CONTEXTUAL GROUP GUIDED DISCOVERY LEARNING

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Abstract: Contextual Group Guided Discovery (CGGD) is a learning approach developed based on the philosophy of social-constructivist. This approach developed to support teacher in designing lesson with creating a learning environment that builds students competence required for 21st-century skills. We develop this learning approach by collaborating on principles of 1) contextual teaching, 2) Collaborative learning, and 3) Guided discovery learning. This learning approach developed using research and development (R&D) procedure of ADDIE (Dick & Carry, 1996). The result from our study is a syntax that describes all about CGGD learning approach.

Keywords: *social-constructivist, contextual teaching, collaborative learning, guided discovery*

1. Introduction

The 21st century learning emphasis the student to have competence called "21stcentury skills" *skills"* critical thinking, problem solving, communication and creativity (NEA, 2012). Therefore, teaching and learning process in the classroom should support students to improve their capacity that needed in this era. In fact, Today's education system faces irrelevance unless we bridge the gap between how students live and how they learn. Teaching approach commonly influence by the philosophy of constructivism view of learning. Constructivism is one of the dominant learning theories in educational research. constructivism emphasis that learners, through reflection, construct their own knowledge and understanding of relevant structures of meaning based on their experience and perception (Fenwick, 2000). Even though constructivism become the most domination learning philosophy influencing the learning paradigm critics arise from various studies. Studies from (Kirschner, Sweller, & Clark, 2006) based on empirical evidence during the last half century show consistently that learning based on the flow of constructivist (minimal guidance) is less effective and efficient compared to learning approaches that strongly emphasize the existence of guidance. for students during the learning process. Recently the idea of learning based on social constructivism has emerged as another alternative. Sociocultural theory views that learning is the result of the interaction between humans and representational objects in the learning environment (Goos, 2010) (Goos, 2010). The involvement of students with other students provides an opportunity for them to evaluate and improve their understanding as an exploration of their thinking about the views of others and as their participation in sharing understanding (Gauvain& Parke, 2010). Meanwhile, the role of the teacher in constructivism social view is as an adult who can provide assistance (scaffolding) to students in the learning process (Ormrod, 2012; Schunk, 2012; Santrock, 2011).Therefore, teaching and learning practice should create learning environment that support students as social member to improve their life skills.

2. Literature Review

The social constructivism theory of learning is greatly influenced by Lev Vygotsky (1987). He argued that learning happens when groups of individuals collaboratively construct knowledge and mutually share their knowledge and meaning (Matthews, 2000). Social constructivism views learning as a social process and thus meaningful learning happens when individuals engage in social activities. Some individuals might have knowledge but without sharing it with others through action, discussion or writing it carries no meaning. This sharing process will result in learners being able to examine other types of knowledge and subsequently examine their own perspectives (Banks, 1993). Hence, for knowledge to be successfully constructed, individuals do not only need to be able to demonstrate their knowledge to others but they also need to be able to negotiate with others concerning real understanding and meaning of the knowledge. Therefore, the context learning based on the sociocultural view is taking place in collaborative or group that possible to have interaction with other member in a group or class.

CTL is based on situated cognition research (Cobb & Bowers, 1999; Kumar & Voldrich, 1994) which has found that constructivist process such as critical thinking, inquiry learning, and problem solving should be situated in relevant physical, intellectual, and social contexts (Brown, 200; Cavallo, Miller & Saunders, 2002; Downing & Gifford, 1996; Driver, Asoko, Leach, Mortimer, & Scoot, 1994; Glynn & Duit, 1995).

Collaborative learning is an educational approach to teaching and learning that involves groups of students working together to solve a problem, complete a task, or create a product. According to Gerlach, "Collaborative learning is based on the idea that learning is a naturally social act in which the participants talk among themselves (Gerlach, 1994).

A constructivist view of learning is often thought of as an active process where the student is actively involved in the discovery of valued information (Mayer, 2004). In our daily lives, we may use a guided discovery process where learning is aided by hints, direction, feedback and other helpful information. However, when a priori information is absent, learning may occur through a different path. In a pure discovery learning situation, learning occurs with little or no guidance. Essentially, knowledge is obtained by practice or observation (Shrager&Klahr, 1983). One consistent finding is

guided discovery learning is superior to pure discovery learning (Mayer, 2004). Further, upon review of research literature, Mayer (2004)found little evidence that pure discovery learning has any value.

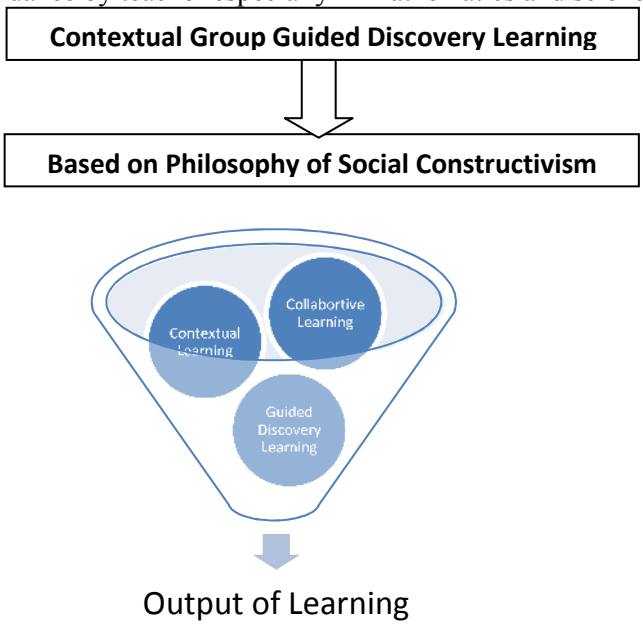
3. Research Method

This is a research and development (R&D) that purposes to develop a learning approach. The design of this research implements the ADDIE (Analysis, Design, Develop, Implementation and Evaluation). This ADDIE design develops by Dick & Carry (1996) for conducting instructional design. This model could be implemented to conduct the learning model, method, strategy, and learning media. This following the description of each process. First, Analysis, in this phase the main activities are looking for a need analysis that supports the importance to develop the learning model. The second process is designed, the design of learning approach conducted based on the result of need analysis. Third, Develop, the learning approach develops based on the design that conducted before. Then, Implementation, in this phase we implement the learning approach that conducted in a class then analyses the implementation of the learning approach based on student's achievement and teacher perception.

4. Result

Need analysis done by exploring facts in the field and literature review toward previous research that support and emphasis on the important teaching and learning based on sociocultural. The finding on the field analysis show at least three facts as follow:

- Teacher more enjoy to teach their students with conventional learning approach or classical lecturing.
- Teacher argue that teaching students with constructivism approach is difficult to implement in the primary school.
- Student often had a misconception or misunderstanding when they try to construct new knowledge without guidance by teacher especially in mathematics and science.



Picture 1. Design of CGGD Learning Approach

a. Development of CGGD Leaning Approach

1) Foundation of CGGD Learning Approach

The philosopical roots of this learning approach is *social constructivism*. S*ocial constructivist*emphasized on the context of social interaction in learning and the idea that knowledge construct and formed through mutual process. (Santrock, 2011). This perspective has strong relationship with social constructivism theory developed by Vygotsky.

Vygotsky theory commonly named as sociocultural theory, because those theory emphasized that thinking as a function from the interaction between social and culture (Snowman, McCown, & Biehler, 2012). Sociocultural theory view that learning is a result from interaction between people and things that representation in the learning environment (Goos, 2010). Students involvement with others give them chance to evaluate and change their understanding as a result thinking exploration about others view and as their participation in sharing knowledge (Guavain& Parke, 2010).

2) Component of CGGD Learning Approach

This approach has four components that support each other in the teaching and learning process. The four components are contextual teaching, collaborative learning and guided discovery learning. Contextual teaching, curriculum in some country emphasis on the important of learning in contextual situation (NCTM, 2000; ACARA, 2018). The important of learning contextually also showed in international assessment like Programe for International Students Assessment (PISA) and TIMSS (PISA, 2016). Therefore, learning process that contextually need to implement in the classroom teaching and learning.

- Contextual Teaching and Learning (CTL)

  CTLis a concept of teaching and learning that helps teacher relate subject matter content to real world situation; and motivates students to make connection between knowledge and its application to their real lives as family members, citizen, and workers and engage in the hard work that learning requires (Berns & Erickson, 2001). Sears (2003) stated that CTL rest on the following assumption, 1) Teaching and learning are interactional processes; 2) Teaching isn't happening if learning is not occurring; 3) Learning is a developmental process that takes place across the life span. CTL is based on situated cognition research.

- Collaborative learning

  Learning in social constructivism theory form through social interaction that including all of member in learning environment setting (Santrock, 2011; Gredler, 2009). Social interaction that happened in the learning process able to develop students' communication and collaboration skills. Lang & Evans (2006) explain that collaborative learning is an umbrella term thatincluded various interactive approach and methods for group work. Cooperativelearning is an aspect of collaborative learning that takes a very specialist approach togroup work".

- Guided discovery learning.

  The role of teachers is very important in providing motivation, guidance, and direction in discovery activities. Teacher's guidance is not a kind of rule that must be followed instead of the required work procedure direction. GDL is a learning model that requires students to be actively involved in learning by discovering and investigating their own knowledge that will be obtained through teacher guidance(Khasanah, Usodo, & Subanti, 2018).

3) Implementation of CGGD Learning Approach

Implementation of CGGD learning approach by considering the following rules:

- Deciding the learning goals. The learning goals should brief and measurable for the teacher.
- Conducting the apperception that will bring the topic into student's real life situation (Make topic to be contextual with students)
- Conducting the teaching and learning process

The teaching and learning process should base on the concept of contextual collaborative learning and guided discovery learning. Every activity in the learning process should contextual with students. The learning process should take place in form collaborative or group learning. Students' work to understand the concept by guidance of the teacher.

5. Conclusion

CGGD learning approach arise as solution to improve students' ability that needed in this era. Learning in the contextual setting will make learning more valuable for students. The process of learning in collaboration would more interactive for students. They could gather knowledge not only from the text books or teacher but they could have a sharing knowledge from the peers. Guidance from the teacher in discovery new concept or knowledge will avoid students from misconception or misunderstanding. Misconception often arise when student learning in less guidance from the teacher. Therefore, CGGD learning approach can be a solution for teacher in conducting lesson that supportive to students' needs.

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