SCAFFOLDING DEVELOPMENT MODEL IN METACOGNITIVELY-ORIENTED HISTORY TEACHING

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ABSTRACT

To establish a qualified history teaching-learning equipped with a good constructivistic nuance requires teachers' knowledge towards teaching-learning process. Besides comprehending subject matter, chosen teaching model, classroom management, and teaching media, teachers also need to comprehend scaffolding. Teachers' knowledge towards the importance of scaffolding in history teaching in senior high school level is an important thing to get a good history teaching quality. The scaffolding implementation model in history teaching was the aim of the research.The development towards the metacognitively-oriented scaffolding implementation model in this study was conducted using teacher questionnaire analyzed through SmartPLS. The hipotetical model proposed on the first phase was confirmed by teachers' response data that generated theoretical model. The next analytical model was then developed through model optimizing phase.Findings of the study show that the optimal model was the suittest scaffolding implementation model in metacognitively-oriented history teaching. Based on the optimal model, the changes on metacognitive construct can be explained by 63.2% of students' activity construct. The changes on students' activity construct can be defined by 73.9% of the scaffolding implementation construct. The changes on scaffolding implementation construct can be defined by 46.69% of the scaffolding development effort construct and by 41.8% of scaffolding comprehension construct. The improvement of teachers' ability in the context of scaffolding was suggested to be one of important considerartions in the implementation of scaffolding in metacognitively-oriented history teaching in the classroom.

***Key words**: model, implementation of scaffolding, history teaching, metacognitive*

Introduction

The history teaching in high scool level has been quite fast developed recently. Various teaching model has been developed through development of recent strategy and model to improve history teaching quality. Quality, however, tightly connects to management; accordingly, the history teaching quality cannot be separated with the history teaching management in the classroom. Qualified history teaching management requires integragion of management components

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including planning, implementation, and evaluation. Teaching model design is a teaching model plan that may adopt into the quality management concept.

The development of learner oriented teaching model design is being the concern of many pedagogists. Another development within the educational field requires improvement in management aspect. Quality management has become a keyword in economy and business as well as other fields pertaining to company. In the educational field, quality management in macro scale has been quite well developed. In Indonesia, School Based Management (SBM) is one of an example of the implementation of the quality management.

The implementation of quality management within the micro scale, i.e. the implementation inside classroom, has not been well developed, especially in Indonesia. The implementation of Quality Management in classroom requires an appropriate teaching model design so that the objective of teaching learning can be attained maximally. The main problem in developing Quality Management based history teaching model is in the way of how to integrate the basis of quality management to model development design as well as of how to transform the model into teaching strategy.

A more practical phase pertaining to the integration of Quality Management basis into history teaching in high school level is in the phase of preparing teachers so that they are able to implement and define basic strategies used in quality improvement. As to get the quality improvement, teams in educational institution, especially teachers within the class should and need to lead the quality management philosophy into a more practical term. Quality tools and techniques are media to identify and solve problems creatively. One of the most important aspects of Quality Management is collecting tools that can be used in the implementation of the chosen concepts. Nonetheless, the advantages of the tools can only be proved if theya are used regularly (Sallis, 2006) Most of the quality toos are simple and commonly used, such as the cycle of Plan Do Study Act (PSDA), fishbone analysis, brainstorming, and kaizen.

The implementation of PSDA and fishbone analysis as the quality tools in history teaching, as reported by utomo (2008), indicates the importance of high school teachers' comprehension towards the implementation of quality tools. The problem emerges within the field pertaining to the quality based history teaching involves the teachers' low comprehension on the quality tools. However, basically, teachers have an ample basic ability in implementing quality oriented instruction. The improvement of history teachers' knowledge towards quality is needed so that the implemented teaching model is in line with the principles of efficiency and effectivity, and in accordance with the requirements of work field oriented curriculum.

The mastery of knowledge, technology and technical skill pertaining to certain knowledge is the main target of teaching process. It is often called as hard skill mastery. Any profession has a specifil hard skill, while soft skill is the ability should be mastered by any profession. The implementation of hard skill and

softskill oriented Quality Management in history teaching is an important step towards the improvement of teaching process quality (utomo, 2009).

The facts pertaining to history teaching in high school in Kendal, resulted from the preliminary observation, shows that teachers generally have implemented constructivistic teaching, along with the variation and innovation. Most teachers have been able to use constuctivistic teaching principles in teaching history. However, teachers' orientation had still been narrowly focused on the students' cognition measured only by test. This condition produces students who were able to do questions exemplified by the teacher but unable to do different questions. This fact shows that students' metacognition had not been well constructed in the class.

As to gain the effectivity of a class teaching model, there should be constructivistic, metacognitive, and scaffolding activities The constructivitstic activities supported by appropriate scaffolding shall give more usefull metacognition to students, not only cognitin. The good implementation of scaffolding is predicted to be able to give an optimal result in the achievement of learning quality in history class.

Problems

Based on the above background, it can be seen that qualified history teaching with a good constructivistic nuance requires teachers' knowledge in teaching learning process. Besides the comprehension on the subject matter, chosen teaching model, classroom management, and learning tools, teachers also need comprehension on scaffolding. Teachers' mastery on the importance of scaffolding within history teaching in high school level is an important point supporting the achievement of qualified history teaching.

Teachers' mastery on scaffolding in history requires knowledge on its development. How teachers develop scaffolding in teaching is the second keyword after the knowledge towards the principles of scaffolding in general. Development on scaffolding is more than implementation of teaching model in the classroom. The development should be adapted to the characteristics of students in the classroom. The development principles need a comprehensive thought pertaining to the students' condition within learning process.

The contribution of scaffolding towards the effectivity of the implementation of history teaching model was the aim of the study. The implementation of history teaching in the classroom using scaffolding was predicted to be more effective, especially in enhancing students' activity within the classroom, as well as in achieving cognitive and metacognitive ability.

The Aims of the Study

The aims of the study are:
a. Knowing the teachers' comprehending on the importance of scaffolding in metacognitively-oriented history teaching conducted by high school teachers in Kendal

b. Knowing how teachers develop scaffolding in metacognitively-oriented history teaching conducted by high school teachers in Kendal

c. Knowing the contribution of scaffolding towards the effectivity of the implementation of metacognitively-oriented history teaching conducted by high school teachers in Kendal

Theoretical Foundation

KTSP (Educational Unit Level Curriculum) and History Teaching in High School

Department of National Education (Regulation of Minister of National Education no. 23 of 2006) states the Competency Standards of Education Unit Graduate are as follows: "SMA/MA/SMALB/Paket c graduate competence are (1) To conduct in accordance with their belief and with the adolescent development (2) To improve themselves optimally using their strength and to lessen their weaknesses (3) To show their self-esteem and responsibility towards their conduct, deed and job (4) To participate on the establishment of social rules (5) To respect diversity in religion, nation, tribe, race and economic social class in the global world (6) To build and apply information as well as knowledge logically, critically, creatively, and innovatively (7) To show ability to think logically, critically, creatively, innovatively in making decision (8) To show ability in developing learning culture as to empower themselves (9) To build competitive and sportive behave to reach the best result (10) To show the analyisis ability as well as ability in solving complex problems (11) To show ability to analyze natural and social signs (12) To use their environment productively and responsibly (13) To participate in social and national life democratically under the United Republic of Indonesia (14) To express themselves through cultural art (15) To appreciate culture and art (16) To produce creative work, either individually or grouply (17) To keep their physical health and self security, as well as phisycal condition and sanitation (18) To communicate either in written or spoken, as well as in effective and decent way (19) To comprehend their and others' rights and responsibilities within society (20) To appreciate different thought and to show emphaty to others (21) To show reading and writing skills systematically and esthetically (22) To show their reading, listening, writing and speaking skills either in Indonesia or English (23) To master knowledge required to go to college

KTSP (Education Unit Level Curriculum) as early known as competence based curriculum is an innovation within educational field aimed at increasing the quality of education holistically. This quality improvement is reflected in the mastery of a certain competence as the targets and indicators of successful learning. It is in line with the characteristic of Education Unit Level Curriculum identified with (1) the emphasis on students' competency either individually or classically (2) the focus on *learning outcome* and diversity (3) learning process

using various methods and approaches (4) learning sources which is not only limited with the sources from teachers but also from other relevant sources (5) Assessment which is more emphasized on the process and on certain competency as the result

Education Unit Level Curriculum as an educational innovation has been implemented simultaneously in all levels in the school year of 2006/2007. This is to respond educational quality development act and as an anticipation towards changing demand that emerges as a phenomenon as resulted from the development of knowledge and technology as well as globalization. Apart from the any schools' strength and weaknesses, structurally and systematically they should conduct the new curriculum

On the other hand, the school readiness to implement the curriculum has not been same one another. It is resulted from school dispersivity as well as supporting infrastructure Furthermore, as government regulation no.32 of 2004 on local county government had been effective, the educational operation among areas at the government level of district/city may be different one another.

The curriculum was more oriented to students that teachers play a role as facilitator and catalsator so that the students will go further more than on the theoretical knowledge. Facilitator is a role in facilitating learning process within the class. It is the students who are active, while the teacher and the students have the same position (partnership) Teachers design the learning process; decide the subject matter, the way to deliver it, the objective, the strategy to use, and assessment tools; and help and direct students to do their learning activities. The catalizator, however, is a role in helping students finding their strength, and talents. Teachers act as guide, help students to direct and develop their personality aspects, characters, emotion, and intellectual so that students can comprehend that the true learning process is the long life learning.

The Educational Unit Level Curriculum leads teachers to be independent educators, not to depend on curriculum (curriculum-free teachers) In general, this hope is a chance and encouragement for teachers to develop their creativity and flexibility as an innovator in teaching activities.

National education is conducted to develop complete personality. Consequently, it is not only the knowledge and thinking ability which should be developed, but it also includes the character, skill and attitude. History teaching at school as one of educational component is hoped to support the achievement of the national objective. The existence of history teaching is not only as a subject to discuss, but also as a means to make students realize and comprehend the present day in past time perspective.

The students' knowledge on the present day based on historical perspective may give an added value, since they not only know the facts and years, but also comprehend the reason behind it. This will encourage students to study history better that later will enhace their motivation in comprehending the meaning of history for their life. By this definition, it may not be impossible if we put a

great hope towards history teaching at school that it may also build students' social attitude. This great hope is reflected from the status of history teaching in secondary school curriculum where the subject is included in the main group subject required to be delivered to all students in all programs.

Through the teaching of history at school, socialization process also happens aimed at students' attitudinal improvement. Pertaining to this, the improvement was defined as the acceptance of values admitted by society. This improvement may reflect on the attitude and performance in general as they play their role as the member of society.

Basically, learning history means continuously dialogue between the present and past day (Carr, 1972). It is through history that men will find their identity. Knowing ourselves means knowing what we can do; and there is no one knows what we will do before we try, the only clue on finding out what men can do is by knowing what had been conducted by men in the past. That is why the value of history lays on the fact that it tells what had been conducted by men and, consequently, what a man is (Collingwood, 1961) It can be denied that history basically is a fundamental social need, "unawareness towards the meaning of history does not mean free from history, nonetheless it is a freefall into the unimagined goal" (Luthy in Fitzgrald, 1977)

History teaching at school, accordingly, should not only give historical knowledge (cognitive), but also introduce men's life experience in past time (affective). specifically, Kartodirdjo explains that the function of Indonesia national historical teaching are to (1) revive attention and interest on national history, (2get inspiration from history, (3) lead mind to history awareness, (4) buil a rational and critical thinking framework based on fact, and (5) develop mind and appreciation towards humanity values (kartodirdjo, 1982). Similarly, Hill (1956) asserts that a taught well history can help human to be critic and in accordance with humanity

History teaching can be an object of attitudinal building, i.e. through history teaching, a certain attitude can be developed, either positively or negatively. Considering the importance of this attitude, every history teacher should be able to give motivation to their students so that they like studying their national history (Dickinson and Lee, 1980; Hasan, 1989) Moreover, it is more required since some of the attitude were acquired, not inherited. That is why Dickinson and Lee suggest that it has to be conducted by history teachers. Clear and persuasive information from teachers through teaching-learning process will help this. Regarding this Krech, Crutchfield and Ballachey (1962) say that "one's attitude can be built through persuasive information". This is also based on the assumsion that "one may be influenced by assessment on attitude by giving new information pertaining to the attitudinal object" (Banura, 1969; Krech, Crutchfield, and Ballachey, 1962). (Further, in the process on building patterned attitude, "a certain amount and type of knowledge is important to help the building of the appropriate attitude since it cannot be acquired incidentally (Surachmad,1980).

Furthermore, Surachmad asserts that no matter where we start, in the end there should be any integrity among knowledge, attitude, and act.

A good national history teaching shall not only develop students' cognitive, but also their other potential in affective area, as well as psychomotor and conative ones, namely the willingness to do some acts in accordance with the other developed domains (Moedjanto, 1986). The areas interact and simultaneously build complete attitude. Attitude, pride, respect and other areas can be built in teaching-learning activities through mental activity through appreciating righteous, justice, willingness to appreciate evident as the basis in decision making, care and love towards parents, the powerless, tolerance, etc (Gunning, 1978).

Constructivist Teaching

Recently Indonesia is entering educational revitalization with its new vision. Educational orientation emphasizing on academics achievement as reflected in national examination passing grade has been changed into a new life skill educational orientation. Our education which at first used content based curriculum has been changed into competence based curriculum. As a consequence, schools are required to enhance their school based management as to create learning culture and to be sinergy with society. It is hoped that teaching-learning conducted at school may not get separated from society's daily life.

Constructivists argue on rich environment for learning. Strong and meaningful-use knowledge and skill can be constructed through tasks and authentic works (Hung & Wong, 2000; Myers & Botti, 2000; Marzano, 1992; Waras Kamdi, 2001). The authenticity of curricular activities is supported by designing dectivities or by an open-ended investigation, where the answer is not previously decided according to a certain perspective. Learners may be encouraged to build knowledge through real life experience and interpersonal cognitive negotiation conducted in a collaborative work atmosphere.

Mayer (1992) proposes that in educational practice, especially in the last half of century, there were changes within learning theories, from behaviorism to cognitivism and from cognitivism to constructivism. The changes towards learning and teaching then built views on curriculum that curriculum is a body of knowledge or that transferred skills is naïve. If constructivists' view on individual as knowledge constructor can be accepted, then it will be more appropriate to see curriculum as a set of tasks and learning strategies. Accordingly, perspective on class life will also change.

The teacher-student relationship does not refer teachers as informer and students as the receiver anymore, instead it reflects teachers as guide and assistant to think critically and constructively. Classroom environment is designed to give social setting supporting knowledge and skill construction (Driver 7 Leach, 1993)

The well known teaching strategy in constructivism are collaborative teaching strategy, more attention to students activities than teacher actitivites, involving laboratoriuem actitivites, field experience, case study, problem solving, discussion panel, discussion, brainstorming, and simulason (Ajeyalemi, 1993) The main role of teachers is to control students' ideas and interpretation in learning as well as giving alternatives through application, evidents and arguments.

Much literature says that constructivism is a learning theory based on the notion that learners construct their own knowledge in their own experience context (Brook & Brook, 1999; Driver & Leach, 1993). Constructivistic teaching focuses on learners' active activity in order to have direct experience ("doing") instead of "accepting" knowledge passively. Constructivists see learning as not only stimulur-response phenomena, but also as a process requiring self-regulation and construction of conceptual structure through reflection and abstraction. Real activities conducted in project may give learning experience able to help reflection and to connect activities in real life and conceptual knowledge expected to be wider and deeper (Baron, Schwarz, Vye, Moore, Petrosino, Zech, Bransford, & The Cognition and Technology Group at Vanderbilit, 1998).

Collaborative teaching strategy is also based on the Vygotsky's theory of Zone of Proximal Development (ZPD). Vygotsky recommends that there is a level or zone that students can be more successful in a condition that they get some help from abler and more experienced partners. Vygostrky defines ZPD as "space between actual development, indicated by the ability to solve problem independently, and the level of potential development, indicated by the ability to solve problem under guidance of adults or with the collaboration with their abler peers". These partners do not dictate what they should do, but they are involved in collaborative, demonstrative, modeling, and other activities.

Constructivists say that learning is an active process of building reality coming from learning experience. However, learning cannot be separated from what has been known by the learners and the context where it has been learned. The constructivists do not deny existency (objectivity) of real world, however they say that meaning that we build from real world is idiosyncratic. There are no two people building the same meaning, since their combination of background expericene and knowledge will produce different interpretation. It is based on this belief that learning should be placed in rich contexts reflecting real life and tightly connected to the context where knowledge will be applied.

Jonassen (1991), and Brown, Collins, and Duguid (1988) also convey that learning happens effectively in contexts, and context is an important part of knowledge base pertaining to the learning process. Consequently, there should be any construction of real, authentic, and relevant learning environment as the learning context. Teachers and teaching model they create focus on realistic approach that may enable students to solve real problems (Jonassen 1991). Constructivistic learning environment here refers to "*a place where learners may work together and support each other as they use a variety of tools and*

information resources in their pursuit of learning goals and problem-solving activities (Wilson, 1995).

Scaffolding in Teaching-Learning Process

Scaffolding refers to various adaptable ways to help students acquire metacognitive control maximally. All teaching models use this strategy, by learning students' ability as a learner and paying attention to their learning strategy development (Joyce et al 2009) Scaffolding tightly connects to constructivistic aspects.

Meaningfull learning as the result of adaptation towards environment is conducted through assimilation and accommodation. Assimilation is cognitive process where one integrates perception, concept, or new experience into schema or patten on their mind. Assimilation is considered as a cognitive process placing and classifying an event or new stimulus into the existing scheme. The assimilation keeps on moving. Assimilation does not change schemata but develop the schemata. Assimilation is an individual process in adapting and organizing self and new environment so that his comprehending may be developed.

Accommodation is used to face stimulus or new experience that cannot be assimilated with the existing schemata. It is possible that the new experice completely does not suit with the existing schema. In this condition, he will take accommodation. Accommodation happens to build a new schema suit with the new stimulus or to modify the existing schema so that it is suit with the stimulus. To Piaget, adaptation is a balance condition of assimilation and accommodation. If in the assimilation process one cannot adapt to the environment, there will be any disequilibrium. This equilibrium will result in accommodation or the emergence of a new structure. This intellectual development is a continuous process on disequilibrium-equilibrium state. However, if disequilibrium happens, they will be on a state higher than before.

This hierarcial knowledge is called as scaffolding by Vygotskian. Scaffolding means giving one much help at his early learning phase and then reduce it and give him chance to take a bigger responsible soon after he is able to do it himself. Help given by the learner can be in the form of caution, instruction, and encouragement, or antoher form of problem so that he may able to learn independently. Vygostsky (1978) proposes three categories of students' achievement in their efforts to solve problems, namely (1) students succeed well, (2) students succeed without any help, (3) students are failed. Scaffolding is an effort from the learners to lead students as to acquire the success. Encouragement from teachers is really needed so that students' acquirement will be optimal.

Constructivism considers that knowledge is constructed collaboratively among individuals and the condition can be adapted by each individual. Process within cognition is directed by adapting intellectual in socio cultural context. The adaptation process is equivalent with construction of knowledge intra individually namely through internal self regulation process.

Two most important principles of vygotsky theory includes (1) the function and the importance of social communication starting from visualization of sign to the changing of information and knowledge (2) *zone of proximal development.* Learners as a mediator have a role in encouraging as well as bridging students in their effort to build knowledge, comprehending and competence.

The important notion from Vygotsy theory is the emphasis on the meaning of sociocultual learning. The core theory of Vygotsy emphasizes interaction between internal and external aspects of learning and its emphasis on learners' social environment. According to Vygotsky theory, human cognitive function is derived from individual social interaction in cultural context. Vygotsky also believes that learning happens as students handle tasks they have not learned while the tasks are still on their range of ability or in other words they are still in their zone of proximal development. *Zone of proximal development is* an area between real development, defined as ability to solve problems independently, and potential development phase, defined as ability to solve problems under the guidance of adults or abler peers.

Knowledge and comprehending are constructed when one involves socially in a dialogue and active in trials and experience. The construction of meaning is interpersonal dialogue where the learners not only need access to physical experience but also to the interaction with others' experience. This cooperative learning emerges as the students cooperate to get their learning objective. Class management according to cooperative learning is aimed to help students to develop their intention and effort to cooperate and interact with other students. There are three important things should be noticed in classroom management: grouping, cooperative spirit, and classroom environment.

Metacognitive in learning achievement

Metacognitive relates to constructivism in that there are many effective learners who are more aware on their learning; they develop structure and observe their development. In another words, they develop executive control on learning strategies instead of responding learning environment passively. As one of the effects, it will emerge as the students try to comprehend text book. Unfortunately, several students approach the books passively. They only work through the subject matter and let it pass as usual without any intention on constructing their knowledge actively Neverthelsess, there are also who students consciously try to be critical to the material they read, to improve their own comprehending by processing information and to create concept on their reading. The good news is that they who are able to be critical will be more better, in a condition that we as teacher can build a positive instruction to develop their skill and are able to do it to students in their early ages.

We may also easily see the connection among constructivism and metacognitive concepts pertaining to curriculum and teaching. We can always keep using "learning how to learn" process in teaching. When we teach science, for

example, we can teach students not only to think scientifically, but also on how to use the process to learn, not only for science, but also for another subject. When we teach students to work inductively, we teach them to be better in thinking inductively. Perkin in Joyce (2009) says that pertaining to thinking skill across curriculum, students should be terained how to get and store their knowledge, as well as comprehend that by building concept and applying it so that they can be a productive thinker. When we explore or try to find the best teaching models, we should really concern on teaching pattern emphasized by each of the teaching models as to help students to develop their metacognitive control of each model and the most important thing is to help them to learn to construct knowledge they have learned.

Optimal Mismatch: The most possible development area

One of the most challenging aspects of teaching is producing objective and processes that can be handled by students and do not exceed their ability. If we only teach what they know and what they do, the students of course will not learn harder and will not develop a greater learning strategy. And so does when we teach soething far from their present ability and knowledge, they will try too hard to learn optimally.

The principle of optimal mismatch seems to be simple but the implementation is quite hard. A simple example is when you train students to cooperate in classifying new information. At first, they have various abilities to work effectively in a various group size. Students in a class are able to be active in group of two, but not in a bigger one. The solution to this problem is that we can try to organize students into group of two and if works, it means that the grouping is appropriate. However, if several students want to work in a bigger group size, they should have an experience in and instruction for, let say, group of three, four, or five, or even six if it is urgent. However, it is also possible that we may find students who only learn to explain information in a set of data and need much support if they want to build categories effectively.

In constructivist framework, Vygotsky (in Joyce, 2009) creates zone proximal development term that eases us to comprehend students' development level and plan cognitive task or social environment requirements that may encourage students to be developed, as well as fun situations that enable students to be active and grow without too much pressure.

Joyce (2009) further gives an example of the situation pertaining to the interpersonal relation. Natalie tends to respond contrast ideas. However, Will observe ideas, and equalize them to himself. From this, it can be seen that Will is able to be more productive in a complicated social task, will be easier to accept others opinion, and will be easier to adapt his opinion. While Natalie needs more guidance to develop her capacity so that she can be developed naturally.

Research Method

Population, Sample, and Research Method

This study was conducted in Kendal District of Central Java in June-November, 2010. The population of the study was history teachers in Kendal District either from state or private high schools. The sample of the study was taken from population through purposive sampling.

This study was planned as a confirmatory-based apllied reaseach using Variance based SEM. The study used quantitave approach with non experimental research design using expost facto data from survey model. The method used was survey and regression. Regression model used in the study was chosen based on the functional relation of variables of the study. In this research context, the relation refers to the relation between independent and dependent variables.

This study used SEM as an alternative method and PLS (Variance based SEM/VBSEM). PLS is a powerfull analysis method because it does not assume data in a certain measurement scales, and sample size was small. PLS can also be used to confirm theory. Compared to CBSEM (often used with LISREL, EQS, or AMOS) VBSEM or component based PLS is able to avoid two biggest problems in CBSEM namely inadmissible solution and factor indeterminacy (Fornell dan Bookstein, 1982 in Ghozali, 2006)

Path analysis model of latent variable in PLS comprises three set connection (1) inner model which specifies inter-latent variable relationship (structural model) (2) *outer model* which specifies relationship between latent variables and the indicator or manifest variable (*measurement model*), and (3) *weight relation* in which the case value of latent variables can be estimated. Without losing generalization, it can be assumed that latent variable and indicator or variable manifest in zero means scale and variance unit equals to one so that location parameter (parameter constant) can be eliminated from the model (Ghozali, 2006). The developed research paradigm is as follows:
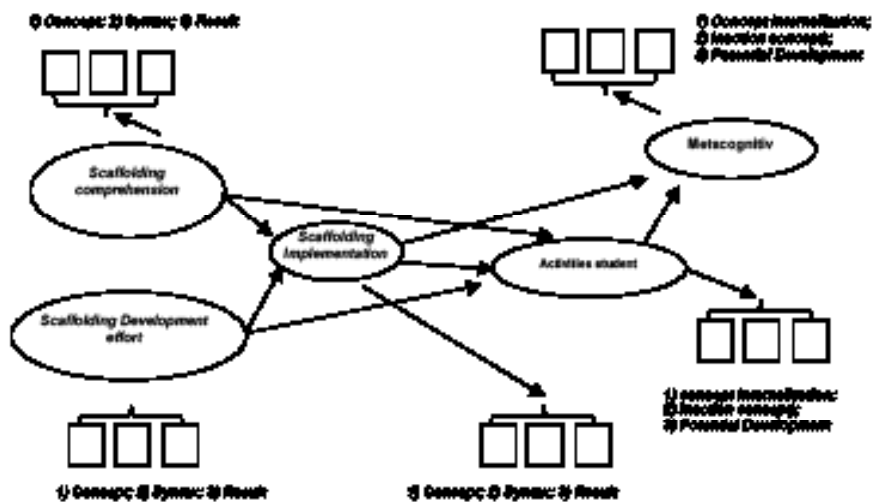
Research Paradigm

The collected data were analyzed with descriptive statistics and inferencial analysis. The descriptive statistical test was conducted using SPSS 10 for windows (Alhusin, 2002). Meanwhile, inferencial statistical test (double regression) in relation to the model finding, including hipotetical model and the finding of fit and simple analytical model used SmartPLS.

The structural model was evaluated using R-square for dependent construct, Stone-Geisser Q-square test of predictive relevance and t test, as well as signifincance test of structural path parameter coefficient. In testing the model by using PLS, we can start with seeing R-Square of every dependent latent variable. The interpretation is similar to the interpretation in regression. The changing R-Square can be used to see the affect of a certain independent latent variable on dependent latent variable whether it affects substantively or not. The big influence of f^2 can be gained with the following equation:

$$f^2 = \frac{R^2_{included} - R^2_{excluded}}{1 - R^2_{included}}$$

Where $R^2_{included}$ and $R^2_{excluded}$ are R-square of dependent latent variable when latent variable predictor is used in the structural equation. From the f^2 value of 0.02, 0.15, and 0.35, it can be interpreted that latent variable predictor had a little, an average, and a big influence on structural level.

Besides seeing R-square value, VBSEM model is also evaluated by seeing Q-quare predictive relevance for construct model. Q-square measures how good the observation value produced by the model as well as the parameter estimation. The Q-square value greater than zero shows that the model has predictive relevance, while Q-square less than zero shows that the model has a lesser predictive relevance (Ghozali, 2006)

Finding and Discussion

Development of Theoretical Model (Conceptual)

Scaffolding development theoretical model of metacognitively-oriented history teaching of high school teachers in Kendal was developed based on the theoretical foundation as well as previous study. The model proposed in the study was relational model among constructs that can been seen on the following figures.
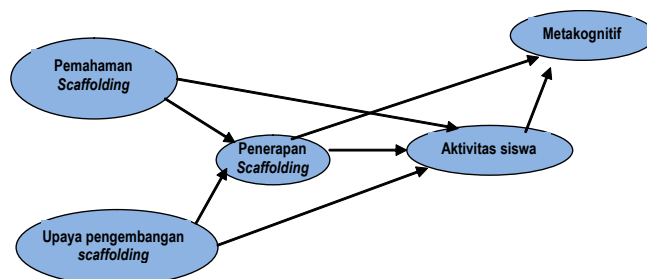
Scaffolding Development Theoretical Model of Metacognitively-Oriented History Teaching

Scaffolding comprehension construct, scaffolding development effort, and the implementation of scaffolding were respectively developed into three construct indicators similar to and correlate with: concept, syntax, and result. Scaffolding comprehension and its development effort were predicted as important constructs in supporting the implementation scaffolding construct. The contribution objective in the model reflected in the figure clearly shows relational predictions among constructs led to the final orientation of metacognitive aspect.

Students' activity construct and metacogntive construct in this study had the same construct indicator, i.e. as the result of comprehension, development effort and the implementation of scaffolding by teachers. This theoretical model predicted that students activities oriented to metacognictive will be happened if the implementation of scaffolding goes well. The implementation of scaffolding can go well if teachers comprehend scaffolding well supported by their effort to develop the scaffolding. The construct and indicators of the construct in the study are as follows:

Table 13.1 Constructs and Construct Indicators

Construct	Construct Indicator	Code
1. Scaffolding comprehension	1) concept 2) syntax 3) result	v_comprehend_concept v_comprehend_syntax v_comprehend_result
2. Scaffolding Development Effort	1) concept 2) syntax 3) result	v_develop_concept v_develop_syntax v_develop_result
3. Scaffolding Implementation	1) concept 2) syntax 3) result	v_implement_concept v_implement_syntax v_implement_result
4. Students' Activity	1) concept internalization 2) process/ *in action concept* 3) *level of potential development*	a_student_1 a_student_2 a_student_3
5. Metakognitive	1) concept internalization 2) process/ *in action concept* 3) *level of potential development*	meta_1 meta_2 meta_3

The research instrument was generated from constructs and construct indicators were developped into questions in questionnaire within Likert scale. In this study there were 61 quetions, where scaffolding comprehension construct and its three construct indicators were developped into 14 questions; scaffolding development construct and its three indicators were developped into 9 questions; and scaffolding implementation construct and its three indicators were developped into 14 questions. Students' activity construct and metacognitive

construct having three indicators respectively were developped into 12 questions for each construct.

SmartPLS Model Analysis

The first analysis was started by making path diagram of inter-construct causility relationship using SmartPLS as the data had been tabulated by using the Excel program. Based on the model calculation, there were loading factor values for each of indicators supporting the construct as shown by the following chart.
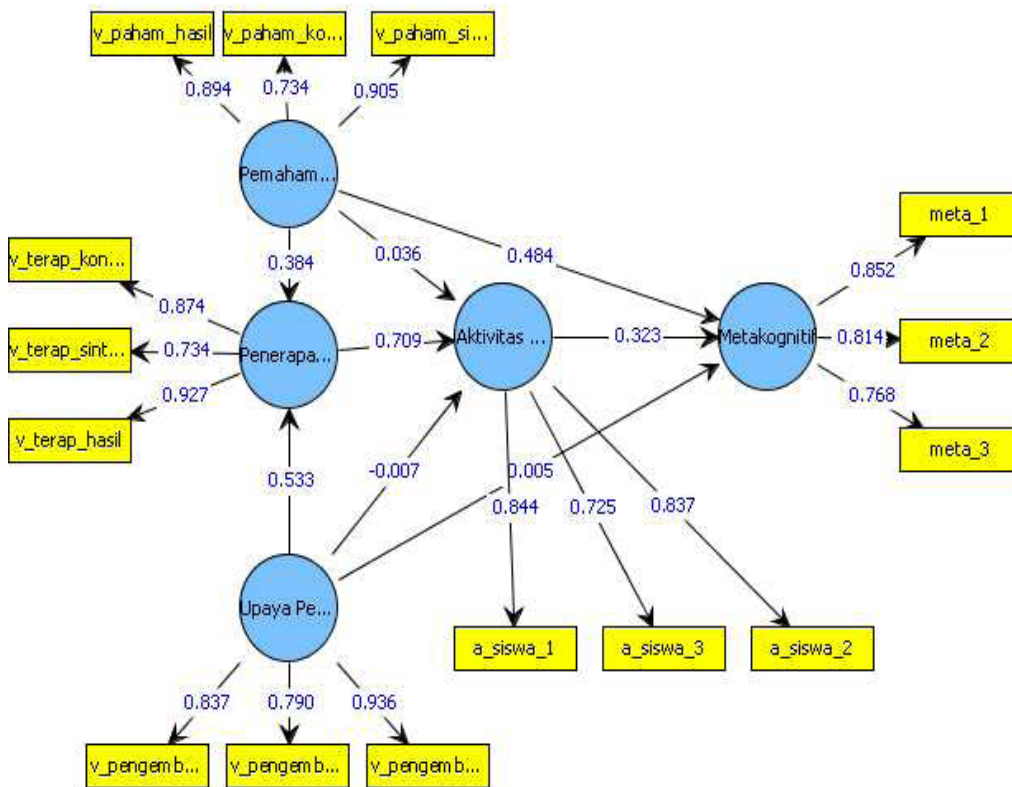
Scaffolding Development Model of Metacognitively-oriented History Teaching of High School Teachers in Kendal
(Theoretical Model)

The model above is a theoretical model confirmed by confirmation data from teachers gained through research questionnaire. Based on the loading factor values having by each of the construcy, the model was quite fit though there were still several small correlation values, or even the negative ones. The result was then improved by modification towards the relationship among constructs without droping a certain construct indicators. Construct indicator droping was not conducted since the factor loading values of all constructs were greater than 0.500. The following table (Result for Outer Loading of the Theoretical Model) shows the result of SmartPLS analyisis showing outer loading value of the proposed model.

Table 13.2 Result for outer loading of the Theoretical Model

	original sample estimate	mean of subsamples	Standard deviation	T-Statistic
Scaffolding comprehension				
v_comprehend_result	0.894	0.899	0.019	46.986
v_comprehend_concept	0.734	0.747	0.094	7.840
v_comprehend_syntax	0.905	0.910	0.021	42.754
Scaffolding Develop. Effort				
v_develop_result	0.837	0.826	0.041	20.449
v_develop_concept	0.790	0.794	0.064	12.436
v_develop_syntax	0.936	0.935	0.012	78.427
Scaffolding Implementation				
v_implement_result	0.927	0.923	0.020	46.660
v_implement_concept	0.874	0.883	0.030	29.519
v_implement_syntax	0.734	0.750	0.059	12.463
Student Activity				
a_student_1	0.844	0.844	0.046	18.313
a_student_2	0.837	0.835	0.064	13.014
a_student_3	0.725	0.738	0.097	7.470
Metacognitive				
meta_1	0.852	0.855	0.025	34.205
meta_2	0.814	0.818	0.044	18.416
meta_3	0.768	0.771	0.067	11.543

Based on table, the loading outer values had fulfilled the validity convergent signifincant criteria. Convergent validity is a consistent value of multiple indicators. If the outer loading value does not fulfill the requirement, the analysis can be continued without droping indicator component having outer loading that does not fulfill the requirement. In this mdel, there was not any droping of indicator components since the factor loading outer values of all indicators had fulfilled the requirement.

Reflective indicator validity discriminants can be seen on croos loading between the indicator and the constructs as can be seen on the following table (Theoretical Model Cross Loading)

Table 13.3 Theoretical Model Cross loading

	Scaffolding comprehension	Scaffolding Develop. Effort	Scaffolding Implementation	Students' Activity	Meta-cognitive
a_student_1	0.553	0.398	0.814	0.844	0.542
a_student_2	0.699	0.440	1.227	0.837	0.816
a_student_3	0.318	0.226	0.641	0.725	0.550
meta_1	0.528	0.263	0.774	0.557	0.852
meta_2	0.457	0.300	0.735	0.490	0.814
meta_3	0.534	0.330	0.904	0.533	0.768
v_comprehend_result	0.894	0.659	1.331	0.752	0.768
v_comprehend_concept	0.734	0.252	0.587	0.414	0.601
v_comprehend_syntax	0.905	0.548	1.209	0.724	0.947
v_develop_result	0.435	0.837	0.625	0.362	0.436
v_develop_concept	0.476	0.790	0.640	0.337	0.255
v_develop_syntax	0.739	0.936	1.189	0.740	0.771
v_implement_result	0.866	0.703	0.927	0.931	1.043
v_implement_concept	0.693	0.499	0.874	0.852	1.079
v_implement_syntax	0.932	0.537	0.734	0.793	0.734

. The following table (Theoretical Model Composite Reliability) shows composite reliability of SmartPLS as an indicator in assessing outer model. The analysis shows that construcsts were reliable with composite reliability greater than 0.800.

Table 13.4 Theoretical Model Composite reliability

	Composite Reliability
Scaffolding comprehension	0.884
Scaffolding Develop. Effort	0.891
Scaffolding Implementation	0.885
Students' Activity	0.845
Metacognitive	0.853

The other test to find out the discriminate validity was by comparing the square root of each Average Variance Extracted (AVE) with correlation between a contsruct and the other construct as can be seen in the following table (Theoretical Model Average Variance Extracted)

Table 13.5 Theoretical Model Average variance extracted (AVE)

	Average variance extracted (AVE)
Scaffolding comprehension	0.719
Scaffolding develop. effort	0.733
Scaffolding implementation	0.721
Students' activity	0.646
Metacognitive	0.659

The relationship among latent constructs was evaluated from the path coefficient and its significance as on the Result Table for Theoretical Model Inner Weight

Table 13.6 Result for Theoretical Model Inner Weight

	original sample estimate	mean of subsamples	Standard deviation	T-Statistic
Scaffolding comprehension -> Scaffolding implementation	0.384	0.397	0.122	3.147
Scaffolding develop. effort -> Scaffolding implementation	0.533	0.525	0.108	4.955
Scaffolding comprehension -> Students' activity	0.036	0.011	0.254	0.143
Scaffolding develop. effort -> Students' activity	-0.007	0.031	0.248	0.027
Scaffolding implementation -> Students' activity	0.709	0.707	0.277	2.563
Scaffolding comprehension -> Metacognitive	0.484	0.503	0.267	1.811
Scaffolding develop. effort -> Metacognitive	0.005	0.027	0.192	0.026
Students' activity -> Metacognitive	0.323	0.288	0.204	1.585

The result table for theoretical model inner weight shows that there was some constructs that insignificantly correlate. T-statistics greater than 1.96 shows relationship among construcs at the significance level of 0.05. The changes on metacognitive construct can be explained by 32.3% of students' activity construct,

0.5% of scaffolding development effort construct, and 48.4% of scaffolding comprehension construct. The changes on students' activity can be predicted by 70.9% of scaffolding implementation construct, -0,7% of scaffolding development effort construct, and 3.6% of scaffolding comprehension construct. Meancwhile, the changes on scaffolding implementation construct can be explained by 53.3% of scaffolding comprehension construct and 38.4% of scaffolding development effort construct.

Based on the SmartPLS theoretical model analysis, the model was then completed by optimizing the causality relationship between constructs and indicators. The scaffolding development of history teaching of high school teachers in Kendal of Central Java as the result of SmartPLS optimization based on empirical data of the study can be seen in the following chart.
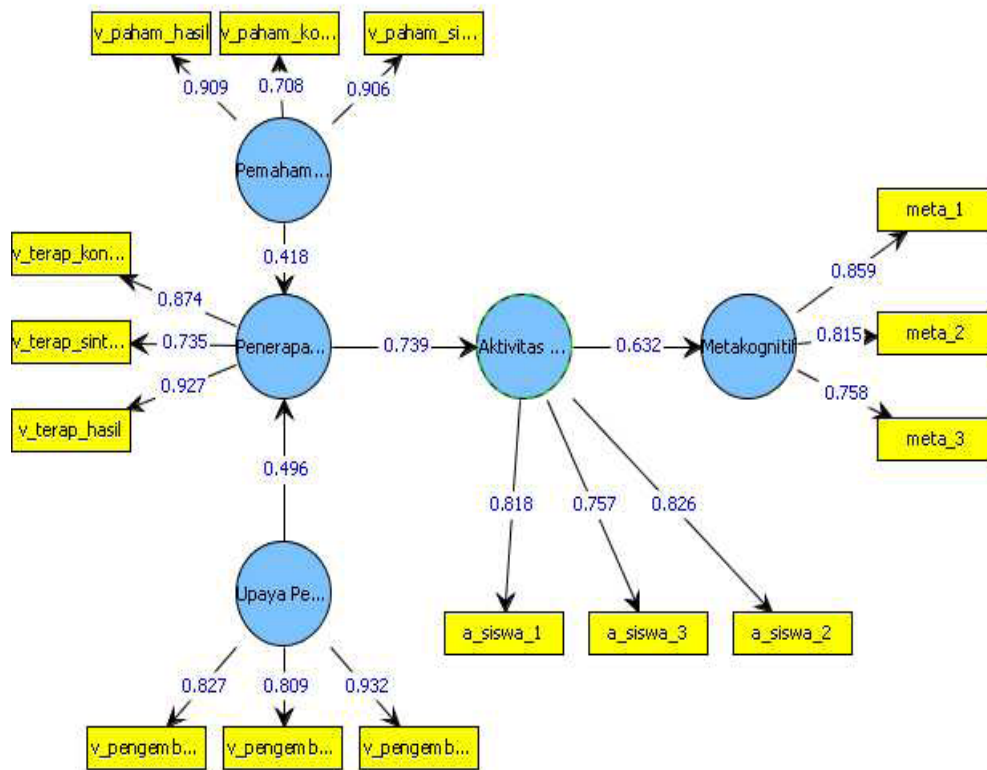
Scaffolding Development Model of Metacognitively-oriented Metacognitive (Optimal Model)

The model in the above chart (Scaffolding Development Model of Metacognitively-oriented History Teaching so called Optimal Model) was an analytical model developed from theoretical model through the improvement in relational path based on teachers' confirmation using research questionnaire. Based on the loading factors of each construct, the model was quite fit since there was no low or negative inter construct correlation value. The following table (Result for outer loading of Optimal Model) shows the result of SmartPLS analysis showing outer loading of the proposed model.

Table 13.7 Result for outer loading of Optimal Model

	original sample estimate	mean of subsamples	Standard deviation	T-Statistic
Scaffolding comprehension				
v_comprehend_result	0.909	0.910	0.017	53.858
v_comprehend_concept	0.708	0.705	0.100	7.102
v_comprehend_syntax	0.906	0.907	0.023	39.829
Scaffolding develop. effort				
v_develop_result	0.827	0.816	0.065	12.805
v_develop_concept	0.809	0.807	0.065	12.364
v_develop_syntax	0.932	0.935	0.013	73.478
Scaffolding implementation				
v_implement_result	0.927	0.923	0.021	45.132
v_implement_concept	0.874	0.874	0.031	28.538
v_implement_syntax	0.735	0.728	0.059	12.456
Students' activity				
a_student_1	0.818	0.799	0.083	9.882
a_student_2	0.826	0.808	0.114	7.226
a_student_3	0.757	0.794	0.070	10.867
Metacognitive				
meta_1	0.859	0.852	0.037	23.157
meta_2	0.815	0.820	0.054	15.049
meta_3	0.758	0.757	0.068	11.072

Based on the data on the above table (Result for outer loading of Optimal Model), it can be seen that the outer loading value fulfill the significant criteria of convergent validity. Convergent validity is a consistency value of multiple indicators. If the outer loading value does not fulfill the requirement, the analysis can be continued by droping the indicator component with outer loading that does not fulfill the requirement. In this model, there was no droping on indicator component since all the outer loading factor values had fulfilled the requirement.

The reflective indicator validity discriminant can be seen on the cross loading between indicators and its constructs as can be seen on the following table (Optimal Model Cross Loading)

Table 13.8 Optimal Model Cross loading

	Scaffolding comprehension	Scaffolding develop. effort	Scaffolding implementation	Students' activity	Meta-kognitif
a_student_1	0.551	0.397	0.814	0.818	0.546
a_student_2	0.707	0.439	1.227	0.826	0.810
a_student_3	0.321	0.221	0.641	0.757	0.552
meta_1	0.518	0.255	0.774	0.560	0.859
meta_2	0.457	0.298	0.735	0.507	0.815
meta_3	0.536	0.324	0.903	0.538	0.758
v_comprehend_result	0.909	0.659	1.332	0.751	0.767
v_comprehend_concept	0.708	0.253	0.588	0.406	0.608
v_comprehend_syntax	0.906	0.544	1.209	0.725	0.945
v_develop_result	0.437	0.827	0.624	0.362	0.435
v_develop_concept	0.483	0.809	0.640	0.328	0.252
v_develop_syntax	0.755	0.932	1.189	0.740	0.770
v_implement_result	0.878	0.699	0.927	0.934	1.040
v_implement_concept	0.695	0.497	0.874	0.860	1.080
v_implement_syntax	0.947	0.532	0.735	0.803	0.734

The following table (Optimal Model reliability composite) shows reliability composite of SmartPLS as one of indicators in assessing model outer. The result shows that the constructs were reliable with reliability composite value greater than 0.800.

Table 13.9 Optimal Model Composite reliability

	Composite Reliability
Scaffolding comprehension	0.882
Scaffolding develop. effort	0.893
Scaffolding implementation	0.885
Students' activity	0.843
Metacognitive	0.853

Another test to know validity discriminate is gained by comparing the square root of Average Variance Extracted (AVE) of each construct where the correlation among the other constructs can be seen on the following table.

Table 13.10 Optimal Model Average var iance extracted (AVE)

	Average variance extracted (AVE)
Scaffolding comprehension	0.716
Scaffolding develop. effort	0.736
Scaffolding implementation	0.721
Students' activity	0.642
Metacognitive	0.659

The relationship of latent constructs can be seen by seeing path coefficient value where its significant level can be seen on the table result for optimal model inner weight as follow:

Table 13.11 Optimal Model Result for inner weight

	original sample estimate	mean of subsamples	Standard deviation	T-Statistic
Scaffolding comprehension -> Scaffolding implementation	0.418	0.418	0.107	3.900
Scaffolding develop. effort -> Scaffolding implementation	0.496	0.487	0.103	4.813
Scaffolding implementation -> Students' activity	0.739	0.753	0.051	14.423
Students' activity -> Metacognitive	0.632	0.631	0.080	7.899

The result table for optimal model inner weight shows that all construcsts correlated significantly. The T-statistics of greater than 1.96 shows the inter construct relationships with significancy of 0.05. The changes on metacogitive construct can be explained by 63.2% of students' activity construct. The changes on students' activity construct can be explained by 73.9% of scaffolding implementation construct. The changes on scaffolding implementation construct can be explained by 49.6% of scaffolding development effort and by 41.8% of scaffolding comprehension construct.

Discussion

The analysis of scaffolding development model of metacognitively-oriented history teaching in this study generated several models showing the inter construct causality relationships. The theoretical model was a hipotetical model confirmed by response data gained from history teachers in Kendal District. The same data were then used to develop a fitter model using inter construct relationship reduction pattern. The study generated a fitter analytical model than

the theoretical model. The analytical model is the best model solution gained by the researcher in his attempt to develop scaffolding implementation model in metacognitively-oriented history teaching.

The theoretical model was then revised into an optimal model as the development of the model by droping some relational paths among scaffolding comprehension construct towards metacognitive construct. The droping was conducted on causality relationship path between scaffolding comprehension construct and the scaffolding development effort construct toward students' activity construct. Further, it was also conducted on the relationship between scaffolding development construct towards metacognitive construct. In general, there were three types of relationship dropped in this study since they had a low correlation coefficient and were insignificant. Compared to the theoretical model, the successfully generated optimal model tends to be more simply but has a more significant inter construct relationship. In this study, the researcher recommends the optimal model as the best model as scaffolding implementation model in metacognitively-oriented history teaching.

According to the developed optimal model, it can be clearly seen that the students' activities are important intermedia that contribute to students metacognitive. Metacognitive orientation as one of the objective of teaching should be supported by meaningful students' activities. Students' activities in this model were then considered as the reflection of scaffolding implementation conducted by teachers. Furthermore, the continuous implementation should be supported by the optimal scaffolding implementation of history teaching and by significant effort from history teachers to develop the scaffolding to be implemented in the class.

In line with the optimal model successfully developed from this study, there were some logical consequences pertaining to the scaffolding implementation in teaching (a) metacognitive orientation can be achieved maximally if the students activity in history teaching was optimal through the scaffolding implementation; (b) students' activity in history teaching was an important indicator in evaluating the scaffolding implementate by the history teacher; (c) The optimal scaffolding implementation should be supported by teachers' qualified scaffolding comprehension. The teachers' scaffolding comprehension was a requirement in the implementation; and (d) The optimal as well as innovative scaffolding also require development. The development was as of the development of technical, model or supporting scaffolding media.

The teachers' focus of the development was one of the important components in the scaffolding implementation in metacognitively-oriented history teaching. Teachers have a big responsibility to comprehend scaffolding in teaching, to appropriatetely implement scaffolding in the teaching, as well as to continuously try to develop scaffolding in the teaching. The concrete scaffolding used by the teachers really depends on the subject matter, students' characteristics, teaching media, and other aspects influencing the teaching process.

Conclusion

Based on the developed structural model and the data analysis, as well as the discussion, it can be concluded that:

1. Based on the optimal model, the changes on metacognitive construct can be explained positively by students' acitivity construct in history teaching

2. The changes of students' activity construct can be explained positively by the scaffolding implementation construct in history teaching.

3. The changes of scaffolding implementation construct can be explained positively by the scaffolding development effort construct and by the history teacers' scaffolding comprehension construct.

The development of history teachers' ability in scaffolding contexts is suggested to be one of the important componenets in the implementation of scaffolding in metacogntiive oriented history teaching. History teachers have a big responsible to comprehend scaffolding in teaching-learning, to implement it in the teaching, and are also suggested to continuously develop scaffolding in teaching-learning so that students can gain the metacogntive process as the learning achievement.

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