in a learning process toward the learning participants' historical understanding might be seen from the following explanations:

- The use of history textbooks by means of brain-based learning assisted the learning participants to be more able in understanding history, attaining important life values, feeling and contemplating the role of the historical figures as well as the other human conflicts and problems; in addition, the history textbooks also assisted the learning participants to understand the process of social change in the community.
- The use of history textbooks by means of brain-based learning assisted the learning participants to experience the past events as if they were in the events and to understand the cultural wealth existing in the community.
- The use of history textbooks by means of brain-based learning assisted improving the students' capacity in understanding the present events based on the past events, in understanding the historical description and in contemplating the history.

- The use of history textbooks by means of brain-based learning had not been able to improve the learning participants' historical understanding in terms of establishing in-depth understanding regarding the community.
- The use of history textbooks by means of brain-based learning assisted establishing the learning participants' historical understanding toward the fact what happened in the present time had been the continuation and the adaptation of what happened in the past.
- The use of history textbooks by means of brain-based learning assisted establishing the learning participants' historical understanding regarding the importance of understanding, appreciating and developing the historical values that became the part of themselves as well as the importance of using the historical knowledge and values to develop the national life.
- The use of history textbooks by means of brain-based learning assisted establishing the learning participants' historical understanding regarding the fact that in order to be historical figures the students should play a big role in the community.
- The use of history textbooks by means of brain-based learning assisted establishing the students' historical understanding in viewing their religious life personally and encouraged the learning participants to improve the condition of the Moslem people.

CONCLUSIONS

The study has examined the teachers' efforts in using the history textbooks in the history learning process by means of multiple strategies and approaches in order that the use of the textbook might be optimum and one of the strategies and approaches is the brain-based teaching. The most dominant historical thinking indicator that appears in the learning process is the learning participants have the capacity to understand the concept of social changes within the history and the history methodology namely the phases in performing a history study. Then, the less dominant historical thinking indicator is the history learning process that the teachers implement is the learning participants have different thinking skills or the learning participants have different point of view toward the historical events. Next, the historical understanding indicators that frequently appear in the learning process that the teachers implement are the learning participants have the capacity to filter the information and to understand the history of their family, their community, their nation and their state. The understanding toward the political climate has been the historical understanding indicator that rarely appear in the history learning process.

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